



FALL 2025

The Bent

Of Tau Beta Pi

THE ENGINEERING HONOR SOCIETY

The Next Medical Revolution

Presenting the 2025
Awardees and Scholars



The Bent

Of

Tau Beta Pi

The Engineering Honor Society

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Member, *American Society for Engineering Education (ASEE)*;
co-founder, *Association of College Honor Societies (ACHS)*; and
Affiliate, *American Association for the Advancement of Science (AAAS)*.

On the COVER: An increasing number of biomedical engineers have shifted their focus to the human body, trying to repair or even create organs or influence biological processes with new materials.

For example, the Engler Lab at UC San Diego has developed a microfluidic device that sorts cancer cells based on their stickiness. Original image credit: David Baillot/UC San Diego.

Artist: Dali Polivka



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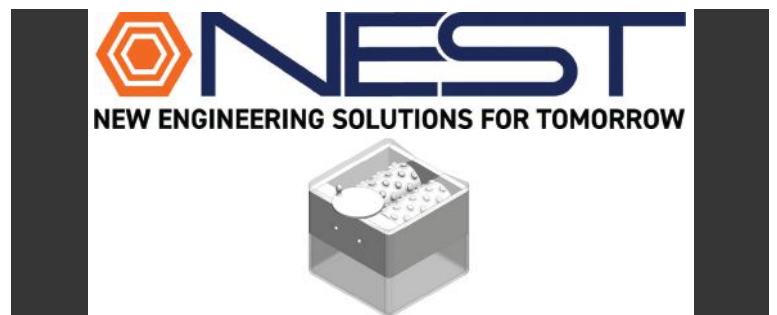
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COUNCIL'S CORNER

Thomas A. Pinkham IV, MA E '88, TBII Vice President

DEVELOPING A MARKETING PLAN FOR MEMBERSHIP

I am honored to serve as Vice President of Tau Beta Pi this year. Through my many interactions with Tau Bates, I continue to be inspired by the caliber of our new members. Their fresh energy has fueled my involvement as an Association District Director in New York for 30+ years, leading to my election to the Executive Council in 2024. Throughout my involvement, our Association has grown in number of chapters and membership. However, I see trouble on the horizon and feel a duty to act.

Recent challenges have tested our Association's strength. The disruptions of 2020 and 2021 undermined leadership continuity and the traditions of social and service activities that fostered a chapter culture of service, leadership, and camaraderie. Some chapters struggled to attract new members in this period and some continue to do so. In the coming years, this problem is poised to become much more difficult. The peak of high school graduations is estimated to be in 2025. Following this peak, we face what is known as the "demographic cliff," with high school graduations in 2041 projected to decline by 13 percent from 2023 levels.

Furthermore, today's students face numerous choices for their limited free time and money — resources we ask of them — and they seek clear benefits. Our members are exceptionally capable and discerning about time management and many are focused on personal preparation for post undergraduate careers. Engineering colleges offer professional societies, competitive teams, affinity groups, and other honor societies with benefits similar to Tau Beta Pi. If you ask your favorite AI about the benefits of membership in these organizations, you receive very similar responses.

The Association provides tremendous leadership development and networking opportunities to our exceptional members from all engineering disciplines. Our student members provide strong positive feedback on Engineering Futures sessions. This indicates that we have a great product that delivers value to members and we are working to scale in-person delivery to reach more students at campuses with relevant new information and training. The world needs our exceptional engineers, prepared with comprehensive technical, communications, and interpersonal abilities to be leaders in solving the problems of tomorrow! Secondly, we encourage collegiate chapter communication across majors and provide our leaders with further networking at annual District Conferences and local joint chapter activities. Alumni chapters also provide these opportunities and along with other volunteers support student leaders with the wisdom of experience.

We may not be communicating our membership value well enough to attract more than 17 percent of eligible students, on average. At two of the largest engineering colleges in the country, we have chapters consisting of 4.2 percent and 4.7 percent of the **eligible students** (Texas A&M and Purdue, respectively). One of our strategic goals is to increase this key membership ratio to 20 percent on average, but we should aim higher. Would you be satisfied with achieving only 20 percent of your potential? We have work to do to create a plan to achieve that goal with any certainty.

We have great programs that receive positive feedback from members, but many more could benefit. As such, we need a better Marketing Plan for Membership that reflects today's students' wants and needs.

An important ability is self-reflection and the capacity *to know what you don't know*. Tau Beta Pi has an abundance of engineering knowledge, but not much marketing experience. We must be open to the idea that what appealed to us 20 to 40 years ago will not attract today's students. **This highlights our marketing problem:** we don't fully understand our customers' decision-making process, and our unique value proposition for membership may lack clarity. Currently, the Association does not have the resources in-house to develop a marketing plan to attack this problem.

We need your expertise to develop our marketing plans. If you or someone you know has marketing experience, particularly in services, and is willing to assist our efforts to improve TBII's marketing to potential members, please contact me at: t.pinkham@tbp.org. We would be delighted to work with you to bring more deserving young engineers into the Association.

.....
TOM PINKHAM recently retired as strategic accounts manager for Kodak Moments, where he oversaw product delivery and operations, supporting customer's accounts for over \$100M in annual revenue in Europe. He earned a B.S. in electrical engineering from Northeastern University and attended IMD Business School in Lausanne, Switzerland. Tom has served as a District 2 Director since 1990, enjoys developing chapter and Association leaders, and has advised nearly every Convention committee.

YOUR LETTERS

Send letters to d.lane@tbp.org. Text may be edited for length and clarity; not all letters can be published.

FROM THE EDITOR

Dylan Lane

Book Excerpt

I read with interest the excerpt from Dr. Remondi's book entitled *What Good Is Math Anyway?* The section on pi as a parable got my attention. Dr. Remondi questioned the Biblical account of the "sea" in 1 Kings 7:23-26 with respect to pi. Below is my response to that portion.

We often round off our numbers. If an item sells for \$4.98, we may say it is a five-dollar item. This could be the possible answer for the account of the "sea." However, let's look at the account in detail for there is certainly a better interpretation.

Look at the actual words of this passage. Note that it was 10 cubits from rim to rim. The 30 cubits circumference appears to be related to the volume of the vessel. The depth of it follows the circumference. Then the volume is given. Also, the width of the wall is given and the wall's configuration is noted. The wall thickness was a handbreadth (3"). The configuration of the rim was that of a bloom opening outward (curving outward).

With three inches for the wall, one inch for the curve of the lip, and 18 inches for a cubit, from the inside of the wall to the outside edge of the rim would be 0.22 cubits. Subtracting 2×0.22 cubits from 10 cubits results in an inside diameter of 9.56 cubits. Limiting pi to three significant figures based on the numbers given in the passage and the mathematical norm, $9.56 \times 3.14 = 30.0$ cubits for the inside circumference.

When "rightly dividing the word of truth," the Biblical account of the "sea" appears to be amazingly accurate. Dr. Remondi is correct when he states, "the Bible does not claim that the ratio of the circumference of the circle to the diameter is exactly 3."

Frank J. Barton, P.E. (ret.), FL Γ '76

I was interested in the discussion of pi in the Bible when reading the excerpts from Dr. Remondi's book in the Spring issue.

Here's a link to an article from the Hakirah journal:

<https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://hakirah.org/Vol22Engelson.pdf&ved=2a-hUKewiWi5KkqQaNAxUuUKQEhURvJi0QF-noECB8QAQ&usq=A0vVaw0LIUF10qQuRwX6X-5nMG6mP>

In short Rabbi Eliyahu, the Vilna Gaon who was quite familiar with mathematics notes how a difference in what is written in Hebrew in the Book of Kings versus the way the word should be spelled according to its pronunciation (a topic called kri-ketiv if you're more interested) provides a ratio correction to the number 3 that then yields a value of 3.141509 which ends up with a difference of 0.00000083%!

So yes, while 3 is indeed a very good rough estimate for one doing work on the ground, the author of the Book of Kings (which is seen as divinely influenced and not dictated as in the case of the 5 books of Moses) was trying to encode mathematical wisdom into the text. If you're interested in the topic of mathematics and science encoded into books of Tanach, I would recommend you look into the works of Rabbi Yitzchak Ginsburgh. He has published several books (many in English) on this very subject.

Jonathan C. Silver, Ph.D., CT Γ '08

Ethel Ricker

I found the article by Megan Harrison entitled, "The Case of Ethel Ricker and Illinois Alpha" extremely interesting. The research carried out in composing this article is exceptional. Megan deserves special recognition for her outstanding work on behalf of the talented, deceased Ethel Ricker.

Stephen E. Callanen, PA Θ '63

The Editorial Staff apologizes for the following error:

In the Summer 2025 issue:

On page 12 of the TBP Fellows listing, Anna Guidry's graduate field of study was incorrectly reported. She's pursuing a Ph.D. in biomedical engineering at the University of Texas at Austin.

Anna earned her B.S. degree in biological engineering from Louisiana State Univ. in 2023, where she served as LA Alpha Chapter corresponding secretary.

Thank you to our readers for helping maintain the accuracy of the magazine. If you find an error or inconsistency, please email d.lane@tbp.org or call 865/546-4578.

Why Do We Call It a ...

I am a great fan of the series of articles titled "Why Do We Call It a ..."

Thank you for directing me to the website, where I can read all of the articles in the series.

I have downloaded them and can send them to my friends so that they too can become better informed. My wife has been hearing about these for years. I got the Ampere article to her today and she'll receive the other 15 in the series over time. She doesn't have a choice.

Terry R. Welf, MI Γ '70

WHO'S WHO IN TAU BETA PI

Recognizing Tau Bate accomplishments

Viola L. Acoff Ph.D.

Alabama Gamma '91

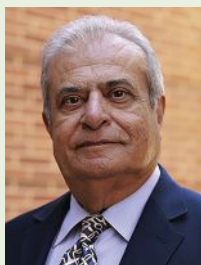
will become president of The Minerals, Metals & Materials Society (TMS) at the conclusion of their Annual Meeting in March 2026. She is currently in her first year of the TMS "presidential rotation" serving as society vice president. In her third year, Viola will serve as TMS past president. She's been involved as a TMS volunteer for 25+ years and was named the inaugural recipient of the Ellen Swallow Richards Diversity Award in 2014.



Asad M. Madni Ph.D.

California Epsilon '69

was chosen as an Honorary Fellow of the Royal Society of Edinburgh, Scotland's National Academy, for his trailblazing work on GyroChip — a life-saving sensing technology that revolutionized navigation and stability for aerospace and automotive safety systems. He is a distinguished adjunct professor of electrical & computer engineering at UCLA and a TBII McDonald Mentor (2022) and Distinguished Alumnus (2014).



Henry Samueli Ph.D.

California Epsilon '75

was awarded the 2025 IEEE Medal of Honor "for his work in broadband communication and networking technologies, as well as his support for education in the fields of science, technology, engineering, and math." Chairman of Broadcom Inc., he will receive a \$2 million prize as part of the society's top award. Henry is a pioneering inventor, entrepreneur, and philanthropic supporter of UCLA, as a three-time EE degree alumnus.



Jeffrey T. Warfford Ph.D.

North Carolina Alpha '86

was named a Fellow of the American Society of Mechanical Engineers (ASME). He is an associate professor in the department of mechanical engineering at Virginia Tech. Before joining academia, Jeffrey worked for nearly 30 years in materials science and automobile eng'g at Volvo and Michelin, where he was recognized with the company's Industrial Quality & RDI Schools Instructor Excellence Award in 2016 and 2018.



The American Institute for Medical and Biological Engineering (AIMBE) announced the election of 163 new members of the AIMBE College of Fellows in recognition of distinguished and continuing achievements. Election is among the highest professional distinctions accorded to medical & biological engineers, comprised of the top two percent in these fields. The following Tau Bates are part of the 2025 class:

Jeffrey Bischoff Ph.D., *NC G '95*

Caroline Cao Ph.D., *OH M '02*

John Dabiri Ph.D., *NJ D '01*

Eric Diebold Ph.D., *NC G '04*

Sheila Gujrathi M.D., *IL G '92*

Grace Hwang Ph.D., *MA E '96*

Christine King Ph.D., *NYX '08*

Melissa Krebs Ph.D., *NYK '02*

Joseph Le Doux Ph.D., *NYD '86*

Chi Hwan Lee Ph.D., *IL B '07*

Jonathan Liu Ph.D., *NJ D '99*

Kristin Myers Ph.D., *MI G '02*

Zoran Nenadic D.Sc., *CA T '95*

Jeffrey Palmer Ph.D., *NMA '94*

Mark Rentschler Ph.D., *NEA '01*

Diego Rey Ph.D., *CA S '04*

Jonathan Rivnay Ph.D., *NYD '06*

Christopher Rozell Ph.D., *MI G '00*

Sridevi Sarma Ph.D., *NYD '94*

Krystyn Van Vliet Ph.D., *RIA '98*

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

In March, the AAAS announced its 2024 class of Fellows, which included 471 new members added to the Fellows Program. Below are several of the known Tau Bates who were elected.

Cynthia Breazeal Sc.D., *CA S '89*
MIT, Education Section

Barbara Oakley Ph.D., P.E., *MI Q '77*
Oakland Univ., Education Section

Chaouki Abdallah Ph.D., *OH L '81*
Georgia Tech, Engineering Section

Michael Branicky Sc.D., P.E., *OH A '87*
Univ. of Kansas, Engineering Section

Mark Daskin Ph.D., *MA B '78*
Univ. of Michigan, Engineering Section

Patrick Hopkins Ph.D., *VA A '04*
Univ. of Virginia, Engineering Section

Kenneth Lutchen Ph.D., *VA A '77*
Boston Univ., Engineering Section

Lance Pérez Ph.D., *NEA '87*
Univ. of Nebraska, Engineering Section

Krista Walton Ph.D., *AL D '00*
NC State Univ., Engineering Section

Sylvia Thomas Ph.D., *FL G '88*
Georgia Tech, Engineering Section

Chee Wei Wong Sc.D., *CA A '99*
UCLA, Engineering Section

Berrin Tansel Ph.D., P.E., *FL Q '78*
FIU, General Interest Science & Eng'g



Executive Council CANDIDATES

The Executive Council is our board of directors consisting of nine members who are alumni and serve a three-year term. The Executive Council names its own officers: *Chair*, who is also President of the Association; *Vice Chair*, who is also Vice President; *Secretary*, *Treasurer*, and five *Councillors*.

In accord with the Constitution, three members of the Executive Council are elected to three-year terms by the Convention each year. The terms of President Marla A. Peterson and Councillors Rachel K. Alexander & Michael J. Hand expire on December 31, 2025. In response to the call for candidates, the following individuals were nominated.



JOSEPH P. BLACKFORD

DEN DC GAMMA '95

Nominated by the Kansas Gamma Chapter. J.P. has a B.S. degree in civil engineering and a master's degree in environmental engineering from George Washington University (GW).

He is an associate professor of engineering & applied science and assistant director of operations at GW. J.P. has been at GW

since 2013, initially serving as director of doctoral programs for the GW Online Engineering Programs. Previously, J.P. worked as a senior environmental services engineer at American Public Power Association.

As a student, J.P. held all major leadership roles within the DC Gamma Chapter, including president, vice president, and secretary. He also served as a District 4 Director from 2019-25, and is currently an Engineering Futures Facilitator since 2003.

In 2014, J.P. was elected to serve a four-year term on the Association's Executive Council. This included a two-year term as president of Tau Beta Pi, followed by a two-year term as an Executive Council Liaison. J.P. has attended many of the Association's annual Conventions and played an integral role in making key updates to the Constitution & Bylaws.



STEVE E. WATKINS Ph.D.

MISSOURI BETA '83

Nominated by the Missouri Beta Chapter. Steve earned three electrical engineering degrees: his B.S. and M.S. from the University of Missouri-Rolla and Ph.D. from the University of Texas at Austin.

He joined UMR (Missouri S&T) in 1983 and is now an ECE professor. Steve has been an advisor to the MO Beta Chapter

since 2014 and Chief Advisor since 2020. The chapter is active in eminent engineer inductions and hosted the 2025 District 9 Conference. He attended the 2018 Convention as a professional development speaker, volunteers as a TBII Scholarship reviewer, and was selected as the 2024 McDonald Mentor.

Steve held governance positions in the IEEE Education Society, and is a founding member of the editorial board for the IEEE Teaching Excellence Hub. His technical interests are smart structures, sensing systems, and engineering education. An IEEE-USA Congressional Fellow, Steve was previously a Distinguished Visiting Professor at the U.S. Air Force Academy and a visiting scholar at the Basic Research Labs of NTT in Japan.

Steve enjoys pre-college outreach and champions professional development opportunities within the engineering community. As a Councillor, he's interested in the development activities of chapters and transitioning members from students to professionals.



MARLA A. PETERSON

ARIZONA ALPHA '83

Nominated by the Arizona Alpha Chapter. Marla earned a B.S. in systems engineering from the University of Arizona (UofA), where she served as AZ Alpha Chapter vice president for two years.

She initially joined Garrett, now Honeywell, and refined her love of technology and efficiencies by becoming a Six Sigma Black

Belt, Lean Expert, and Lean Master. Marla retired from Honeywell Aerospace in March 2024, most recently working as a senior technical manager for Continuous Improvement. She's been dedicated to aerospace product excellence for 41+ years and held various leadership positions.

She is a founding member of the Engineering & Technology Diversity Council and Women in Honeywell network. Marla is a SWE Life member, sits on the UofA College of Engineering Dean's Advisory Board, and the UofA Systems Engineering Advisory Council.

Marla was elected to the TBII Executive Council in 2022 and served as vice president (2024) and president (2025). She's a member of the UofA Systems and Industrial Engineering Advisory Council, was Chairwoman of the UofA Phoenix Alumni Board Scholarship Committee (12 years), and served as president of the UofA Maricopa County Engineering Alumni Board.



CAMERON H. G. WRIGHT

Ph.D., P.E. LOUISIANA GAMMA '83

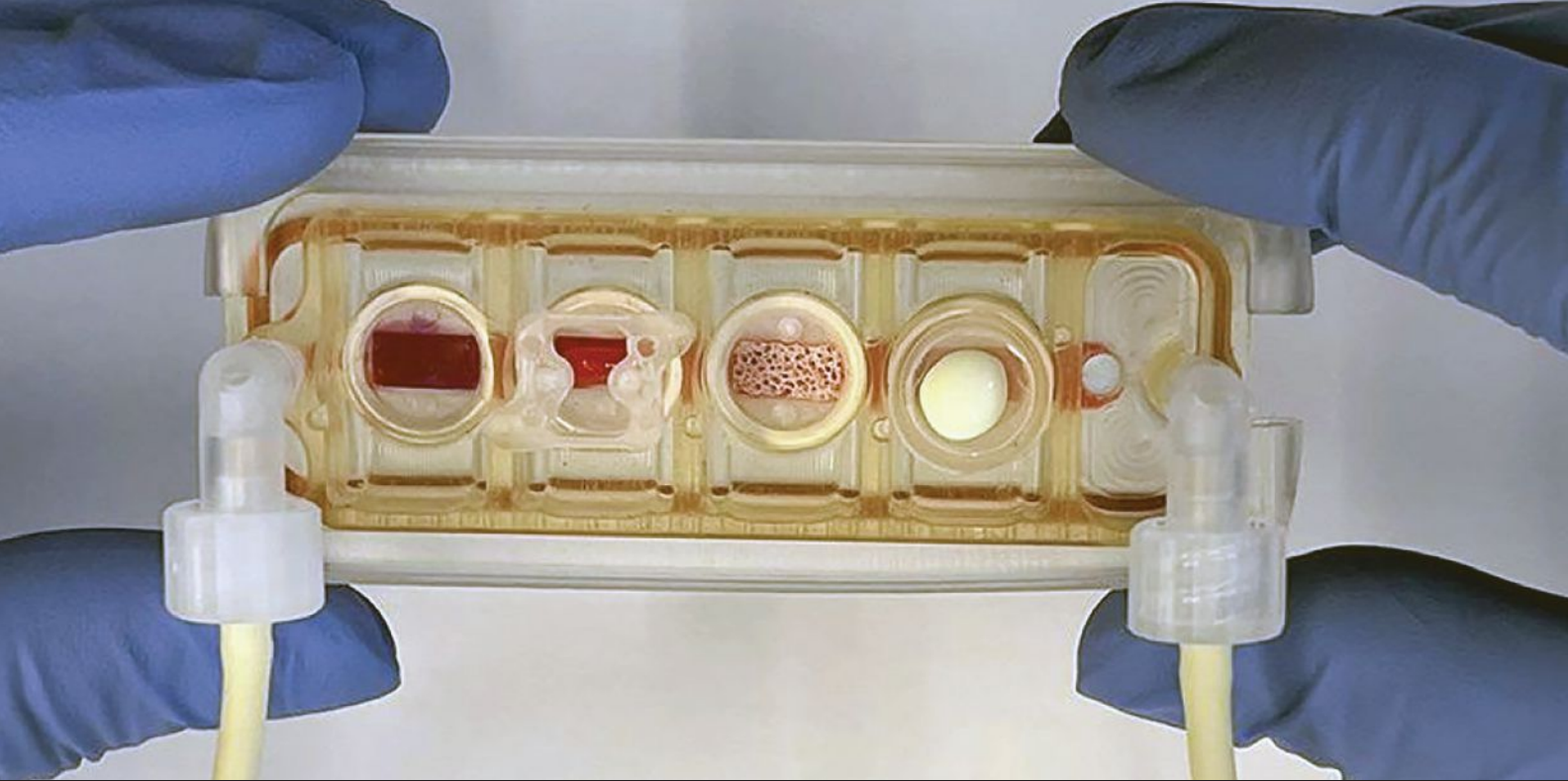
Nominated by the Wyoming Alpha Chapter. Cameron has electrical engineering degrees from Louisiana Tech University (B.S.), Purdue University (M.S.), and the University of Texas at Austin (Ph.D.).

He was the inaugural Dean, College of Engineering and Physical Sciences at the University of Wyoming (UW), serving from

2019-25, and recently returned to his faculty role. Before joining UW in 2003, Cameron was an EE faculty member and deputy department head with the U.S. Air Force Academy, an R&D engineering officer with the U.S. Air Force, and worked in covert intelligence operations & analysis with the U.S. Navy. Altogether, he served for 30 years in the U.S. military before moving to civilian academia.

His areas of expertise include image/signal processing, biomedical instrumentation, real-time embedded computer systems, and wireless/satellite communications. He's the author or co-author of 260+ publications, several books, and book chapters. A licensed Professional Engineer in California and Wyoming, he has consulted in multiple cases as an expert witness in federal court.

Cameron would bring extensive Tau Beta Pi expertise to the Council, having served as Colorado Zeta Chapter Chief Advisor (1999-2002), at the U.S. Air Force Academy, and as a WY Alpha Chapter Advisor since 2003.



Biomedical Engineering: The Next Medical Revolution

BY ALAN S. BROWN

From artificial cartilage to new ways to revive muscle after a heart attack, engineers are creating new ways to diagnose and treat disease — if their funding holds.

THE BACKSTORY

One warm August night, David Murphy returned home with his family and was shot three times by a burglar. One bullet ripped through his thigh, slicing his sciatic nerve. Unable to control his leg and foot muscles, he fell to the ground and crawled under a car to escape the shooter until the police arrived.

Emergency room surgeons quickly dealt with the wounds, but the severed nerve caused Murphy intense pain. It never went away and got worse at night when he tried to sleep. Three months later, physicians referred Murphy to Greg Kolovich, MD, a peripheral nerve surgeon based in nearby Savannah.

Dr. Kolovich was not surprised by the delay. “Nerves don’t regenerate,” he said. “So, there’s a high proportion of surgeons, physicians, and providers who think that there is nothing you can do.”

Kolovich’s first goal was to treat Murphy’s pain. The sciatic nerve is the body’s largest nerve, about as thick as a thumb.

When cut, the nerves at the ends knot themselves into a ball.

“Think of the nerves as a live wire,” Kolovich said. “They were sending out signals into that ball of nerves, electrocuting and shocking him nonstop. It was unrelenting, unforgiving pain. When he came to see me, he couldn’t sit down. He was sweating and pacing around the room in a brace.”

Yet, Kolovich saw an opportunity to do more than unknot the neurons and relieve the pain; he thought he could rebuild the nerve.

This had been done before using an autograft. It involves removing a section of a patient’s nerve (often the sural nerve alongside the Achilles tendon) and sewing it to bridge the gap between the two damaged nerve ends.

But this posed two problems: first, it would leave Murphy without sensation near his Achilles tendon. Second, the sural nerve is too thin to work well with the sciatic nerve.

Kolovich, however, had something else in mind — an experimental treatment based on the Avance allograft. It uses a nerve harvested from a cadaver and treated to remove all organic content — cells, fats, and blood vessels — so that the body’s immune system does not attack it. The porous tubular extracellular matrix that remains is a perfect environment for nerve growth.

Allografts (**Figure 1**) are easier to use than autografts. They come in a variety of sizes and can be frozen until needed. Operations are much shorter since there is no need to first harvest nerves from another part of the body.

In surgery, Kolovich cut the sciatic allograft to the correct size (**Figure 2**). Using a microscope, he sewed bundles of sciatic nerves into the allograft using thread thinner than an eyelash. Then he wrapped everything to protect it.

“If you do everything right,” Kolovich said, “the nerves will start growing about one millimeter per day.”

Within weeks, Murphy was off pain meds. He returned to his job as a forklift operator, which involved constant use of his feet. One year later, he was walking; now he is running. “It’s like it never happened,” Kolovich said.

Since then, Kolovich has done thousands of allograft surgeries. Altogether, clinicians have performed more than 100,000 Avance procedures. This is likely to grow even faster since a report found that Avance allografts performed as well as autografts.

Allografts are just one of a new wave of startling advances emerging from biomedical engineering labs. They range from artificial cartilage and heart muscle — two tissues that do not regenerate in the body — to a technique to regrow bladder tissue on an artificial surface. They include new diagnostics, new medicines, and chip-grown kidneys, livers, and hearts that are changing the game in research and drug testing.

Engineers are still perfecting some breakthroughs in their labs but others have already moved into clinical trials and commercial use. They herald revolutionary changes in medicine. Yet many unanswered questions remain about the research — and the funding needed to move it forward.



Figure 1: The Avance allograft. Credit: Christine Schmidt Lab, Univ. of Florida.

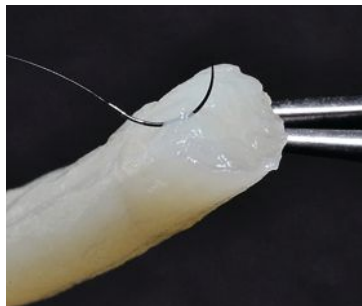
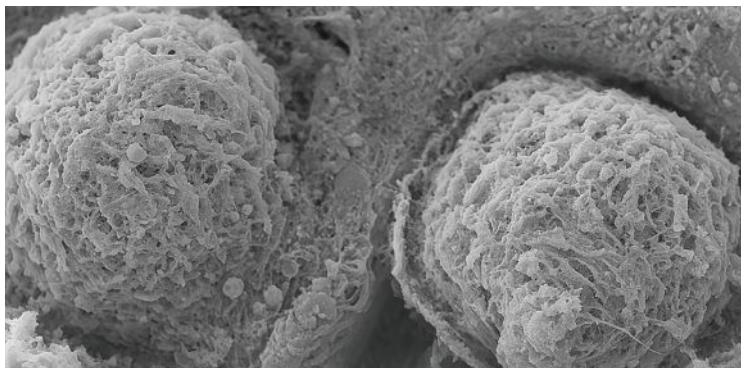


Figure 2: The Avance allograft. Credit: Axogen.



AI-generated image of a donor nerve before neurons and organic material are removed. Credit: Alan S. Brown.

AN EMERGING FIELD

Biomedical engineering is not new. The University of Pennsylvania launched the first academic program 100 years ago. By the 1970s, several universities had followed suit. Most early bioengineers, however, taught themselves and teamed with health professionals. Their collaborations ushered in devices ranging from lightweight prosthetics and hip and knee implants to heart pacemakers, hearing aids, and hospital monitoring equipment.

Many biomedical engineers continue to push boundaries in similar fields. Yet, an increasing number have shifted their focus to the human body, trying to repair or even create organs or influence biological processes with new materials or microscale and nanoscale devices.

New technologies make it possible to surmount barriers that once seemed impossible. Many grew out of biomedical research. Today, for example, researchers can map the surfaces of tumors and diseases. They can find proteins that grow only on specific cells and test thousands of drug variants for activity using high-throughput screening. And they can modify DNA and RNA to study or fight disease or improve a body’s function.

In addition to medical research tools, biomedical engineers have developed their own unique toolkits. They can, for example, use 3D printing and advanced bioreactors to grow thin slivers of heart, kidney, liver, and other organ tissues. They are realistic enough to run experiments to nail down the molecular pathways that define a healthy organ or the progress of a disease.

And everywhere, advanced computation and artificial intelligence are helping to illuminate, model and envision molecules, and target incredibly complex living systems.

Biomedical engineers also use tools differently than biologists or medical researchers, said **Tejal A. Desai, Ph.D., RIA ’94**, dean of engineering and a noted biomedical engineer at Brown University.

“They approach biological problems with an engineering mindset,” she said. “They are interested in running controlled experiments to see how things connect with each other and then putting those pieces together to come up with a solution.”

They also learn and apply their craft differently, said **Guillermo A. Ameer, D.Sc., TXA ’93**, Director of the Center for Advanced Regenerative Engineering at Northwestern University. Today’s learning emphasizes convergence research, the deep integration of knowledge and methodology from fields that are not usually related.

“This is different than interdisciplinary research, which is more of a conveyor belt approach, where you work on your part of a problem and your collaborators work on their part,” he explained.

“In convergence research, that knowledge is intertwined. It enables us to work on challenges that seem too big to solve by understanding their pain points from different points of view. You embed yourself in two fields that appear to be separate but are not as long as you bring them together yourself. For example, you might study the structure of butterfly or cicada wings to see how their surface prevents bacterial infections. This creates entirely new areas of study.”

Over the past decade, these changes have created a young and highly diverse discipline, one in which women account for slightly more than half of all undergraduates and master's candidates. It is a field that has begun to make a difference in how medicine gets done.

BUILDING CARTILAGE

From the start, researchers interested in regenerating body parts targeted cartilage. Strong, flexible, and incredibly durable, this connective tissue acts as a shock absorber in joints. As any athlete will tell you, damaged cartilage does not heal, so synthetic cartilage would be valuable.

Cartilage seemed like an easy lift. It absorbs oxygen and nutrients from surrounding tissues without hard-to-make blood vessels. Also, the immune system does not usually recognize and attack cartilage implants as a foreign object. This is why an early 1990s paper on tissue engineering in the prestigious journal, *Science*, tagged cartilage as low-hanging fruit for tissue synthesis.

"Twenty years later, we wrote a paper and in the second sentence we said, 'Cartilage ain't low-hanging,'" said Kyriacos Athanasiou, a well-known biomedical entrepreneur and distinguished professor at the University of California, Irvine. Originally a mechanical engineering student, he shifted to biomedical engineering in college and focused on the musculoskeletal system because of its mechanical nature.

Now, 20 years after his paper on cartilage, his group "can fabricate cartilage in a lab that is almost indistinguishable from native tissue," Athanasiou said. He has spun out a company, Cartilage, Inc., to grow massive amounts of cartilage cells. It is testing the cartilage on animals and plans to begin human testing in 2026.

Like many innovations, Athanasiou's journey began with a failed experiment. Twenty-five years ago, engineers were trying to grow cartilage on scaffolds, artificial versions of the body's extracellular matrix (ECM). The scaffolds provide support, mechanical prompts, and growth chemicals that help cartilage cells thrive and form tissue.

Unfortunately, ECM did not work well with cartilage cells. The cells sought to minimize their free energy by attaching themselves to scaffolds or other surfaces. As soon as their free energy dropped, they transformed into other types of cells.

One day, a graduate student asked Athanasiou to look at a scaffold that had failed to produce cartilage. Under a microscope, there was a small line of tissue outside the scaffold. When asked, the student said it was cartilage. Athanasiou realized immediately that there must be a way to grow cartilage without a scaffold.

It took 25 years. Athanasiou's first step was to build a bioreactor that could suspend the cells, so they expended their free energy by interacting with one another to form tissue rather than clinging to a surface.

"We put them in molds and exercise them by controlling pressure and nutrient media flow so that they produce the right combination of proteins and sugars," Athanasiou said.

The self-assembly process, he said, creates an environment similar to the one that forms cartilage in embryos. It enables Athanasiou to start with one cubed centimeter of cartilage cells and make enough 10 mm x 1 mm thick patches for 35 million patients. That will create new ways to treat injuries of the knee, hip, spine, nose, and jaw, he says.

HARNESSING MECHANICAL FORCES

Biologists never suspected mechanical forces shaped cell and tissue development until researchers like Athanasiou began running controlled tests on artificial tissues. Today, many biomedical engineers believe manipulating those forces could open new doors in medicine.

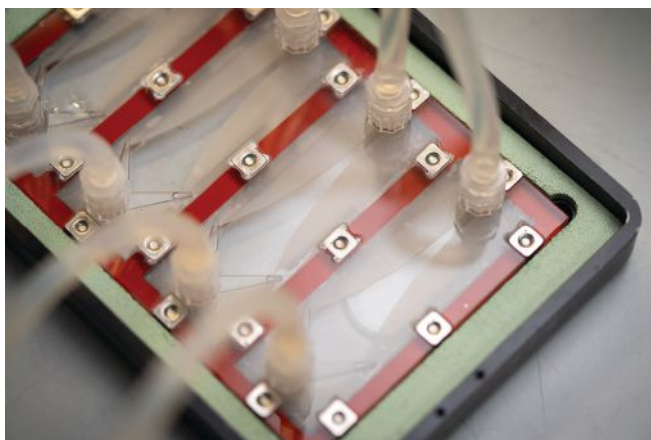
One of them is Adam Engler, Chair of the University of California San Diego's Department of Bioengineering. He had planned to become a pediatrician until he was "bitten by the lab bug" as an undergraduate. As a doctoral student, he learned to build ECM environments to study how muscle cells behaved in muscular dystrophy.

When he applied what he'd learned to stem cells, he found they responded to mechanical prompts. "If you put these cells in a soft microenvironment, they grow fat and turn into neurons," Engler explained. "Make it stiff and they form muscle. Make it even stiffer and they become bone. The stem cells don't have a preference. They just react to the environment and differentiate without any biochemical growth factors around."

Engler continued to probe how tissues' mechanical properties interacted with other biochemicals in the body to influence cell behavior. In 2010, his work pulled him into a government-supported cancer research program.



Based on cartilage implants in large animal models, Kyriacos Athanasiou has shown he can heal certain types of jaw diseases that cause pain and difficulties in talking and eating. Credit: Steven Zylius, University of California, Irvine.



A close-up of the tools used to measure cancer cells' stickiness in the Engler Lab at UCSD. Credit: David Baillet/UC San Diego Jacobs School of Engineering.

“We postulated that there should be physical markers when cancer spreads,” Engler said. “In solid tumors, a cell has to detach. It must migrate through a stiff tumor and punch through a soft blood vessel to access the bloodstream. Then, it must do the opposite when it reaches its destination so it can begin to proliferate. That process is extremely physical.”

Almost all body cells prefer to migrate from soft to stiff tissue. Through a series of controlled experiments, Engler showed that cancer cells are the exception; they move from stiff to soft. While this made sense, no one had ever run the experiments to prove it before.

Quantifying this movement enabled him to show that some drugs influence cell migration. But which ones worked best?

To find out, Engler tested migration growing cancer cells on artificial scaffolds the size of a quarter. He could test six at once, far too few to query the millions of molecules pharmaceutical companies kept in their libraries. To speed this search, he invented a way to make pencil head-sized scaffolds so he could screen 96 of them at a time. The technique makes high-throughput drug screening possible for other types of human organoids as well. He plans to commercialize the technology through a spinoff company later this year.

At the same time, Engler continued to search for biomarkers that could warn physicians that a tumor was likely to enter the bloodstream and metastasize. Most researchers were looking for clues among biochemicals associated with cancer, but each cancer had its own unique set of molecules.

Engler wanted a more general marker. So, he studied how cancer cells break away from the tumor. Eventually, he hit on a physical property that defined this behavior — stickiness.

“If cancer cells are too sticky, they attach to the matrix and don’t move,” he explained. “If they are not sticky enough, they cannot pull themselves through the ropelike ECM. But if they are optimally adhesive, then we should worry.”

Engler carefully measured cancer cell stickiness to predict their behavior. His predictions matched with clinical measurements and may one day provide physicians with a new tool to diagnose the danger of metastasis.

“Today, medicine will tell you to treat similar tumors the same way,” he said. “This extra data point gives physicians more confidence in treating you aggressively if cells are in that optimal range or less aggressively if they are not.”

UNLOCKING MICRO/NANO RESPONSES

Brown’s Desai also embraces mechanical forces, but in a very different way. Her goal is to use material microstructures and nanostructures to manipulate cells and tissues.

“These are not like the passive systems used to get direct medicine somewhere,” she explained. “Instead, they are designed to interact with tissues in order to cause their cells to remodel or regenerate or heal.”

One example involves cardiomyocytes, the cells that power heart contractions. Heart attacks may scar those muscles and keep them from contracting.

Scarring keeps cardiomyocytes from regenerating. But applying physical forces may prompt those cells to heal.

“We’re giving them a workout,” she said. “We squeeze and stretch them and do things that prevent them from scarring and becoming useless. We don’t need a medicine if we can create a material with the right properties.”

She often screens materials to see how they interact with tissues and the immune system. “Some architectures can prevent the body from generating excess scar tissue, while others can call in immune cells to clear systems or deposit things,” she said. “We think this is an interesting way of changing the behavior of cells implicated in diseases.”

“We can also mimic how nature accomplishes certain tasks. We could, for example, use gecko-like nanostructures to get drugs to stick in certain parts of the body. Or, we can copy the spiky structures that viruses use to cross certain types of barriers and use them to cross into the intestinal system.”

Desai’s work led her to study the properties of long, high-aspect-ratio particles roughly 200 nanometers in diameter and 1,000 to 10,000 nanometers long.

These polymers have a surprising property – they moderate immune response. Most foreign particles in the body trigger an immune response. High-aspect-ratio molecules, on the other hand, signal hormones to slow it down. The effect is powerful but very local since their log-like shape locks them into place. Desai believes that physicians could one day use these physical prompts to counter autoimmune diseases, injecting them into the pancreas to fight diabetes, under the skin to treat psoriasis, or into joints to reduce rheumatoid arthritis.

“HIGH ASPECT-RATIO MOLECULES SIGNAL HORMONES TO SLOW IT DOWN. DESAI BELIEVES THAT PHYSICIANS COULD ONE DAY USE THESE PHYSICAL PROMPTS TO COUNTER AUTOIMMUNE DISEASES, INJECTING THEM INTO THE PANCREAS TO FIGHT DIABETES OR JOINTS TO REDUCE RHEUMATOID ARTHRITIS.”

She has also developed a soft gel that slowly releases insulin to diabetic patients. Others have tried to infiltrate insulin through porous materials but failed. The problem, Desai said, is that gels could not maintain the pore sizes needed to screen out immune cells while harder materials were quickly attacked and blocked by immune cells.

Desai's group solved the problem by growing oxide nanostructures—they look like blades of grass—through a gel dome and then dissolving them chemically. This leaves behind a well-structured system of pores. Her group spun off a company, Encellin, to commercialize the technology.

BUTTRESSING BONES AND BLADDERS

Many of these advances are made possible by our improved ability to grow realistic organoids. They let researchers run controlled experiments, rather than try to focus on a particular biochemical pathway while screening out the noise of billions or even trillions of other biochemical interactions that are always going on in living animals.

As a result, they make it possible to study the precise mechanisms of biological pathways under controlled conditions. They enable drug companies to test medications on human tissue, improving the probability that it will work on people. One day, organoids grown from a patient's own stem cells could help physicians determine the best cancer treatment for his or her specific genetic makeup.

Today, biomedical engineers build organoids on very thin scaffolds. This is because researchers have not yet discovered how to grow blood vessels that could deliver oxygen and nutrients to a thicker sample. This limits the type of cells they can grow and the realism of the response.

Yet, even this barrier is crumbling. Researchers have made significant progress growing blood vessels and may one day grow complete organs for replacement from a patient's own stem cells.

Of course, organs interact with one another in healthy and diseased bodies. To understand how, researchers must work out how they communicate with one another by biochemicals moving through blood, lymph, the immune system, and more.

This is already leading to surprises. At Columbia University, Gordana Vunjak-Novakovic has engineered bone tissue that generates its own immune cells. This enables her to study interactions between bone and breast cancer. One startling result – breast cancer cells can suppress the immune response of bone marrow tissue.

Meanwhile, others, like Northwestern's Ameer, are searching for ways to leave behind artificial scaffolds. As a graduate student at MIT, he began looking for synthetic materials that emulate the stretchiness of the lungs and skin but are easier and cheaper to make.

He found what he was looking for in polydiolcitrate, a material with three end groups that crosslinked easily with one another to form materials that could range from elastic to solid. Based on citric acid, which gives lemons and limes their bite, the polymer was biocompatible and biodegradable.

Polydiolcitrate also stabilizes hydroxyapatite, a mineral that gives bone its strength and stores most of the body's citric acid. That got Ameer thinking about fixation screws and anchors used for reattaching ligaments or muscle to bone.

“The citric acid is like an energy bar for bone cells,” he says. “As the polymer degrades, it releases citric acid, which speeds up bone healing without any need for growth promoters.”

Polydiolcitrates worked fast and investigators soon discovered that they had antioxidant properties that suppressed inflammation and reduced complications after surgery.

Now, Ameer's team is using the same family of polymers to create grooved ECMs that can support bladder tissue growth. “The matrix is similar to what bladder tissue wants,” Ameer said. “This could lead to a new way to treat diabetes and pancreatitis. And they seem to last. We have implanted them in baboons two years ago, and they continue to do well.”

AN UNCERTAIN FUTURE

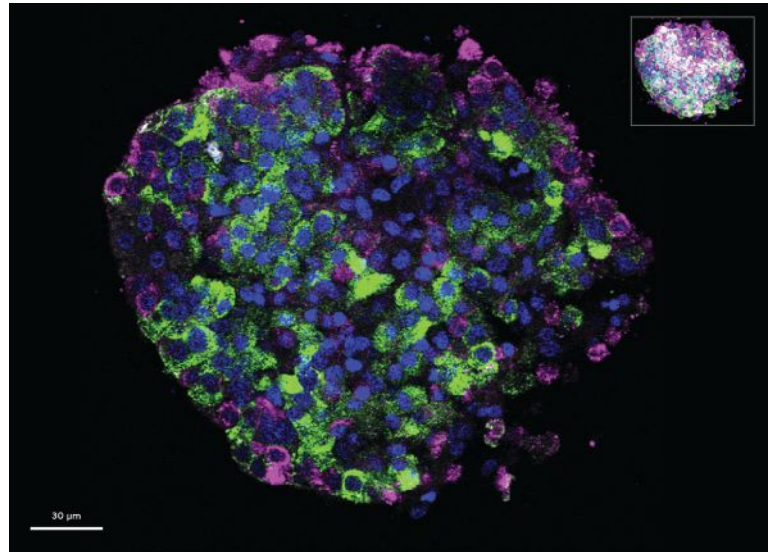
This is a tantalizing and hopeful picture. But progress is not assured. Reductions in government research funding have hit biomedical engineers hard.

“A lot depends on being funded in a way that we can make mistakes because there are always more mistakes than not,” Engler said.

Desai agrees, “There is a lot of uncertainty. It's going to be hard to support our lab and people and to move things forward without federal funding. We're not going to take the risks we want to take because we don't know ahead of time what is going to work.”

Top Right: An image showing some of the chemistry that allows slow-release of insulin and other hormones (Desai).
Credit: Excellin.

Middle and Bottom Right: Image of bladder growth in Ameer Desai's novel-scaffolding-biomaterial, which improves bladder regeneration and body function.
Credit: Rebecca Keate.



Ameer's Center for Advanced Regenerative Engineering has 35 members, but his donors cannot fund all his research programs. The decline in funding will make a difference.

"My colleagues and I go to meetings around the world," he said. "The only reason U.S. researchers are different from those in other countries is that we have high levels of funding. If that funding goes away, we'll be like anybody else."

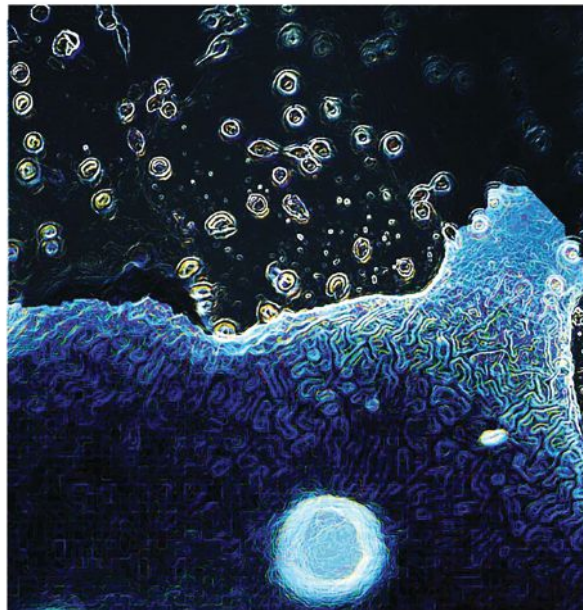
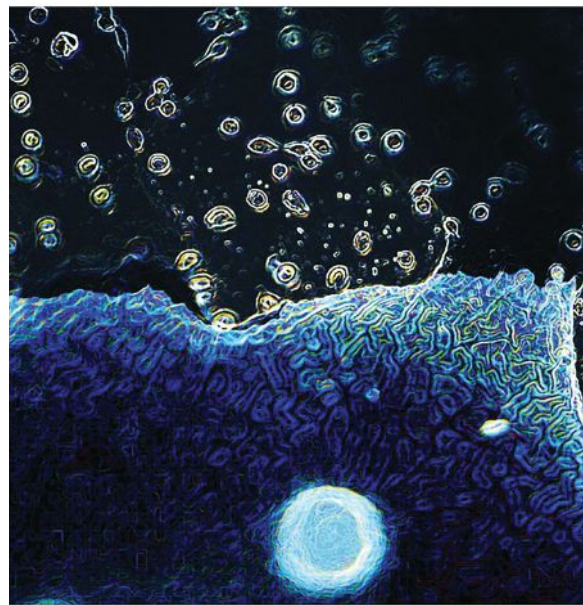
He hesitated for a moment, then added, "It's important to have those grants. I'm against waste, just like everyone else. But we don't want to cut the type of grants that are enabling us to create entirely new industries."

Athanasίου, an accomplished entrepreneur, remains optimistic. "I'm hoping it is a temporary situation," he said. "I don't think anybody in their right mind would support permanent cuts."

Hopefully, he is right. A future revolution in medical care might depend on it.

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ALAN S. BROWN has written broadly about engineering, technology, and science for more than 30 years. He is a board member of Science Writers in New York, a writer for The Kavli Foundation, a former senior editor of ASME's *Mechanical Engineering* magazine, and contributes to a wide range of publications. He graduated *magna cum laude* in 1974 from Hofstra University and can be reached at: insight01@verizon.net.

Hero Image on page 6: Columbia University's Gordana Vunjak-Novakovic developed a chip that links multiple organoids via blood flow to study how the liver, heart, bone, and skin respond to one another and disease. Photo credit: Kacey Ronaldson-Bouchard/Columbia Engineering.



Association Awards

★ Laureates

Five Laureates have been selected in the 42nd year of Tau Beta Pi's annual program to recognize gifted engineering students who have excelled in areas beyond their technical majors. Award categories include arts, athletics, diverse achievements, and service. Recipients will receive a \$2,500 cash award and a commemorative plaque. This year's Laureates bring the total number of Tau Bates to 131 since the program began in 1982.



ANNALIESE M. BRAUCHT

SOUTH DAKOTA ALPHA '25

Annaliese has been selected as a **2025 TBP Laureate** for achievements in the arts. She's pursuing a double major in biomedical engineering and biology (pre-med) at the South Dakota School of Mines & Technology.

Throughout her youth, Annaliese expressed her love of music through dancing, playing musical instruments, and singing in choirs. An advocate for the intersection of fine arts and engineering, she has consistently demonstrated a commitment to fostering creativity and artistic expression in her academic journey. Annaliese is a piano teacher and dance instructor, using her expertise to inspire and advance STEAM education. Her artistic experience includes piano competitions, dancing professionally in Canada and Michigan, and serving as captain of the Hotrockers Dance Team at SD Mines. Soon after joining the SD Alpha Chapter, she was elected vice president and has served two consecutive terms. Most notably her tenure included the planning and execution of the 2024 TBPI Convention in which Annaliese was involved in logistics, alumni outreach, event coordination, and hosted one of the evening banquets with 400+ guests. At SD Mines, Annaliese has maintained a 4.0 GPA and is involved in research that led to being published in *ACS NANO* (2024). Her academic advisor and research mentor summarized, "Ms. Braucht is an exceptional student and researcher who embodies the highest standards of academic excellence, leadership, and scientific curiosity." Her dedication to the local community and interest in the medical field is evidenced by her completion of the CNA Program and subsequently working nearly two years as a certified nurse in the Pediatrics Unit at Rapid City Hospital. Annaliese's nomination recognized her for bridging the gap between technical innovation and creative expression through leadership roles and a passion for the arts.



MARJORIE J. CENESE

VIRGINIA GAMMA '25

Marjorie's diverse achievements have led to being named a **2025 TBP Laureate**. She recently graduated from Old Dominion University in electrical engineering as part of a B.S./M.S. linked program and now works as a process engineer at Micron Technology.

In high school, she served as president of Granby Go Green with a desire to promote sustainability in her school community. Marjorie initiated a plastic bag recycling program and worked with local environmental leaders to organize cleanups, create presentations, and secure funding.

As an ODU sophomore, she served as the Youth Poet Laureate Ambassador for Norfolk (VA), which gave her the chance to perform at Pharrell's Mighty Dream Forum. She was also selected twice as a Young Poet in the Community by the Poetry Society of Virginia, which included a workshop and reading that integrated STEM with poetry.

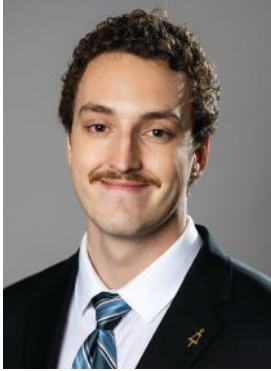
Marjorie is a proven leader and revitalized the ODU IEEE student chapter, leading the NASA RFID patent project and winning an IEEE Region 3 Exemplary Student Branch Award for contributions to the electrotechnology community. Similarly, upon joining the VA Gamma Chapter she noticed a lack of activity and was motivated to engage members and enhance the campus presence. As VA G president, Marjorie successfully organized and hosted the chapter's first fall initiation since 2021, created guides to streamline the initiation process, and recruited a new Chief Advisor.

A letter in support of her nomination cited Marjorie as having a lasting impact at ODU while "embodying integrity, empathy and resilience, and doing it all with an incredible smile on her face."

Her exceptional contributions range from being a published poet to supporting the broader engineering community. Marjorie's efforts demonstrate a commitment to fostering liberal culture through creative endeavors and advocating for civic responsibility.

NICHOLAS R. DIVILBISS

KANSAS GAMMA '25



In recognition of his service achievements, Nick has been named a **2025 TBPI Laureate**. He completed his B.S. in architectural engineering at Kansas State University, where he's continuing on in pursuit of a graduate degree, and currently working as a civil engineering intern with the City of Manhattan (KS).

Before college, Nick escaped an abusive home and entered foster care in 2010, moving 15 times before aging out. After relocating to the small town of Parker (KS), he graduated high school and quickly became an active member of the community. There, he was known for independently performing helpful deeds such as assisting with citywide clean-ups. He also served as a 911 Dispatcher for the Linn County Sheriff's Office, working to improve processes and increase the department's effectiveness in handling calls. His commitment to service is exemplified by his role as a founding member of Fostering

Success, an organization supporting students with foster care backgrounds. He has also participated in humanitarian work trips, applying his construction skills to disaster recovery and housing reconstruction efforts.

Nick currently serves as a TBPI District 9 Director and Advisor for the KS Gamma Chapter, where he formerly served as president. His inspirational and popular three-part series in this magazine, *Bentspedition*, highlighted his personal project to visit every TBPI chapter's campus, document their Bent monuments, and increase social media awareness of the Association's vast reach.

His nomination was supported by the KSU COE Dean detailing Nick's strengths as a leader and exceptional thinker, "a mindset which enables him to approach engineering challenges with a holistic perspective, considering not only technical feasibility but also ethical and societal implications."



HUNTER A. ELWELL

OREGON ALPHA '25

For his achievements in service, Hunter has been selected a **2025 TBPI Laureate**. After completion of his bachelor's in mechanical engineering from Oregon State University, he plans to pursue graduate studies in materials science.

From a young age, Hunter and his twin brother took on the role of caregiver for their disabled mother. A lack of social support led to depression and dropping out of high school before his sophomore year. Fortunately, he found a sense of belonging in a local youth group and through mentorship and civic engagement, Hunter found a purpose: to become an engineer and give back in recognition of the support he received during the difficult times of his life.

In his newfound spirit of service, he discovered a passion for nature and became motivated to make a difference in his community. This included volunteering at a wildlife refuge and improving the quality of local recycling streams.

Having awakened his aptitude for math and science, Hunter graduated high school through a dual-credit program at Portland Community College, where he earned an associate's degree, and then transferred to Oregon State Univ.

At Portland CC and OSU, he's taken on roles as a math tutor/mentor working with struggling, non-traditional students who face unique challenges similar to what Hunter has encountered. His aim is to help them succeed through teaching improved habits and techniques. He also studied abroad in Costa Rica and Guatemala, where he helped design and build housing using green-building techniques.

Hunter's peers cited him for demonstrating a sustained commitment to improve a "sleepy" OR Alpha Chapter. First serving as secretary and now president, he attended the 2024 TBPI Convention and brought back strategies to increase member engagement, retention, and new project ideas.

In conclusion, "Hunter is a well-rounded and compassionate engineer whose efforts have already improved outcomes for many," and a leader who strives to act in service of others.



MATTEO P. SOLLECITO

INDIANA ALPHA '25

Matteo has been named a **2025 TBPI Laureate** for athletics. He earned an M.S. in chemical engineering from Purdue University, has a B.A. in chemistry from Swarthmore College, and recently joined Alfa Laval as part of their Career Pathways Program.

Born in London (UK), his Italian/American father introduced him to baseball, and by the age of 15 he'd won three national club league titles, competed in the Little League World Series, and represented Great Britain's national all-star team in international tournaments. He then came to the U.S. to attend high school in New Jersey and was recognized as a top 100 underclassmen baseball player in the state.

This led to realizing his dream of playing college baseball at Swarthmore, where he succeeded in balancing his academic and athletic pursuits. His international career also flourished — he was selected for Great Britain's senior national team, competing in the 2023 World Baseball Classic (WBC) qualifier and later in the globally televised WBC event in Arizona.

During his undergraduate years, Matteo discovered a passion for chemical engineering, which led him to Purdue University's prestigious Professional Master's Program, where he has played for both the Div. 1 NCAA and club baseball teams, while finding time to teach baseball to the underprivileged youth of Lafayette, Indiana.

As part of a collaborative Capstone project between Purdue and Evonik Industries, he worked as a process/plant engineer modeling Evonik's T3A1 Vacuum Pump system using Aspen Plus. His project review paper diagnosed solvent carryover issues and proposed solutions as part of a formal presentation that was considered for real-world implementation.

Among all his success as a baseball pitcher, Matteo also overcame Tommy John surgery and was described by a former manager (current New York Yankees complex coordinator), as a "cornerstone of the UK program, leader, mentor, and a genuinely good human being."

Association Awards

★ McDonald Mentor

Established in 2005, the Tau Beta Pi-McDonald Mentor Award celebrates **excellence in mentoring and advising among educators and engineers who have consistently supported the personal and professional development of their students and colleagues.** It recognizes those who have shown true concern for individuals, supported an environment for developing talents, and earned respect and recognition in their field and the greater community.



SMITHA M. N. RAO Ph.D.

MICHIGAN BETA '04
NOMINATED BY MICHIGAN BETA

Smitha Rao **has been named the 2025 TBP-McDonald Mentor.** She is an associate professor in the biomedical engineering department at Michigan Technological University. Dr. Rao will receive \$1,000, a bronze engraved medallion, and a replica lapel pin. A \$1,000 grant will be presented to the Michigan Beta Chapter for nominating her.

Established by the Association and Marion and Capers W. McDonald, NC G '74, the McDonald Mentor Award recognizes engineering educators or professionals in industry, government, or service organizations.

She obtained M.S. and Ph.D. degrees in electrical engineering from the University of Texas at Arlington.

From 2010–12, Dr. Rao pursued research interests as a principal scientist at the start-up company, Med-Worx. She then returned to academia as a faculty associate-researcher managing a laboratory and gaining teaching experience before joining Michigan Tech in 2015.

Dr. Rao is an active member of the Institute of Electrical and Electronics Engineers (IEEE), IEEE Women in Engineering, and serves as the faculty advisor for the Biomedical Engineering Society chapter on campus.



She was initiated into the MI Beta Chapter as an eminent engineer in 2020. In addition, Dr. Rao has received several grants for her research, authored & co-authored papers, text-book chapters, and her work has led to three patents, including U.S. Patent 9752861 for a strain sensor.

She is popular with students due to her enthusiasm and interest in presenting them with valuable opportunities to further their professional development. Her colleagues testified that Dr. Rao provides constructive feedback and is influential in their work.

In support of her nomination, it was stated that “Dr. Rao is regularly recognized as one of the best instructors in the (BioMed) department and has been nominated for her excellence in teaching.”

Her active research programs attract interest because of their importance and include a broad range of topics, such as microfluidics, sensors, and wireless implantable devices.

The National Science Foundation recognized Dr. Rao’s commitment to mentoring students with an NSF-REU Site award that focuses on Technology, Science, and Community Engagement in Engineering. This work teams students with mentors at Michigan Tech and the Natural Resources Department at the Keweenaw Bay Indian Community.

Current professor and Dean Emeritus of Engineering at Michigan Tech, Janet M. Callahan, Ph.D., CT B '83, lauded Dr. Rao “for devoting her time, efforts, and talent to nurturing students and engaging them in research projects.”

Dr. Rao is also active in the local community, volunteering time at an elementary school for STEAM engagement. Alongside colleagues, she wrote a grant for the Hitachi “Inspire the Next” program. These efforts provided a tabletop scanning electron microscope and made it available at no cost to community members on campus, in local schools, and for non-profit organizations.

For demonstrating excellence in mentoring to students at all stages of education and a commitment to the well-being and development of her mentees, **we honor Dr. Smitha Rao as the 2025 TBP-McDonald Mentor.**

★ Outstanding Advisor

The Tau Beta Pi Outstanding Advisor has been named since 1994 and recognizes outstanding performance among the Chapter Advisors of the Association. Selection is made by a committee of deans at engineering colleges and past award winners.



CASSANDRA M. BIRRENKOTT Ph.D.

SOUTH DAKOTA ALPHA '07
NOMINATED BY SD ALPHA

Cassandra Birrenkott, Chief Advisor to the South Dakota Alpha Chapter, is the **2025 TBP Outstanding Advisor**.

She will receive \$1,000, a commemorative plaque, and a \$1,000 grant will be presented to the South Dakota Mines engineering discretionary fund.

The Outstanding Advisor Award recognizes chapter advisors, lauds excellence in engineering education, and in the ethical practice of engineering.

Dr. Birrenkott began as Chief Advisor to the SD Alpha Chapter in 2014, recently surpassing ten years of service in this role. During that time, she's distinguished herself through the support of her alma mater and work towards strengthening the Association.

She earned a bachelor's degree in metallurgical engineering from SD Mines and a Ph.D. in materials science & engineering from the University of Illinois at Urbana-Champaign. In 2012, Dr. Birrenkott joined SD Mines as an assistant professor, was elevated to associate professor & tenured in 2018, and is now the Alva L. Addy Professor.

A TBII Scholarship recipient (2006), she's paid it forward by volunteering to review Fellowship applications and overseeing successful nominations of 2 McDonald Mentors, 3 Laureates, 3 Fellows, and 40+ scholarship recipients from the SD Alpha Chapter.



As Chief Advisor, she's demonstrated a commitment to leading as a role model and supporting the execution of activities & initiations. These efforts have led to her inspiring SD Alpha to maintain an effective chapter while striving for new achievements.

For example, Dr. Birrenkott was instrumental in hosting the 2020 District 12 Conference and securing the bid for the 2024 annual Convention.

Throughout her career, she has promoted outreach opportunities that contribute to the community and increase chapter visibility. Notably, Dr. Birrenkott organized and helped SD Alpha host a "Junior Engineering Day" for hundreds of elementary school students. Such actions exemplify her understanding of how crucial it is for the engineering profession to demonstrate the many possibilities STEM has to offer.

Her research interests include novel manufacturing and characterization techniques of polymer and composite structures. Dr. Birrenkott has also contributed to a growing research lab.

The current SD Mines Provost wrote in support of her nomination that, "She's quickly risen to be one of the most senior faculty in the mechanical engineering department and has been a constant point of mentoring for new colleagues. Her accomplishments are numerous and multi-faceted, including a leadership role with an NSF S-STEM program, a track record of professional development with KEEN, and a dedication to student success, especially for women in STEM fields. In addition, she was nominated by our institution's president and selected to participate in the Elevate Leadership Institute."

A former SD Alpha Chapter president provided a statement summarizing his experiences working with Dr. Birrenkott, "Her influence on the chapter reaches through academic excellence, leadership, and service. As our advisor, she fosters a supportive environment where members can grow and excel. Dr. Birrenkott ensures that our chapter caters to both the professional and personal interests of its members."

For her passion to advance the profession and instilling confidence in future leaders through mentorship and recognition of scholastic achievement, **Dr. Cassandra Birrenkott is the 2025 Tau Beta Pi Outstanding Advisor.**

Association Awards

★ Distinguished Alumni

Distinguished Alumni are **recognized for their demonstration of outstanding adherence to the ideals of Tau Beta Pi (integrity, breadth of interest, adaptability, and unselfish activity) and for fostering a spirit of liberal culture in society.** The 2025 awardee profiles follow and the press release is available at: <https://www.tbp.org/press-releases.cfm>



DARYL R. ARMENTROUT

Ph.D., P.E.

TENNESSEE ALPHA '65

In recognition of a *distinguished and sustained career and important contributions to the field*, Daryl Armentrout **has been named a 2025 TBP Distinguished Alumnus.**

Dr. Armentrout received B.S. and

Ph.D. degrees in civil engineering from the University of Tennessee (UTK) and an M.S. in structural engineering from Virginia Tech. He's also a graduate of the Senior Executive Fellows program at the Harvard Kennedy School and a registered professional engineer in the state of TN.

He retired in 2013 from the Tennessee Valley Authority (TVA), where he worked for 45 years. At TVA, Dr. Armentrout focused on engineering design & construction of power plants, nuclear quality assurance, and environmental compliance. He served as manager of TVA's nuclear procurement quality assurance program for their fleet of nuclear plants, and is an adjunct lecturer at UTK since 2007.

On the UTK campus, Dr. Armentrout is annually appointed as a judge by the TN Alpha Chapter for Engineers Day. In this role, he provides feedback and mentors student organizations in preparation for the 1,000+ high school students who attend the event. He's also held numerous leadership roles with the TBP Great Smoky Mountains Alumni Chapter, including as director (2002-04) and president (2004-05).

In 2009, he was nominated and a top finalist for the Federal Engineer of the Year Award for his contributions to the engineering profession. In addition, Dr. Armentrout was an American Society of Civil Engineering Senior Program Evaluator for the Accreditation Board for Engineering and Technology (ABET) and participated in 20+ audits of both domestic and international civil engineering programs. In 2015, he was awarded the Daniel Barge Jr. ASCE Award for Distinguished Service, and in 2017 was designated as a Hall of Fame recipient by the Dept. of Civil and Environmental Engineering at the University of Tennessee.

At the local level, Dr. Armentrout is a dedicated leader serving as an elder emeritus at Cedar Springs Presbyterian Church and past president of his Homeowner's Association.



CARL R. ICE

KANSAS GAMMA '79

In recognition of *his philanthropic efforts, professional achievements, and diverse service*, Carl Ice **has been named a 2025 TBP Distinguished Alumnus.**

Mr. Ice holds a bachelor's degree in industrial engineering from Kansas State University (K-State), graduating summa cum laude and has an A.A.

degree from Coffeyville Community College (KS).

What started as a summer internship with Santa Fe Railway led to a 42-year career with the company that became BNSF, after merging with Burlington Northern Railroad. Carl was promoted through roles of increasing responsibility from his initial hire, to executive vice president of operations, and then to COO, following the \$44 billion sale of the company to Berkshire Hathaway in 2010. Eventually, Carl rose to lead all aspects of the organization as chief executive officer and was invited by BNSF to continue to serve on the board of directors after his retirement from executive duties in 2020.

His involvement with K-State includes stints as chair of the College of Engineering (COE) advisory council, induction into the COE Hall of Fame in 2005, and being named the college's Alumni Fellow (2009). Carl and his wife, Mary, have also been inducted into the K-State Athletics Hall of Fame for their support of student athletes and programs. The Carl R. Ice College of Engineering at K-State was named in 2019 in recognition of his extraordinary professional accomplishments and generous support. It is the first named college at the university.

Carl has made numerous contributions to the broader community while serving as chair of both the K-State Foundation and the Cotton Bowl Athletic Association board of directors and also on the Salvation Army national advisory board. He was inducted into the Kansas Business Hall of Fame in 2023, named "Outstanding Philanthropist" by the Greater Dallas Chapter of the Assoc. of Fundraising Professionals in 2020, cited as a "Distinguished Citizen" by the Longhorn Council/Boy Scouts of America in 2017, and lauded as "Railroader of the Year" by *Railway Age Magazine* in 2016.

Carl's career-long dedication to excellence and continued involvement in student programs has made a significant impact on K-State culture and made him a role model for future generations.

Cara A. Cowan Watts is the third recipient of the **Asad M. Madni Distinguished Alumnus/Alumna Award**. Dr. Madni, CA E '69, made a gift in 2023 to permanently endow this award to annually recognize one Tau Bate with this distinction. He believes that a successful professional career includes philanthropy and considers it a privilege to give back and recognize those who echo the same value system.



CARA A. COWAN WATTS Ph.D.

OKLAHOMA GAMMA '97

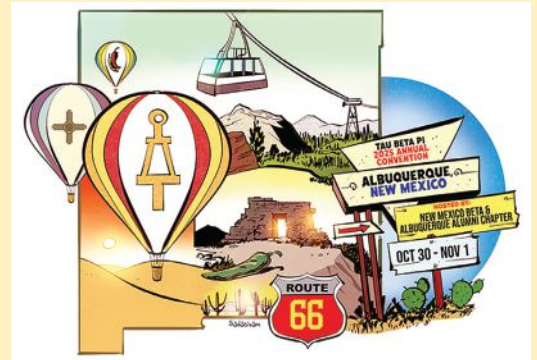
In recognition of *leadership in advocating for her community and continued efforts in cultivating the profession*, Cara Cowan Watts **has been named the 2025 Asad M. Madni 2025 TBP Distinguished Alumna.**

Dr. Cowan Watts obtained a love for math from her dad, and credits her parents as having the most influence in her life. As school teachers, they set the tone for Cara's public service, the importance of a strong education, and her inner moral compass. She earned B.S. (MechE), M.S. (telecommunications mgmt), and a Ph.D. in biosystems engineering all from Oklahoma State University (OSU).

She is CEO of Tulsa Pier Drilling, LLC, and co-owner of the Sideways Cattle Co., with her husband, which focuses on training competitive quarter horses and providing beef to the American public. For 20+ years, Dr. Cowan Watts has also been owner and contract consultant for Cherokee Star working with organizations and companies within Indian Country or tribes doing business with outside corporations.

Dr. Cowan Watts has a passion and commitment for serving Indian Country and advancing its interests and rights. Her mother is a Cherokee Nation citizen and Cara's husband, Doug, is a Wyandotte Nation citizen. Her involvement includes being elected for three consecutive terms (2003-15) as a Cherokee Nation Tribal legislator for portions of Tulsa and Rogers counties. During this time, she logged many accomplishments, including bringing in more than \$1,500,000 in Tribal grant dollars, being appointed to the OK Advisory Committee for the U.S. Committee on Civil Rights, and drove new Tribal program initiatives targeting STEM within the Tribe and public schools.

She also fosters a spirit of liberal culture in her professional activities as a Louis Stokes NSF Fellow and former, twice-elected member of the AISES Board of Directors. From 2017-21, she served as president of the Oklahoma Professional Chapter and facilitated an agreement with OSU to bring the National American Indian Science and Engineering Fair to the Stillwater campus and return the fair to a physical format. In 2020, she was awarded the highest AISES lifetime achievement honor, the Ely S. Parker Award, which recognizes Indian leaders for their achievements and STEM contributions.



JOIN US IN ALBUQUERQUE, NM FOR THE 2025 CONVENTION

- **October 30 - November 1 at the Albuquerque Convention Center**
- **Hosted by the New Mexico Beta Chapter at Univ. of New Mexico & the Albuquerque Alumni Chapter**
- **Participate in Professional Development Sessions**
- **In-Person Recruiting Fair**

More information is available at: <https://www.tbp.org/convention.cfm> or, contact tbp.convention@tbp.org, with any questions.

BRAIN TICKLERS



Results From Spring

Perfect Scores

Gerken, Gary M.	CA	H	'11
Gibbs, Kenneth P.	MO	I	'76
*Kuhn, Walter A.	OH	A	'81
Spring, Gary S.	MA	Z	'82
Spring, Mitchell G.	Member son		

Other

Bannister, Kenneth A.	PA	B	'82
Bertrand, Richard M.	WI	B	'73
Couillard, J. Gregory	IL	A	'89
DiPippo, Ron	RI	A	'62
Douglass, Rodney W.	NE	A	'72
Feild, David M.	MD	B	'81
Golembiewski Jr., Steven	PA	B	'90
Golemme, Steven S.	IL	A	'20
Grewal, Rashi	NJ	I	'09
Hitz, John S.	VT	B	'66
Johnson, Roger W.	MN	A	'79
Jordan, R. Jeffrey	OK	I	'00
Kovalick, Al W.	CA	H	'72
Lalinsky, Mark A.	MI	I	'77
Marks, Lawrence B.	NY	I	'81
Prager, John	Non-member		
McCool Jr., Jim A.	AL	A	'71
Norris, Thomas G.	OK	A	'56
Routh, Andre G.	FL	B	'89
Schwam, Susan E.	WA	A	'88
Schwam, Freely	Member spouse		
Stegel, Timothy J.	PA	A	'80
Stanbery, Sam R.	TX	A	'64
Strong, Michael D.	PA	A	'84
Summerfield, Steven L.	MO	I	'85
Tellechea, Gabriel	TX	A	'87

*Denotes correct bonus solution

Spring Review

Question #5 (Trapezoid Lot Survey) was the most popular problem, with nearly 80% of respondents taking a shot at it. We received a number of clever solutions that all stayed within the bounds of the problem, and it was the most correct regular problem with 82% correct entries.

The computer bonus was intended to be the longest string of integers without a prime between two adjacent semiprime numbers. However, several readers found the longest string of integers without a prime between any two semiprime numbers.

Spring Review *Continued*

The longest string is 273 numbers which occurs between semiprimes 436,273,015 and 435,273,289. Those responses were also counted as correct.

The most challenging regular problem was #1, the lawn sprinkler, with only 37% correct answers.

Summer Answers

1: Since it is dark, randomly separate the coins into two groups: set R with 10 coins and set S with 16 coins. Flip all the coins in set R. If there are h heads initially in the R set, then there are $10-h$ heads in the S set. After flipping, there will also be $10-h$ heads in the R set.

2: Alice ran 16 kilometers in the two hours, and runs at a rate of 12 kph downhill. Let f be the fraction of the route that is level. Then, $(1-f)/2$ of the route is uphill and the same amount downhill. Call d the total distance run, and r the rate downhill. Then, $df/8 + d(1-f)/(2 \times 6) + d(1-f)/(2r) = 2$ hours. Rearranging, we see that $d(1/12 + 1/2r + f(1/24 - 1/2r)) = 2$. Therefore, d is independent of f only if $1/24 = 1/2r$, so $r = 12$. Then, $d(1/12 + 1/24) = 2$, or $d = 48/3 = 16$.

3: The cube has a surface area of $6.8501 \times 10^6 \text{ km}^2$, the sphere $8.7643 \times 10^6 \text{ km}^2$ and the tetrahedron $1.7112 \times 10^7 \text{ km}^2$. These very large objects, and the new photonic lasers must be very powerful. Basic geometry tells us that the cube's surface area is $6a^2$ and volume is a^3 . The sphere's surface area is $4\pi b^2$, volume $(4/3)\pi b^3$. For the tetrahedron, $\sqrt{3}c^2$ and $c^3/6\sqrt{2}$. Call the volume of the moon V_{moon} . The problem defines $V_{\text{tet}} = V_{\text{moon}}/6$. $V_{\text{cube}} = V_{\text{tet}}/3 = V_{\text{moon}}/18$ and $V_{\text{sphere}} = 2V_{\text{cube}} = V_{\text{moon}}/9$. Solving for a , b , and c in terms of V_{moon} , $a = \sqrt[3]{(V_{\text{moon}}/18)}$, $b = \sqrt[3]{(V_{\text{moon}}/12\pi)}$ and $c = \sqrt[3]{(2V_{\text{moon}})}$.

Then plugging those values into surface area formulas, $S_{\text{cube}} = \sqrt[3]{2V_{\text{moon}}^2/3}$, $S_{\text{sphere}} = \sqrt[3]{4\pi V_{\text{moon}}^2/9}$, $S_{\text{tet}} = \sqrt[3]{3V_{\text{moon}}^2}$.

4: 14 sets of twins are required for the 365-day year. For the 29-day year, 4 sets, with an exact probability of 12245 / 24389.

5: At minimum, 36 basket descents are required to move all three prisoners to the ground. In the minimum case, the prisoners make 4 total descents. The groom makes 1 descent, the bride and the servant combined make 3. Note that, since a maximum of 5 kg can be lowered in any descent and the captives weigh a combined 180 kg, 36 basket descents is an absolute lower bound.

One possible strategy starts with the captives placing one piece of chain and lowering it to the ground. Then they add two chains to the top basket, lowering those to the ground and raising one to the top. They continue to add two chains to the alternating baskets until there are seven at the bottom and six at the top. This takes a total of seven basket descents.

They take 6 chains out at the top, and the servant gets in, lowering them to the ground on the eighth descent. The servant is on the ground, with the groom, bride, and all the chains at the top.

They then use 9 basket descents to get 9 pieces of chain on the ground with the servant. As an aside, with a person on the ground they can simply lower one chain at a time instead of the alternating even/odd baskets.

A total of 17 descents have been used. Four pieces, the bride, and the groom are at the top.

On the 18th descent, they lower the groom to the ground while raising 9 pieces of chain and the servant. Thirteen pieces, the servant, and the bride are at the top.

The next 9 descents are used to again lower 9 pieces to the bottom. After 27 descents, the groom and 9 pieces are at the bottom, and 4 pieces are at the top with the bride and servant.

On the 28th descent, lower the bride to the ground while raising the 9 pieces. All 13 pieces and the servant are at the top, the bride, and groom at the bottom.

They use 7 more descents to lower 7 pieces to the bottom. After 35 descents, the groom, the bride, and 7 pieces are on the ground, and 6 pieces are at the top with the servant.

Finally, on the last descent they lower the servant to the bottom for the 2nd time, and they tie the basket off to secure the 7 chains in the top basket. That's 36 total descents, with the groom coming down once, bride once, and servant twice.

Some variance of the strategy is possible. The captives could lower the pieces of chain more proactively. It is also possible to lower the bride twice and the servant once, but never fewer than 4 total descents.

BONUS: In digits, *kampwɔhii shuunni na kε* is **810** ($400 \times 2 + 10$) and *ηkuu na baataanre* is **88** ($80 + 5 + 3$). In the Supyire language, 15 is *kε na kanjuro* ($10 + 5$), 109 is *ηkuu na bejjaaga na baaricyεere* ($80 + 20 + 5 + 4$), 152 is *ηkuu na beetaanre na kε na shuunni* ($80 + 20 \times 3 + 10 + 2$), 403 is *kampwoo na taanre* ($400 + 3$), and 1534 is *kampwɔhii taanre na ηkwuu sicyεere nake na sicyεere* ($400 \times 3 + 80 \times 4 + 10 + 4$).

In many ways, this linguistics tickler is similar to an elaborate cryptarithm where the structure of the equations requires discovery as much as the values of the words.

Briefly, in the Supyire language:

- The word *na* means +.
- The word *kampwoo* denotes 400, and *kampwɔhii* followed by a factor *f* is $400 \times f$.

- Similarly, *ηkuu* is 80 and *ηkwuu* is used for $80 \times f$. Lastly, *bejjaaga* is 20 and the prefix *bee-* is used for $20 \times f$.
- The word *kε* is 10. The small numbers are *nijkin* (1), *shuunni* (2), *taanre* (3), *sicyεere* (4), and *kanjuro* (5) and can be used as factors.
- The suffices *-nijkin* and *-ni* are identical to *nijkin*. Suffixes *-sicyεere* and *-ricyεere* are identical to *sicyεere*. The prefix *baa-* is identical to *kanjuro na*.

Knowing that, *baashuunni* is ($5 + 2$), *bejjaaga na nijkin* is ($20 + 1$), *ηkwuu taanre na beeshuunni na kanjuro* is ($80 \times 3 + 20 \times 2 + 5$), *kampwoo na ηkwuu shuunni na beetaanre na baani* is ($400 + 80 \times 2 + 20 \times 3 + (5+1)$), and *kampwɔhii sicyεere na bejjaaga na kε na baaricyεere* is ($400 \times 4 + 20 + 10 + (5+4)$).

DOUBLE BONUS:

The best grid that any of the judges (**K. D. Berthold**, *TX B '04*) came up with is:

C	S	L	B	M
O	L	I	A	N
E	N	O	K	S
A	D	A	R	O
I	C	H	T	U

which scores 107 points and includes the following 13 states: **ALABAMA, ALASKA, ARKANSAS, COLORADO, ILLINOIS, INDIANA, KANSAS, MAINE, NORTH CAROLINA, NORTH DAKOTA, SOUTH CAROLINA, SOUTH DAKOTA, and UTAH.**

New Fall Problems

1: Order of Merit

Alf, Bert, Charlie, Duggie, and Ernie are placed in an order of merit (1st to 5th) once more (no ties), this time for Ruthlessness. Charlie and Duggie are next to each other in the order and they each make two remarks.

Those made by the one who was higher in merit are both false, those made by the other are both true.

CHARLIE: 1. Ernie's place was half way between those of Bert and Charlie. 2. Duggie was 3rd.

DUGGIE: 1. Alf's place was half way between those of Charlie and Ernie. 2. Bert was higher than Alf and Charlie.

What is the order of merit (from highest to lowest) with 1st being highest?

— *Brain Puzzler's Delight*
by E.R. Emmet

2: What's My Age

While walking through an old cemetery, I came across two tombstones, side-by-side, apparently brother and sister. One stone read, "John Doe born **** died in his *th year;" and the other stone read, "Jane Doe born 18** died in her *th year," where the asterisks represent illegible digits. My curiosity was piqued, so I went into the church and examined the records. I found that the single missing digit at the end of John's epitaph was 1 less than the single digit at the end of Jane's. John and Jane were born within 10 years of each other. Despite this, the records indicated that John lived longer than Jane. What is the earliest year that Jane could have been born? Count partial days alive as full days.

— *The Man in the Milk Carton*
by Stephen Barr

3: How Many Pennies

A pile of 100 coins consists entirely of pennies, nickels, dimes, and quarters. It contains at least four of each. The value of the pile is \$2.73. How many pennies are there?

— **Don A. Dechman**, *TX A '57*
(deceased)

Continued on page 42

TBP SCHOLARS

Scholarships have been awarded to 254 undergraduate members for the 2025-26 year.

The Fellowship Board announced the selection of 254 engineering students from 532 applicants. Most recipients will receive \$2,000 for one year and a few will receive \$1,000 for one semester. This year, a total of \$499,000 was awarded. All TBTI Scholarships are given on the competitive criteria of high scholarship, campus leadership and service, and promise of future contributions to the engineering profession. These awards bring the total to 4,655 scholarships granted since 1998.

Hania Abdelhafez OH A '25
Stabile No. 1367 | Biomedical eng'g

Lenna N. Abouzahr OK Γ '25
Cowan Watts No. 1 | Elec. & comp. eng'g

Tieren A. Adams MA Θ '25
Abriola No. 2 | Civil eng'g

Haneef Adebisi MS B '26
Alford No. 28 | Electrical eng'g

Adeoluwa S. Adekanmbi DC A '26
Alford No. 29 | Electrical eng'g

Mohammed R. Ahmed TX Ξ '26
Record No. 2004 | Computer eng'g

Cody Andres C. Alessio-Bunnell NC Φ '26
Stabile No. 1486 | Mechanical eng'g

Ahmad E. Alramahi IL Z '26
Stabile No. 1436 | Mechanical eng'g

Hanan Alsmadi TX Ξ '25
Althouse No. 17 | Electrical eng'g

Adhithya Anandaraj MN A '26
Record No. 2005 | Computer science

Ethan R. Anderson TX B '26
Skaggs No. 25 | Electrical eng'g

Camila C. Aragón Alfaro MA H '25
Record No. 2006 | Biomedical eng'g

Maria F. Argote De La Torre NM B '25
Record No. 2007 | Biomedical eng'g

Kunjun Aryal FL Γ '26
Skaggs No. 26 | Electrical eng'g

Molly L. Auer AZ A '26
Stabile No. 1437 | Mechanical eng'g

Kaan Aytekin NY K '26
Stabile No. 1438 | Mechanical eng'g

Peter J. Banyas NC Γ '26
Record No. 2008 | Elec. & comp. eng'g

Rylee M. Bender GA Δ '26
Scribner No. 84 | Environmental eng'g

Autumn L. Bergum ND B '26
Record No. 2009 | Civil eng'g

Elia Bllani CT Γ '26
Record No. 2010 | Biomedical eng'g

Brooke C. Boeding OH B '26
Stabile No. 1439 | Mechanical eng'g

Daniel J. Bourguignon OH N '26
Skaggs No. 27 | Electrical eng'g

Cameron A. Bracewell IL B '25
Elovitz No. 2 | Materials sci. & eng'g

Ethan J. Bratt FL I '26
Brems No. 35 | Aerospace eng'g

The following scholarships are named for members:

Linda M. Abriola, Ph.D., *PA Z '76*, and her brother, Joseph L. Abriola Jr., *TN B '80*, established the Gloria and Joseph L., *PA Z '48*, **Abriola Scholarship** in memory of their parents.

Henry M. Alford, *MS A '27*, left a bequest sufficient to permanently endow the **Alford Scholarships**.

The **Althouse Scholarship** honors Ernest E. Althouse, *PA A 1926*, who left a bequest in 2006.

The **Armentrout Scholarship** is in recognition of Daryl R. Armentrout, Ph.D., P.E., *TN A '65*, a 2025 recipient of the TBTI Distinguished Alumni Award.

Past Association vice president Bill Beans, Ph.D., *OH I '53*, established the William and Zeda **Beans Scholarship**.

Thomas R. Berthold, *IL A '70*, made gifts to the Association in 2018 to fund the **Berthold Scholarship**.

The **Bloomberg Scholarship** is named for Michael R. Bloomberg, *MD A '64*.

Marian K. and John H. Brems Jr., *MI Γ '46*, left a bequest in 2016 to fund the **Brems Scholarships**.

Ruth M. and Cleveland L. Campbell, P.E., *IA A '47*, made gifts to permanently endow the **Campbell Scholarships**.

The **Cowan Watts Scholarship** is in recognition of Cara A. Cowan-Watts, Ph.D., *OK I '97*, a 2025 recipient of the TBTI Distinguished Alumni Award.

The **Dechman Scholarship** was established by David, *VA B '82*, Ken, and Jim Dechman, *TX A '89*, to honor their father, Don A. Dechman, *TX A '57*, on his 80th birthday.

The **Dodson Scholarships** are sponsored by the late Charles R. Dodson, *MD B '30*, who made gifts to the Association in 1998 and 1999.

The **Elovitz Scholarship** is funded through a gift by Kenneth M. Elovitz, *PA A '75*.

Nick A. Farmer, *MD B '68*, made a gift in 2019 to establish the **Farmer Family Scholarship**.

Charles O. Forge, *CA Γ '56*, left a bequest in 2010 to support the **Forge Scholarships**.

The **Fue Scholarship** recognizes Harold C. Fue, *IL A '57*, who left a bequest in 2022 and 2023.

All Scholars submitted a short bio that has been posted on our TBII website at:
<https://www.tbp.org/memb/ScholarArchives/ScholarBios/ScholarBios25-26.pdf>

Benjamin R. V. Brigino NC A '25
Stabile No. 1368 | Biomedical eng'g

Jillian L. Brockhoff PA A '26
Record No. 2011 | Bioengineering

Ekaterina Buchilina TX A '26
Sickafoose No. 15 | Chemical eng'g

Walter R. Bungard OH K '26
Lugannani No. 2 | Chemical eng'g

Matthew Caldarola TX A '26
Skaggs No. 28 | Electrical eng'g

Kennedie D. Cearlock FL H '26
Record No. 2012 | Biomedical eng'g

Tyler K. Chan TN I '26
Skaggs No. 29 | Electrical eng'g

Shruthigna Chandupatla TX E '26
Record No. 2013 | Computer eng'g

Robert L. Chapman IV SC I '26
Stabile No. 1440 | Mechanical eng'g

Kashif Chopra PA E '26
Record No. 2014 | Elec. & comp. eng'g

Trevor E. Coates PA O '26
Soden No. 30 | Chemical eng'g

Charles S. Cochran KY A '26
Record No. 2015 | Computer eng'g

Caroline Cook KY I '25
Stabile No. 1369 | Civil eng'g

Jhet R. Cooperrider Young WA I '26
Stabile No. 1441 | Mechanical eng'g

Tanner R. Crodgy FL O '27
Stabile No. 1442 | Mechanical eng'g

Biraj Dahal DC A '25
Record No. 2016 | Computer science

Sofia L. Dahlgren WA A '26
Campbell No. 59 | Chemical eng'g

Jaydn Decuir DC A '26
Record No. 2017 | Civil eng'g

Ereni S. Delis CA E '26
Stabile No. 1443 | Mechanical eng'g

Alp E. Demirtas MD A '26
Bloomberg No. 19 | Biomedical eng'g

Aeden M. Dicks WV B '26
Record No. 2018 | Electrical eng'g

Ainsley Dillon KS A '26
Soden No. 31 | Chemical eng'g

Emma G. DiMassa FL H '26
Stabile No. 1428 | Industrial eng'g

Sarah K. Dockery MS A '26
Brems No. 36 | Aerospace eng'g

Christine Dong CT A '26
Stabile No. 1444 | Mechanical eng'g

Kailey J. Dougherty CO A '26
Schwaller No. 15 | Geophysical eng'g

Eleanor G. Duffy FL A '26
Record No. 2019 | Civil eng'g

Volodymyr Dutchny IL B '26
Record No. 2020 | Civil eng'g

Luke J. Edwards GA A '26
Stabile No. 1445 | Mechanical eng'g

Naomi Ellis CO B '26
Lyons No. 15 | Aerospace eng'g

The **Ice Scholarship** is in recognition of Carl R. Ice, *KS I '79*, a 2025 recipient of the TBII Distinguished Alumni Award.

James C. Lugannani, *NJ A '81*, established the **Dorothy Hopp Lugannani and Robert Lugannani Scholarship** to support 1st generation college students and immigrants/refugees.

The **Lyons Scholarship** is given in memory of Eddie L. Lyons, *CA II '76*, thanks to gifts from his wife Nancy E. Zeigler-Lyons.

Thomas A. Nelson, *CA A '49*, left a bequest to establish the **Nelson Scholarship** to support students in need of financial aid.

The **Pasadyne Scholarship** has been awarded through a gift from Ronald C. Pasadyne, P.E., *OH E '70*, to establish the Judith L. and Ronald C. Pasadyne Scholarship Fund.

The **Record Scholarships** commemorate Leroy E. Record, *KS A '29*, whose generous bequest will provide earnings to support awards in perpetuity.

The **Schwaller Scholarship** commemorates Shawn R. Schwaller, *SD A '95*, whose friends and family established a fund in 2007.

A bequest from A. Clayton Scribner, *NY I '29*, permanently endows the **Scribner Scholarships**.

The **Sickafoose Scholarship** is named for Kathleen A. and Robert D. Sickafoose, *IL B '50*, who left a bequest in 2012.

Glenn A. Skaggs, *MD B '57*, left a bequest in 2017 to permanently endow the **Skaggs Scholarships**.

The **Soden Scholarships** are named for Archie D. Soden, *CA A '51*, who made gifts to TBII to fund scholarships in perpetuity.

The **Spirit of Apollo Scholarship** is supported by an anonymous donor to honor the legacy of the U.S. NASA Apollo program.

The **Stabile Scholarships** are named for Vincent A. Stabile, *NY A '40*, whose gifts to the Association have permanently endowed scholarships.

A corporation sponsors the remaining scholarship.

The Alabama Power Foundation, Inc., made a gift in 1995 to endow an **AL Power Scholarship**.

TBP SCHOLARS

Continued

Matthew A. Ellsworth NY Y '26
Campbell No. 60 | Chemical eng'g

Abigail V. Eno FL H '26
Scribner No. 85 | Civil & environ. eng'g

Kahiso R. Erickson TX A '26
Stabile No. 1446 | Mechanical eng'g

Abigail O. Esh SC A '26
Stabile No. 1429 | Industrial eng'g

Daniel J. Farling SC B '27
Record No. 2021 | Biomedical eng'g

James C. Flaggert NH B '26
Record No. 2022 | Biomedical eng'g

Ryan A. Flaskamp IA A '26
Record No. 2023 | Electrical eng'g

Benjamin N. Folgers IL A '26
Berthold No. 4 | Aerospace eng'g

Nathan G. Ford DC B '26
Record No. 2024 | Biomedical eng'g

Leanna H. Frasch NY II '26
Record No. 2025 | Biomedical eng'g

Dawning J. Fu MA E '26
Record No. 2026 | Bioengineering

Anthony P. Furman CA $\Delta\Delta$ '26
Record No. 2027 | Robotics eng'g

Cynthia S. Gaddam GA B '26
Record No. 2028 | Biomedical eng'g

Michael N. Galsim NJ B '26
Stabile No. 1427 | Industrial eng'g

Hector J. Gardea CA I '26
Forge No. 172 | Electrical eng'g

William H. Gardner TN A '26
Record No. 2029 | Nuclear eng'g

Rachel N. Gatewood MO E '26
Record No. 2030 | Biomedical eng'g

Rose L. Genco PA Δ '27
Record No. 2031 | Civil eng'g

Aidan C. J. George MA Θ '27
Record No. 2032 | Biomedical eng'g

Shelby M. Gilson CO A '26
Scribner No. 86 | Geological eng'g

Emily J. Gokie AL B '26
AL Power No. 22 | Mechanical eng'g

Adilei A. Gongora MO Δ '26
Record No. 2033 | Biomedical eng'g

Matthew G. Gonzales OK A '26
Record No. 2034 | Electrical eng'g

Valeria Gonzalez NY T '26
Record No. 2035 | Biomedical eng'g

Bethanie G. Gourley AR B '27
Record No. 2036 | Civil & constr. eng'g

Arnav Goyal IL A '27
Record No. 2037 | Nucl., pl., rad. eng'g

William Granci DC B '26
Record No. 2038 | Civil eng'g

Caleb S. Gray SD A '26
Stabile No. 1447 | Mechanical eng'g

Solomon G. Greene OH A '26
Record No. 2039 | Electrical eng'g

Ava C. Gross NY O '26
Record No. 2040 | Chemical & mol. eng'g

Trevor J. Gross FL A '26
Record No. 2041 | Computer science

Jeffrey Guiette CO E '26
Record No. 2042 | Electrical eng'g

Vara Qi Gunananthan MD A '26
Record No. 2043 | Materials sci. & eng'g

Jonathan A. Gunasekaran AL A '26
Record No. 2044 | Electrical eng'g

Ritika R. Gurjar MA E '26
Record No. 2045 | Computer eng'g

Katelyn R. Gyurich MI K '27
Record No. 2046 | Paper eng'g

Alfred M. Hale TX Δ '26
Record No. 2047 | Electrical eng'g

Kameron M. Hancock AL E '26
Record No. 2048 | Civil eng'g

Adah V. Harding MD Δ '26
Dodson No. 102 | Mechanical eng'g

Brian P. Hargis OH E '26
Pasady N. 3 | Chemical eng'g

Christopher A. Hariman CA Σ '26
Forge No. 173 | Electrical eng'g

Sophia I. Harrill PA E '26
Soden No. 32 | Chemical eng'g

Megan M. Harrison IL A '26
Record No. 2049 | Engineering physics

Dominic C. Heater MO Δ '26
Stabile No. 1448 | Mechanical eng'g

Alyssa M. Hicks WA A '26
Record No. 2050 | Chemical eng'g

Eleanor L. Holtermann MD A '26
Record No. 2051 | Biomedical eng'g

Alana J. Howard SD A '26
Record No. 2052 | Chemical eng'g

Anna D. D. Hsu CA Δ '26
Nelson No. 3 | Computer eng'g

Daniel J. Hurley MS A '26
Spirit of Apollo No. 12 | Aerospace eng'g

Brian Hwang RI A '26
Record No. 2053 | Electrical eng'g

Salvin Ikedife NJ B '26
Stabile No. 1449 | Mechanical eng'g

Robert J. Jacobi-Smigelski MN A '27
Stabile No. 1450 | Mechanical eng'g

George J. Jamaludinian MD B '26
Dodson No. 103 | Electrical eng'g

Jason W. Jaquith FL A '26
Record No. 2054 | Materials sci. & eng'g

Rylee M. Jarmolych FL A '26
Record No. 2055 | Civil eng'g

Anika M. Jena CA Σ '26
Forge No. 167 | Chemical eng'g

Brett W. Jones WY A '26
Stabile No. 1451 | Mechanical eng'g

Xanne F. J. Joppe TX A '26
Dodson No. 104 | Petroleum eng'g

Paige C. Jordan IN Z '26
Record No. 2056 | Biomedical eng'g

Andrew Jung TX A '27
Record No. 2057 | Biomedical eng'g

TBP SCHOLARS

Continued

Kathryn D. Kalchik TX E '27

Record No. 2058 | Chemical eng'g

Ashley H. Kang VA E '26

Record No. 2059 | Chem. & life sci. eng'g

Jaron M. Kawamura CA Δ '26

Nelson No. 4 | Biomedical eng'g

Joyce Ke NY Γ '26

Stabile No. 1452 | Mechanical eng'g

Joshua Z. Khaw CA T '26

Forge No. 166 | Biomedical eng'g

Sydney S. Killilea MN A '26

Record No. 2060 | Computer eng'g

Andrew J. Kim MD A '26

Record No. 2061 | Chem & biomol. eng'g

Sophia J. Klymchuk NY I '26

Stabile No. 1453 | Mechanical eng'g

Taiyo A. Kobayashi CA H '26

Stabile No. 1454 | Mechanical eng'g

Jacob A. Kommalan LA A '26

Record No. 2062 | Civil eng'g

Allison M. Korpi IN E '26

Record No. 2063 | Chemical eng'g

Priyanka Kumar MA Θ '26

Record No. 2064 | Chemical eng'g

Ryan P. Kuo CA A '26

Forge No. 176 | Materials sci. & eng'g

Gregory L. Lanting IL Γ '26

Record No. 2065 | Electrical eng'g

Madeline M. Larkin AL A '26

Record No. 2066 | Software eng'g

Andy D. Le CA N '26

Stabile No. 1455 | Mechanical eng'g

Alexandra M. Leavitt UT A '26

Stabile No. 1370 | Computer eng'g

Thalia P. Lee NY B '26

Stabile No. 1371 | Aerospace eng'g

Abigail C. Leon FL A '26

Stabile No. 1372 | Biological eng'g

Luana Liao NY A '26

Stabile No. 1373 | Computer science

Jack A. Libow MA A '26

Stabile No. 1374 | Biomedical eng'g

Caitlin M. Lien OR Δ '26

Stabile No. 1375 | Civil eng'g

Annabelle M. Liu CA A '26

Forge No. 168 | Civil eng'g

Bryan Liu CA N '26

Forge No. 170 | Computer eng'g

Jonathan J. Liu NY A '26

Stabile No. 1376 | Computer science

Leo Liu WI A '26

Stabile No. 1377 | Materials sci. & eng'g

Lena M. Lopes NJ A '26

Stabile No. 1378 | Chemical eng'g

Rebecca N. Lu MD B '26

Dodson No. 105 | Bioengineering

Katarina B. Luker NY N '26

Brems No. 32 | Aero & mechanical eng'g

Rachel E. B. Luner NC Γ '26

Stabile No. 1379 | Biomedical eng'g

Carter O. Malone ND B '26

Stabile No. 1456 | Mechanical eng'g

James E. Manuel TX Δ '26

Stabile No. 1380 | Chemical eng'g

Emmaline A. Marion OK Γ '28

Farmer Family No. 2 | Architectural eng'g

Rebekah G. Martin SC B '27

Stabile No. 1381 | Biomedical eng'g

Shelby "Nyx" E. Mashkow SC A '25

Stabile No. 1382 | Materials sci. & eng'g

Joshua P. Maxwell TX A '26

Stabile No. 1383 | Aerospace eng'g

Ryan M. Mayhall AZ A '26

Stabile No. 1384 | Biomedical eng'g

Sage B. McCann AL B '26

Stabile No. 1457 | Mechanical eng'g

Kyra L. McCracken NY K '26

Stabile No. 1385 | Biomedical eng'g

Catherine N. McGuire PA Λ '26

Stabile No. 1458 | Mechanical eng'g

Carter J. McKinney SC B '26

Stabile No. 1459 | Mechanical eng'g

Lydia M. Melaschenko MA K '26

Stabile No. 1460 | Mechanical eng'g

Sierra D. Melass TX B '26

Stabile No. 1461 | Mechanical eng'g

Konstantine A. Mendrinov NY Ξ '26

Stabile No. 1386 | Civil eng'g

Sadie S. Meyer NY B '26

Stabile No. 1387 | Biomedical eng'g

Abigail F. Miller PA Γ '26

Stabile No. 1462 | Mechanical eng'g

Arye S. Mindell CA O '26

Forge No. 174 | Electrical eng'g

Michelle L. Mirabelli MA E '26

Stabile No. 1388 | Electrical eng'g

Matthew J. Moegling OH K '27

Stabile No. 1389 | Chemical eng'g

Hanna N. Mofid CA T '26

Forge No. 171 | Computer eng'g

Alana N. Moretti MA A '26

Stabile No. 1463 | Mechanical eng'g

Elizabeth D. Mui CA T '26

Stabile No. 1464 | Mechanical eng'g

Sean W. Muller FL A '26

Stabile No. 1465 | Mechanical eng'g

Kavita Murthy NY A '26

Stabile No. 1390 | Biomedical eng'g

Benjamin E. Nachod PA Δ '26

Stabile No. 1391 | Bioengineering

Vedant K. Naik MI A '26

Stabile No. 1392 | Electrical eng'g

Manoj Nath Yogi DC A '26

Stabile No. 1393 | Computer science

Elizabeth M. Ngo MN A '26

Stabile No. 1394 | Biomedical eng'g

Paul J. Nguyen AL E '26

Stabile No. 1395 | Chemical eng'g

Kailana M. Nishiura CA T '26

Forge No. 169 | Civil eng'g

TBP SCHOLARS

Continued

Morgan E. Novean OH B '26
Stabile No. 1396 | Computer eng'g

Angelica M. Nowak PA H '26
Stabile No. 1466 | Mechanical eng'g

Zeynep I. Orucu PA Γ '26
Stabile No. 1397 | Chemical eng'g

Hetik S. Pabrekar NY N '26
Stabile No. 1398 | Aerospace eng'g

Khaleb L. Pafford NE A '25
Stabile No. 1467 | Mechanical eng'g

Emily R. Pan CA Ψ '27
Forge No. 164 | Bioengineering

Pratik Pandit VA A '26
Stabile No. 1399 | Elec. & comp. eng'g

Aaryan Panthi DC A '26
Stabile No. 1400 | Computer science

Jade D. Pappas OH Γ '26
Beans No. 3 | Comp. sci. & eng'g

Owen C. Paschke PA E '26
Stabile No. 1468 | Mechanical eng'g

Darshan V. Patel AL E '26
Stabile No. 1469 | Mechanical eng'g

Samay Sagar Patel NY N '26
Brems No. 33 | Aerospace eng'g

Abigail R. Patterson FL H '27
Stabile No. 1401 | Chemical eng'g

Ronan C. Peach IA B '26
Stabile No. 1402 | Biomedical eng'g

Ryan H. Petrauskas NY M '27
Stabile No. 1403 | Computer eng'g

Michael W. Poplin MT A '25
Stabile No. 1426 | Industrial & sys. eng'g

Willem J. Potter IA A '26
Stabile No. 1430 | Industrial eng'g

Diego A. Puerta AZ B '26
Stabile No. 1404 | Electrical eng'g

Joshua A. Puerzer PA Λ '26
Stabile No. 1470 | Mechanical eng'g

Sean M. Quigley IN Γ '26
Stabile No. 1405 | Computer science

Ujjwal Rameshwaram NJ A '26
Stabile No. 1406 | Biomedical eng'g

Tara Reddy IL A '26
Fue No. 2 | Civil & environ. eng'g

Zhiyu "Iris" Ren NY Δ '26
Stabile No. 1471 | Mechanical eng'g

Joy C. Resig KY A '27
Stabile No. 1472 | Mechanical eng'g

Caitlin A. Rogers CO B '26
Stabile No. 1407 | Chem. & biol. eng'g

McKenzie Roman OH A '26
Stabile No. 1473 | Mechanical eng'g

Brynn E. Romberger FL Z '26
Stabile No. 1408 | Civil eng'g

Aidan J. Rose PA E '26
Stabile No. 1474 | Mechanical eng'g

Melis Sahin OH A '26
Stabile No. 1409 | Biomedical eng'g

Muaz Y. Salem WI A '26
Stabile No. 1475 | Mechanical eng'g

Charles C. Santore Jr. NJ B '25
Record No. 2067 | Materials sci. & eng'g

Emilia A. Schneiderman NY O '27
Stabile No. 1410 | Civil eng'g

Ethan N. Schoenblum NY T '26
Stabile No. 1476 | Mechanical eng'g

Grace L. Schultz TX I '26
Stabile No. 1411 | Computer science

Owen K. Scott CA Φ '26
Stabile No. 1477 | Mechanical eng'g

Marina L. Serra GA B '26
Stabile No. 1412 | Biomedical eng'g

Barbara N. Serrano-Acosta PA B '25
Record No. 2068 | Chemical eng'g

Alex M. Seybold CA M '26
Stabile No. 1478 | Mechanical eng'g

Liliia Shanina IL B '26
Stabile No. 1413 | Chemical eng'g

Brayden D. Sheaffer OH N '26
Stabile No. 1414 | Computer eng'g

Darrah E. Sheehan VA A '26
Stabile No. 1415 | Biomedical eng'g

Savanna J. Sheffield RI B '26
Stabile No. 1416 | Chemical eng'g

Jenna M. Skidmore MO A '27
Stabile No. 1417 | Biomedical eng'g



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Kylie M. Spade OH Z '26
Stabile No. 1418 | Bioengineering

Joseph L. Squirrellock TN A '26
Armentrout No. 1 | Mechanical eng'g

Maria D. Steis MA H '26
Stabile No. 1419 | Biomedical eng'g

Aadin A. Stoller OH Θ '26
Stabile No. 1479 | Mechanical eng'g

Maeve E. Storm FL H '26
Scribner No. 87 | Civil eng'g

Thomas K. Sullivan WY A '26
Stabile No. 1480 | Mechanical eng'g

Danielle M. Sutterlin IN A '26
Stabile No. 1420 | Electrical eng'g

Karl F. Swanson NY N '26
Stabile No. 1421 | Biomedical eng'g

Kailee E. Tanaka RI A '26
Stabile No. 1422 | Biomedical eng'g

Lonnie M. Tankersley MS A '26
Stabile No. 1423 | Aerospace eng'g

Logan M. Tanner OK A '26
Stabile No. 1424 | Electrical eng'g

Joshua L. Taylor NC Δ '26
Stabile No. 1425 | Electrical eng'g

Angela E. Tewksbury NY Θ '26
Scribner No. 88 | Civil eng'g

Dilasha Thapa NY N '27
Brems No. 34 | Aero & mech. eng'g

Chance R. Thomasy KY A '26
Scribner No. 89 | Civil eng'g

Arianna G. Tobias OK A '25
Record No. 2069 | Computer science

Adam N. Tobin-Williams MD A '26
Stabile No. 1431 | Chem. & biom. eng'g

Nathaniel J. Tomas MN A '26
Stabile No. 1432 | Materials & sci. eng'g

Michelle N. Tran CA T '26
Forge No. 175 | Electrical eng'g

Skye Tucker MA K '26
Stabile No. 1481 | Mechanical eng'g

Tersoo R. Upaa Jr. NJ Δ '26
Stabile No. 1433 | Elect. & comp. eng'g

Kaylee M. Updegraff SD A '26
Stabile No. 1434 | Electrical eng'g

Serene S. Vaghmar GA Δ '27
Stabile No. 1435 | Biological eng'g

Abbigayle M. Vargas OK Γ '25
Stabile No. 1482 | Mechanical eng'g

Michael R. Velasquez KS Γ '26
Ice No. 1 | Electrical eng'g

Krithik Vishwanath TX A '26
Stabile No. 1487 | Computational eng'g

Srinidhi M. Vusirikala CA Z '26
Forge No. 165 | Bioengineering

Jennifer Wang MI Γ '25
Record No. 2070 | Electrical eng'g

Austin J. Wanlass CA A '26
Forge No. 163 | Aerospace eng'g

Kyle Wern OR A '26
Stabile No. 1483 | Mechanical eng'g

Sarah G. M. White VA E '26
Stabile No. 1488 | Chem. & life sci. eng'g

Sara G. Wickenhiser CA Ψ '26
Stabile No. 1484 | Mechanical eng'g

Roger W. Wszolek TX Δ '26
Stabile No. 1489 | Nuclear eng'g

Mena Y. Youssif MA A '26
Stabile No. 1490 | Civil eng'g

Emmalea A. Yunk CO A '26
Stabile No. 1485 | Mechanical eng'g

Alan Zhu PA Δ '26
Stabile No. 1491 | Computer & Info sci.

Marko J. Zimic NY O '26
Dechman No. 11 | Chem. & mol. eng'g

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CHAPTER ENDOWMENT INITIATIVE

The Chapter Endowment Initiative (CEI) program, launched in Spring 2014, allows alumni, companies, and foundations to permanently endow the Association's activities that support any of our 258 active collegiate student chapters.

MINIMUM GIFT AMOUNT:

The minimum gift being accepted for this initiative is \$5,000. All checks received that are designated for this initiative in an amount less than \$5,000 will be paid into Tau Beta Pi's annual fund which supports the same programs as the initiative.

HOW YOU CAN HELP:

There are a number of ways to support this initiative. Checks can be made to: Tau Beta Pi – The Engineering Honor Society Attention: Curtis Gomulinski, Executive Director, P.O. Box 2697, Knoxville, TN 37901-2697. Other options include gifts of highly appreciated stock held for over one year as well as matching gifts, IRA rollover gifts, and including Tau Beta Pi in your estate plans.

TAX-DEDUCTIBLE:

Gifts through this initiative will be reflected in an individual's total giving to TBP. As a non-profit organization, we are exempt from federal income taxes under Section 501(c)(3) of the Internal Revenue Code. Your gift is tax-deductible to the full extent allowed by law.

THE CHAPTER ENDOWMENT INITIATIVE:

You can learn more about the progress and developments of the CEI on our website, <https://www.tbp.org/?CEI> or by contacting Director of Development & Communications Sherry Jennings-King, *TN Alpha '93*, by phone at (612) 226-2922 or by email at s.jennings-king@tbp.org.



Newly Received Gifts & Pledges

Kenneth P. Gibbs, Ph.D., MO Γ '76
MISSOURI GAMMA — \$100,000
Washington University

FLORIDA ZETA — \$8,000
Florida Institute of Technology

Anonymous
TEXAS ALPHA — \$39,000
University of Texas at Austin

Nicholas M. Donofrio, NY Γ '67
CONNECTICUT BETA — \$5,000
University of Connecticut

MASSACHUSETTS EPSILON — \$5,000
Northeastern University

James C. Williams, Ph.D., P.E., NM B '76
NEW MEXICO BETA — \$5,000
University of New Mexico

James C. Williams, Ph.D., P.E., NM B '76
TEXAS ETA — \$5,000
University of Texas at Arlington

Ronald P. Brand, VT A '60
VERMONT ALPHA — \$5,000
University of Vermont

Antoinette M. Maniatty, Ph.D., NY Γ '87
NEW YORK GAMMA — \$5,000
Rensselaer Polytechnic Institute

Wesley R. Repke, MI Λ '09
MICHIGAN LAMBDA — \$5,000
Grand Valley State University

Barbara & †Ralph A. Rockow, OH Γ '58
ANY CHAPTER — \$5,000

Scott W. Schmucker, Ph.D., OH A '04
NEW MEXICO BETA — \$5,000
University of New Mexico

Endowed Chapters (33) with \$100,000 or more in cash and pledges:

ARIZONA ALPHA
Univ. of Arizona — \$105,000

CALIFORNIA DELTA
Univ. of Southern California — \$100,000

CALIFORNIA EPSILON
Univ. of California, LA — \$100,000

CALIFORNIA UPSILON
CA State Univ., Sacramento — \$100,000

COLORADO ZETA
U.S. Air Force Academy — \$100,000

FLORIDA GAMMA
Univ. of South Florida — \$105,000

ILLINOIS ALPHA
Univ. of Illinois at
Urbana-Champaign — \$187,520

INDIANA GAMMA
Univ. of Notre Dame — \$125,000

IOWA ALPHA
Iowa State Univ. — \$110,289

LOUISIANA ALPHA
Louisiana State Univ. — \$100,000

MARYLAND BETA
Univ. of Maryland — \$135,000

MASSACHUSETTS BETA
MIT — \$103,000

MICHIGAN BETA
Michigan Tech. Univ. — \$100,000

MICHIGAN GAMMA
Univ. of Michigan — \$204,912

MICHIGAN EPSILON
Wayne State Univ. — \$250,000

MICHIGAN ZETA
Kettering Univ. — \$100,000

MISSISSIPPI ALPHA
Mississippi State Univ. — \$115,000

MISSOURI BETA
Missouri Univ. of S&T — \$100,000

MISSOURI GAMMA
Washington Univ. — \$100,000

NEW JERSEY ALPHA
Stevens Institute of Tech. — \$105,228

NEW JERSEY DELTA
Princeton Univ. — \$100,000

NEW YORK GAMMA
Rensselaer Polytechnic Inst. — \$110,000

NEW YORK DELTA
Cornell Univ. — \$105,000

OHIO ALPHA
Case Western Reserve Univ. — \$100,000

OHIO BETA
Univ. of Cincinnati — \$100,000

OHIO GAMMA
Ohio State Univ. — \$100,000

OHIO EPSILON
Cleveland State Univ. — \$100,000

SOUTH DAKOTA ALPHA
SD Mines — \$204,675

TENNESSEE ALPHA
Univ. of Tennessee — \$100,000

TEXAS BETA
Texas Tech Univ. — \$100,113

VIRGINIA ALPHA
Univ. of Virginia — \$115,000

WEST VIRGINIA BETA
West Virginia Tech. — \$108,000

WYOMING ALPHA
Univ. of Wyoming — \$100,000

The goal of the Chapter Endowment Initiative is to endow all collegiate chapters to provide permanent funding for the activities that benefit the students of those chapters. Chapters with support above \$80,000 are eligible to receive grants to support their activities; Headquarters will contact the chapters once funding is available.

ALABAMA ALPHA \$5,000	COLORADO BETA \$20,000	MARYLAND ALPHA \$5,000	NEW YORK RHO \$5,725	TEXAS GAMMA \$5,000
ALABAMA GAMMA \$35,000	CONNECTICUT BETA \$5,000	MARYLAND GAMMA \$10,000	NORTH CAROLINA EPSILON \$5,000	TEXAS DELTA \$30,000
ALABAMA DELTA \$5,000	DELAWARE ALPHA \$10,000	MARYLAND EPSILON \$5,000	OHIO DELTA \$35,000	TEXAS EPSILON \$45,389
ALABAMA EPSILON \$5,000	D.C. ALPHA \$5,000	MASSACHUSETTS EPSILON \$5,000	OHIO IOTA \$5,000	TEXAS ZETA \$10,000
ARIZONA BETA \$10,000	FLORIDA ALPHA \$5,000	MICHIGAN ALPHA \$50,000	OHIO MU \$10,000	TEXAS ETA \$15,000
ARKANSAS ALPHA \$5,000	FLORIDA EPSILON \$14,659	MICHIGAN ETA \$5,075	OKLAHOMA GAMMA \$5,000	TEXAS THETA \$5,000
CALIFORNIA ALPHA \$50,000	FLORIDA ZETA \$8,000	MICHIGAN IOTA \$8,040	OREGON ALPHA \$10,000	TEXAS IOTA \$5,000
CALIFORNIA BETA \$45,084	GEORGIA ALPHA \$55,886	MICHIGAN LAMBDA \$10,000	PENNSYLVANIA BETA \$45,301	TEXAS KAPPA \$5,000
CALIFORNIA GAMMA \$72,000	ILLINOIS BETA \$5,000	MINNESOTA ALPHA \$25,000	PENNSYLVANIA GAMMA \$5,000	TEXAS NU \$40,031
CALIFORNIA ZETA \$74,000	ILLINOIS GAMMA \$30,857	MONTANA ALPHA \$5,000	PENNSYLVANIA DELTA \$5,000	VERMONT ALPHA \$10,000
CALIFORNIA ETA \$35,000	INDIANA ALPHA \$50,000	NEBRASKA ALPHA \$50,000	PENNSYLVANIA ZETA \$10,000	VERMONT BETA \$30,000
CALIFORNIA THETA \$5,000	INDIANA BETA \$10,000	NEW HAMPSHIRE BETA \$10,200	PENNSYLVANIA ETA \$10,000	VIRGINIA BETA \$75,069
CALIFORNIA LAMBDA \$5,000	INDIANA DELTA \$5,000	NEW MEXICO BETA \$20,000	PENNSYLVANIA THETA \$50,000	VIRGINIA EPSILON \$20,000
CALIFORNIA MU \$5,000	INDIANA EPSILON \$30,000	NEW YORK BETA \$78,707	PENNSYLVANIA LAMBDA \$30,000	WASHINGTON ALPHA \$20,000
CALIFORNIA NU \$5,000	IOWA BETA \$35,000	NEW YORK ETA \$5,000	PUERTO RICO ALPHA \$10,000	WISCONSIN ALPHA \$53,120
CALIFORNIA SIGMA \$10,000	KANSAS BETA \$5,000	NEW YORK THETA \$20,000	RHODE ISLAND ALPHA \$20,000	WISCONSIN BETA \$5,000
CALIFORNIA TAU \$5,000	KENTUCKY ALPHA \$25,000	NEW YORK KAPPA \$27,571	RHODE ISLAND BETA \$20,000	WISCONSIN GAMMA \$5,000
CALIFORNIA PSI \$35,000	LOUISIANA BETA \$10,000	NEW YORK MU \$15,000	TENNESSEE BETA \$10,000	WISCONSIN EPSILON \$5,000
COLORADO ALPHA \$60,000	LOUISIANA EPSILON \$15,000	NEW YORK NU \$5,000	TEXAS ALPHA \$80,240	ANY CHAPTER \$55,000

Open Challenge Matches (minimum \$5,000 gift)

- Tau Beta Pi received a bequest from the estate of **Charles F. Chatfield, Ph.D.**, *NY B '32*, of which \$20,000 was earmarked as a challenge match in support of the New York Beta Chapter at Syracuse University. To date, no matches have been received — four are needed to complete this challenge.
- **Nick A. Farmer**, *MD B '68*, set up a challenge match of \$20,000 toward the endowment of the Kentucky Alpha Chapter at the University of Kentucky. To date, we've received one match of \$5,000 — three more are needed to complete this challenge.
- **Robert H. Tolson**, *VA B '58*, initiated a challenge match of \$25,000 toward the endowment of the Virginia Beta Chapter at Virginia Tech. To date, no matches have been received — five are needed to complete this challenge.
- **Robert "Dudley" White**, *VA A '76*, launched a challenge match of \$20,000 toward the endowment of the Virginia Epsilon Chapter at Virginia Commonwealth University. Four gifts of \$5,000 are needed to complete this challenge.

Kenneth Gibbs

MO Gamma '76

*Dr. Kenneth P. Gibbs Endowment for the Missouri Gamma Chapter
at Washington University in St. Louis.*

Engineering was a natural choice for Dr. Kenneth (Ken) Gibbs. As he puts it, "I was probably an engineer from age twelve; I had electrical engineering written all over me." Ken grew up in Westlake, a suburb of Cleveland, Ohio. His mother was a talented piano teacher and his father an electrical engineer who had a notable impact on his son. "He had lots of problem-solving skills and great ethical characteristics — I learned a great deal from him. And I think early on, that problem-solving influenced me."

In adolescence, Ken liked to build model airplanes and assemble radios. On one memorable evening in his childhood, he was able to listen to every baseball game being played in the United States with his radio equipment. When Ken was named salutatorian his senior year of high school (three thousandths of a grade point average below the class valedictorian) he was pictured sitting in front of radios in his high school yearbook.

Ken attended Washington University in St. Louis, drawn to its welcoming nature and the emphasis they placed on education and the well-being of its students. He sought out a well-rounded college experience, playing softball and singing in the choir, in addition to his electrical engineering studies which he describes as fantastic. Ken admits he felt some ambiguity towards Tau Beta Pi and almost didn't join. "I was thinking, what good is this going to do for *me*, and not, what good is this going to do for others? Later in life, I realized there's more to this than my personal experience... it's the experience of the engineering profession as a whole."



After receiving his bachelor's degree, Ken pursued an M.S. and Ph.D. at the Univ. of Illinois Urbana-Champaign where he was the first to observe coherent scatter from acoustic-gravity waves in the D-region using nighttime meteor-induced ionization.

Next, he worked as a staff engineer with the Harris Corporation (now L3Harris Technologies), where he developed digital moving map displays for aircraft cockpits. Ken also designed software to ingest map and imagery information and custom embedded databases for real-time displays. He then joined Northrop Grumman as an embedded software engineer and designed, integrated, and tested IP networks.

Ken never intended to be a formal educator, but describes his path to teaching as almost an accident. At an IEEE meeting, a Florida Institute of Technology professor approached him about joining their adjunct faculty. "He recognized something in me that said, 'this looks like a person who might be suitable to teach.'"

He started teaching various courses and was eventually asked to teach systems engineering. After retiring from Northrop Grumman and close to finishing his teaching career, he was asked to lead the ECE senior-design course. "It was like being thrown into the deep end of the pool, but it turned out I was pretty good, or at least decent enough that they wanted to keep me on; it turned out the students really enjoyed me teaching as well," Ken says.

In 2020, Ken and his wife, Claire, moved near the University of Texas at Tyler, where he's a volunteer mentor for their senior design program. When asked what continues to call him back to education — he's motivated by the idea of contributing to students' lives. "To take my life experiences and use them to help somebody else get a leg up on their engineering career... I think it's valuable."

This mindset inspired his gift to endow the MO Gamma Chapter at Washington University through the TBPI Chapter Endowment Initiative. "There's value to having Tau Beta Pi around. I tell my students, I want you to be asked by your co-workers, 'Why are you as good as you are?' I think Tau Beta Pi contributes to that." Ken believes it's important to relieve the pressures of fundraising from students and allow for officers to attend Convention. "The experiences they get there, I think, are helping. It nurtures them. It grows them. Giving money for this initiative helps me add value to somebody's life, to help them be better at what they are going to do."

When asked if he has any advice for young engineers, Ken emphasizes the importance of soft skills and understanding that you're part of a larger process. "You want the work you do to be valued because it's rewarding both to you and, of course, to the larger community. So, do good work."

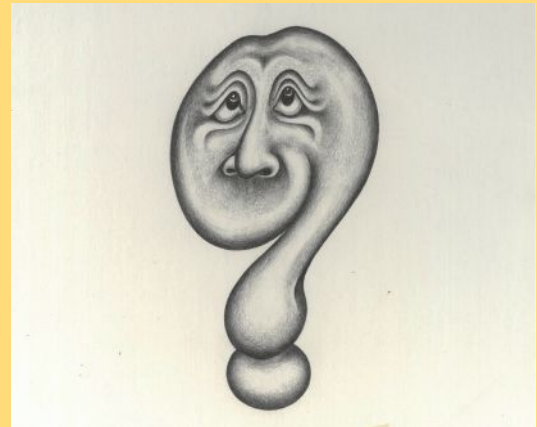
The STORY BEHIND The PHOTO

Announcing the Fall 2025 “Caption This Photo” Contest!

Back before there were programs such as Canva and InDesign, graphics for this magazine were hand-drawn. Thanks to another TBP HQ office flood, we’ve been going through physical archives and found this gem. Proudly named “Brain Tickler’s head,” it first appeared in the Winter 1979 issue and led to a large increase in entries. What was this drawing trying to convey?

How to Enter: Send us your witty caption(s) for this drawing. If the judges vote yours as one of the **top three** (and you have not been a previous winner), we’ll send you a TBP t-shirt of your choice!

Submit your entry using this form: <https://www.tbp.org/?CaptionSub> or mail to *The Bent* of Tau Beta Pi, Caption Contest, P.O. Box 2697, Knoxville, TN 37901-2697.



**DEADLINE: SATURDAY,
NOVEMBER 1 AT 5 P.M. [ET]**

Questions? Contact d.lane@tbp.org

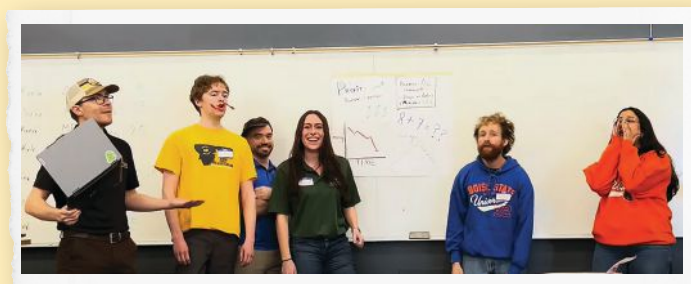
WINNERS of the Summer 2025 “Caption This Photo” Contest:

The judges reviewed 23 entertaining captions created by 21 Tau Bates. You can read all entries, including captions and results from recent contests, at <https://www.tbp.org/bent-features.cfm#caption>. **If you are interested in serving as one of our judges, contact Dylan Lane at d.lane@tbp.org.**

1ST PLACE:

“I think we need a new finance group. Chart is declining with time, shirts don’t match, and we still don’t know what $8 + 7$ equals.”

Joseph E. Harrison, NC A '84



2ND PLACE:

“Is this a great app or what? Now watch me make him bark like a dog!”

Richard R. Roll, IN B '81

3RD PLACE:

“Opening night of *Engineers: The Musical!*”

John S. Hundley, KY A '87

Honorable Mention:

An anonymous submission was also popular with the judges, but not included in rankings as it was partially written by an (AI) LLM.

“Do you Hear the Tau Bates Sing?” (to the tune of “Do You Hear the People Sing?” from *Les Miserables*)

Do you hear the Tau Bates sing,
Singing the song of engineers?
It is the music of the minds
Debugging code for years & years!

When the vibration of your spring
Matches the plot upon the screen,

▲ In March, at the District 12 Conference in Boise, Idaho, a group of Tau Bates from different collegiate chapters presented a skit on financial reports to other attendees.

There is a patent in the air
If legal signs it clean!

Do you hear the Tau Bates sing,
Singing the song of engineers?
It is the music of the minds
Debugging code for years & years!

A master’s degree
Will give us a much better chance!

Alumni Giving

An Important Update:

To begin, we would like to thank the 1,138 Tau Beta Pi alumni and others who made donations to the Association totaling \$523,535 from May 1 through July 31, 2025.

We consider ourselves fortunate for the impressive number of alumni who regularly support the Association — **thank you!** As you know, due to rising publishing costs, we've been acknowledging some of our donor recognition clubs online. Recently, the TBPi Headquarters development team has been considering how to most effectively recognize the incredible generosity of our donors. While it would be more economical to move all this information to the website, we understand that many alumni would prefer to see it in print. For this reason, we've come to the decision **to publish a list of annual alumni contributors once a year in a "financial" issue of the magazine.** This issue will also provide additional information on planned giving, our Trestle Society, corporate matching, and the annual Executive Director's report.

What will this look like? There will not be a list of alumni contributors in this issue or the upcoming Winter 2026 issue. In its place (page 31), you'll find stories highlighting the far-reaching impact of your support. In the Spring 2026 issue, and each spring issue moving forward, a list of alumni contributors for the previous year will be published in a format similar to past issues. We will also continue to publish the full quarterly giving lists in PDF format on our website at: <https://www.tbp.org/?AGP>

Thank you for your understanding as we strive to produce a cost-effective and thoughtful magazine. We are grateful for your steadfast commitment to the work of Tau Beta Pi.

Sherry Jennings-King

Director of Development & Communications
s.jennings-king@tbp.org



Erin Andrews

Development & Fundraising Coordinator
e.andrews@tbp.org



Alumni Spotlight

Abraham O. Atte, Ph.D., KS A '20

My name is Abe Atte, and I'm originally from Abuja, Nigeria. I recently completed my Ph.D. in aerospace engineering at the Georgia Institute of Technology. My research focused on rotorcraft aerodynamics with a specific emphasis on the experimental evaluation of the behavior and performance of multirotor vehicles in various configurations and complex operational environments. Through my work, I developed novel methods for quadrotor analysis in forward flight and in hover near obstacles. I also developed models that better describe how multirotor vehicles behave and how they differ from traditional helicopters.

Before graduate school, I earned my B.S. in aerospace engineering from the University of Kansas (KU) in 2020. I was initiated into the Kansas Alpha Chapter in the spring of 2018 and quickly took on the role of membership coordinator, which I held until I graduated. During my time as a KS Alpha Chapter officer, our team worked hard to raise the profile of TBΠ on campus. This included initiating the Dean of the School of Engineering as an eminent engineer, increasing membership and engagement, and hosting the District 9 Conference (2020) and first-ever KU Engineering Formal.

Those experiences gave me the chance to grow as a leader and learn how to work as part of a dedicated team.

One of the highlights of my time as an undergraduate member was attending the TBΠ annual Convention, where I made friends and connections that I still have today. I also tapped into many of the growth opportunities that Tau Beta Pi offers to its members. I'm also a recipient of both a TBΠ Scholarship and subsequently a graduate Fellowship, in support of my graduate education. These awards opened doors for me to participate in additional activities, including attending conferences and other professional development activities.

The opportunities Tau Beta Pi has provided mean a lot and have made a significant impact throughout my academic journey. I recognize that this is a special organization which not only brings the greatest minds together but also creates camaraderie of which few others can boast. In recognition of the Association's immense contributions in my life, I'm committed to continuing to make it as impactful for future members. In furtherance of this effort, I currently serve on the Student Advisory Board, providing input to the TBΠ Executive Council, and as an Engineering Futures Facilitator, delivering skills training workshops to students.



GET TO KNOW ABE:

- **Recently joined Texas A&M University as an assistant professor in aero eng'g.**
- **Named to Aviation Week Network's 20 Twenties' Class of 2025.**
- **Once volunteered at a wolf sanctuary.**
- **Enjoys cooking, going to the movies, exploring new cities, and trying new foods.**
- **Prepared and served meals at the Jubilee Café, a program that provides free breakfasts for the Lawrence, Kansas, community.**



Graduate Studies in Engineering

BY BRUCE LINDVALL, Ph.D.

Our country needs more U.S. students pursuing graduate degrees before starting a career.

Image above: Bruce speaks with a group of Tau Beta Pi students at the 2018 Convention in Denver, Colorado.

BACKGROUND

For more than a decade, it was my privilege to present a professional development session about graduate studies in engineering at the annual Tau Beta Pi Convention. It was a highlight of my time while serving as assistant dean for graduate studies in the McCormick School of Engineering at Northwestern University. Now in retirement, I am still passionate about helping more U.S. students consider graduate school as a graduating senior or after starting a career.

The overwhelming majority of U.S. students who complete a B.S. degree in engineering immediately enter the workforce and begin their careers. From my perspective there are two issues with that. First, once a B.S. graduate begins a career it is very difficult to leave employment and return to graduate school. Furthermore, many undergrad students do not know that they can apply directly for Ph.D. admission.

It is estimated that 70 percent of the Ph.D. and 80 percent of the M.S. engineering students in the United States are from other countries. Most of these international students are from China and India. There are many companies, and most national labs, that will not be able to hire international graduates who then return to their home countries for employment. The H-1B Visa process limits the number of international graduates who can be employed in the United States after graduation.

WHY GRAD SCHOOL

Graduate studies in engineering will allow a student to enter the workforce in higher level positions and allow for advancement more quickly, if a graduate degree is required. There are supervisory and research positions in many engineering fields that require an advanced degree to begin or to be promoted.

With rapidly changing environments in the workforce and higher education, it is important for undergrad engineering students to keep their options open. In spring 2026, job offers may not be as forthcoming as in prior years. Fall 2025 graduate admissions as well as NIH and NSF funding fell well below what transpired in prior years. Changes in diversity, equity & inclusion from the Supreme Court decision in June 2023 and further changes in 2025 admissions and funding present additional challenges. For these reasons, it is more important than ever to seek help in submitting exceptional graduate school applications and to also apply for multiple sources of funding such as National Science Foundation Graduate Research Fellowships, TBPI Fellowships, and GEM Fellowships.

GRADUATE SCHOOL OPTIONS

Many engineering schools offer joint B.S./M.S. programs that can be completed in four or five years. High school students with significant Advanced Placement or International Baccalaureate credit may be able to complete both degrees in only four years. Some B.S./M.S. programs allow flexibility in M.S. degrees with business and engineering management options.

As an undergraduate engineering senior, it is possible to apply for both jobs and graduate admissions. In the spring of senior year, job offers and admission offers can be compared. Many students do not know that engineering schools often allow students to defer graduate admissions for a year, so a compromise is work for a year and then reconsider graduate study. It is also important to know that graduate students qualify to have student loans deferred while enrolled full-time.

Perhaps one of the best ways to prepare for graduate school is to participate in undergraduate research as opposed to an internship. Most engineering schools offer undergraduate research opportunities during the academic year. In addition, many universities and national labs have summer research opportunities and many of these are paid positions and sometimes room and board is provided at no cost.

CONCLUSION

My passion working in higher education for five decades was to help students attain as much education as possible, especially before beginning a career. I've continued these efforts by recently publishing a book through Amazon, "Applying for Graduate Admission to US Engineering Schools." The book contains important information and excellent resources for both domestic and international applicants.

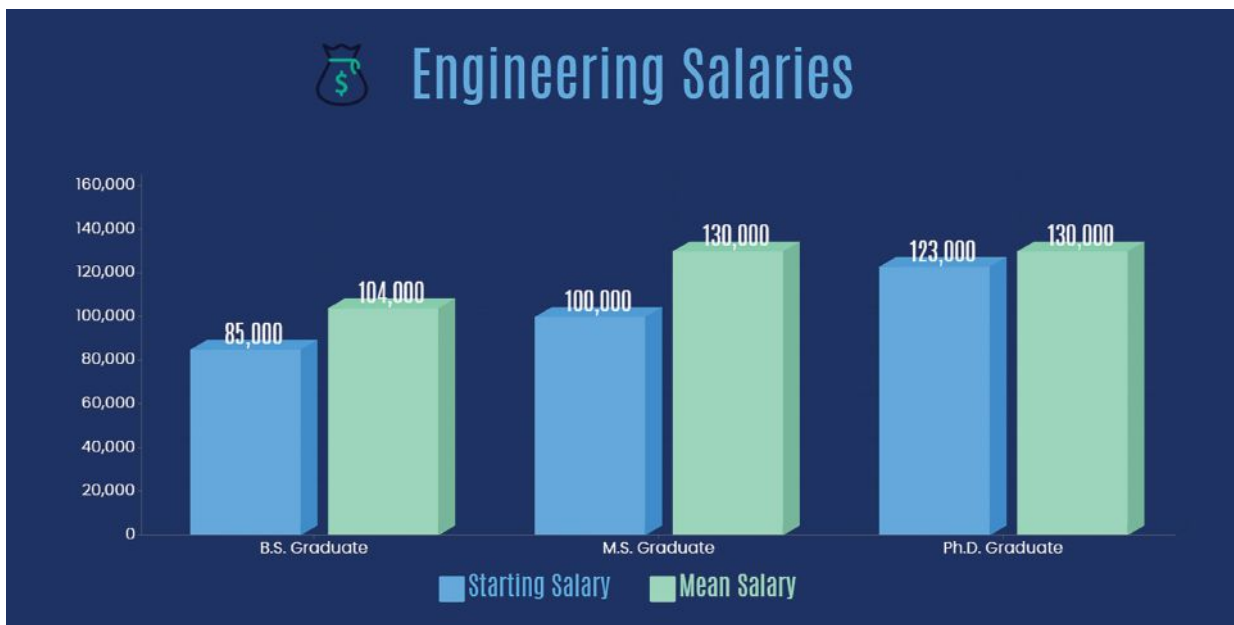
As was true after my annual TBI Convention presentations, I continue to offer free, personalized assistance on just about all aspects of pursuing graduate school to students who contact me by email at brucealindvall@outlook.com.

You can also find me on LinkedIn and join my nearly 13,000 followers and 11,000 connections for information about my upcoming presentations and speaking events and also a considerable number of posts focused on graduate admissions, summer research programs, and fellowships.



BRUCE LINDVALL has a B.S. degree in mathematics, an M.S. in counseling, and Ph.D. in higher education administration, all from Purdue University. He spent 51 years working in higher education before his retirement in November 2023. In addition to his time at Northwestern University in graduate engineering admissions, Bruce also spent five years as the chief educational manager, Higher Education Services at The College Board (IL). In 2016, he was recognized with the DuPont Minorities in Engineering Award from the American Society for Engineering Education (ASEE) honoring his commitment to increasing student diversity in science, engineering, and technology. Bruce presented his popular professional development session and recruited Tau Bates at TBI Conventions from 2013-22.

The infographic below shows the opportunity for upward mobility within the engineering workforce for those with graduate degrees.



IN THE COLLEGES

Tau Bates having an impact at institutions of higher learning.

Louis N. Cattafesta III Ph.D.

Pennsylvania Beta '86

Louis has been appointed the new Illinois Tech dean, college of engineering, where he's been the inaugural endowed dept. chair in mechanical, materials, and aerospace engineering since August 2022. He has authored or co-authored seven U.S. patents, serves as an associate editor for *Experiments in Fluids*, and previously worked at NASA's Langley Research Center.



Anantha P. Chandrakasan Ph.D.

California Alpha '89

Anantha was named the new Massachusetts Institute of Technology provost, effective July 1. He's served as MIT's School of Engineering dean since 2017 and as inaugural chief innovation & strategy officer since 2024. An active researcher throughout his time at MIT, Anantha has led the MIT Energy-Efficient Circuits and Systems Group even while taking on new administrative roles.



David S. Ebert Ph.D.

Ohio Gamma '86

David joined the University of Arizona as its first chief AI and data science officer thanks in part to a \$3.5 million anonymous gift. He will also be a COE tenured faculty member in the electrical & computer eng'g dept. His research centers on using visual analytics, explainable AI, human-computer teaming, and predictive analytics to tackle complex data challenges.



SPOTLIGHT: A Family Legacy at North Carolina State University

— A \$20 million investment from alumnus, **Ross W. Lampe Jr., Ph.D., NC A '77**, will support the advancement of cutting-edge research that unites engineering and medicine. The contribution also names the Lampe Joint Department of Biomedical Engineering. Originally established in 2003, this inter-institutional collaboration to advance human health unites the NC State COE with the College of Arts and Sciences and the School of Medicine at UNC-Chapel Hill. The Lampe family has been integral to NC State for four generations with Ross' late grandfather, **J. Harold Lampe, Ph.D., MD A 1918**, serving as NC State COE dean from 1945-62. Ross started SMD Software Inc. in 1998, supporting the self-storage industry and sold it a few years ago.

Tissue Engineering Leader Saving Lungs

— In her lab at Oklahoma State University, professor and head of chemical engineering **Heather Fahlenkamp, Ph.D., OK G '97**, is pioneering advanced 3D lung tissue models to dissect age-related immune responses to pathogens as well as ophthalmic drug delivery systems involving nanoparticle-loaded membranes affixed to contact lenses for sustained medication release in treating diabetic retinopathy. Dr. Fahlenkamp earned an NSF CAREER Award for advancing engineered tissue models for allergic inflammation studies and was an early project investigator for the Oklahoma Center for Respiratory and Infectious Diseases. As a mentor to the next generation of researchers, she's fostering interdisciplinary collaborations in BioMed eng'g & infectious disease.

John G. Harris Ph.D.

Massachusetts Beta '83

John became provost and executive vice chancellor for academic affairs at Missouri University of Science and Technology on July 1. Most recently, he was dean of the College of Engineering at Florida Institute of Technology and served as a FL Zeta Chapter Advisor. John is a member of the ASEE Deans Council and on the editorial board for the *Scilight Press Transactions on Artificial Intelligence*.



James P. Holloway Ph.D.

Illinois Alpha '83

James was named the 19th president of the University of Toledo and was previously provost and executive vice president for academic affairs at the University of New Mexico. He also spent two decades at the Univ. of Michigan in roles including vice provost for global engagement & interdisciplinary academic affairs and associate dean of undergrad education for the College of Engineering.



Kimberly L. Jones Ph.D.

District of Columbia Alpha '90

Kimberly has been appointed dean of the College of Engineering and Architecture at Howard University (HU). Her past roles at HU include assoc. provost for faculty affairs and chair of the dept. of civil & environmental engineering. A DC Alpha Chapter Advisor and past vice president, Kimberly chaired the U.S. EPA's Chartered Science Advisory Board and Drinking Water Committee.



Andrew G. Klein Ph.D.

New York Delta '98

Andy recently became chair of the new electrical & computer engineering department at Western Washington University. Previously, part of the design program, this dept. will offer a graduate program, which was funded by the state in 2024 and is unique to other eng'g majors. He's been on the WWU faculty since 2014 and also taught at WPI, where he served as a MA Alpha Chapter Advisor.



Steven J. Koester Ph.D.

Indiana Gamma '89

Steven, recently appointed professor of microelectronics and recognized scholar and innovator in nanotechnology, has been named director of the University of Notre Dame's Center for Nanoscience and Technology. In this role, he'll lead 90+ affiliated faculty across seven departments in the College of Engineering and Science. He is an IEEE and National Academy of Inventors fellow.



Elizabeth G. Lobo Ph.D.

California Lambda '95

Elizabeth joined the University of Denver as provost and executive vice chancellor on August 20. She's spent the past five years as the provost and senior vice president for academic affairs at Southern Methodist Univ. Elizabeth is the recipient of the UC Davis Distinguished Engineering Alumni Medal as well as the Stanford University Distinguished Alumni Scholar Award (her alma maters).



FACILITIES: Auburn (AL) Gulf Research Station —

In July, leaders broke ground on the Auburn Univ. Gulf Coast Engineering Research Station. As part of a partnership with the city of Orange Beach, the 21,000-sq. ft. facility will span two stories and offer direct access to the Gulf Coast. Designed for collaboration and research, the station will include labs, meeting rooms, and outdoor areas — all oriented toward views of Terry Cove. It will also serve as a permanent hub for studying Gulf Coast environments and communities while supporting partnerships with others in the Marine Environmental Sciences Consortium. **Mario R. Eden, Ph.D., AL A '99**, dean of engineering, said the station will support research into water quality, marine health, and the impacts of human activity on natural systems.

New Additive Manufacturing Center Partnership —

The University of Oklahoma (OU) and Oak Ridge National Lab (ORNL) have entered a strategic collaboration to establish a cutting-edge additive manufacturing (AM) center based in Norman. Building on OU's Sooner Advanced Manufacturing Lab and ORNL's manufacturing demonstration facility, the center will focus on pioneering metal AM solutions for aerospace and national defense needs. The university supports DoD priorities such as sustainment and modernization, and ORNL brings technical capabilities in materials science. OU COE associate dean for research, **Zahed Siddique, Ph.D., GA A '94**, said, "Collaborating on cutting-edge manufacturing technology will expand research impact and enhance economic development opportunities."

David C. Mays Ph.D., P.E.

Pennsylvania Delta '95

David is the 2025 recipient of the Charles R. O'Melia Distinguished Educator Award, presented by the Association of Environmental Engineering and Science Professors. Nominated by a colleague, he was recognized "for sustained and outstanding teaching and research contributions and inspirational mentoring." David is a civil eng'g associate professor at the Univ. of Colorado at Denver.



Marnie M. Saunders Ph.D.

Ohio Kappa '98

Marnie has joined Miami University (OH) as associate dean for graduate studies, research and innovation for the College of Engineering and Computing. She's been working at the Univ. of Akron, her alma mater, as a professor and senior associate dean and served as an OH K Chapter Advisor since 2022. Marnie's research focus is in orthopaedic bio-mechanics and bone cell mechanobiology.



Lav R. Varshney Ph.D.

New York Delta '04

Lav was named the inaugural director of the campus-wide Artificial Intelligence Innovation Institute, or AI3, at Stony Brook University. He will also hold the inaugural Della Pietra Infinity chair. A cutting-edge researcher in artificial intelligence and its applications, Lav was previously a faculty member in the dept. of electrical & computer engineering at the University of Illinois Urbana-Champaign.



CHAPTER ETERNAL

Our fellow Tau Bates who are gone, but never forgotten.

The condensed style of these notices is made necessary by the Association's large membership and space limitations in *The Bent*. You may contact the Editor for additional facts (if available) concerning the following deceased members. The assistance of all is earnestly sought in reporting the deaths of Tau Bates, including full name and date of death. You may report the death of a member by sending an email to tbp.memberupdate@tbp.org. Members that were 100+ years when passing are identified with "Cent."

ALABAMA

ALPHA AL A

Delk, Charles Halbert, '51, March 18, 2025.

GAMMA AL Γ

McCurry, Bradley Barto, '85, no details.

ARIZONA

ALPHA AZ A

Fish, James J., '50, April 20, 2025.

Weber, Theodore V., '66, June 15, 2025.

ARKANSAS

ALPHA AR A

Harris, James Arthur, '95, February 26, 2024.

CALIFORNIA

ALPHA CA A

Monismith, Carl Leroy, '50, January 7, 2025.

Anderson, Robert Neil, '58, March 13, 2023.

Scott, Eric R., '71, January 1, 2025.

GAMMA CA Γ

Herron, Howard Winston, '60, April 7, 2024.

DELTA CA Δ

Ford Jr., Ben R., '52, August 2, 2014.

EPSILON CA E

Tasugi, Kinji M., '67, April 9, 2025.

Lew, Marshall, '71, April 6, 2025.

McCray, Scott B., '79, no details.

IOTA CA I

Randolph, James E., '64, April 7, 2025.

MU CA M

Helkenn, Charlie R., '72, no details.

RHO CA P

Roberti, Richard A., '81, no details.

COLORADO

BETA CO B

King, Harold Homer, '59, December 9, 2024.

GAMMA CO Γ

McFann Jr., Charles B., '52, May 1, 2022.

Rados, Miles F., '61, March 5, 2017.

Fosha, Kenneth Henry, '68, January 1, 2024.

CONNECTICUT

BETA CT B

Grimaldi, Albert H., '60, May 21, 2025.

Schwind, Louis H., '69, February 6, 2020.

DISTRICT OF COLUMBIA

BETA DC B

Orzech, Joseph Miller, '71, May 27, 2025.

GAMMA DC Γ

Whitham, Charles Lamont, '61, Dec. 21, 2021.

FLORIDA

ALPHA FL A

Cavin, Edward William, '59, January 7, 2025.

Renwick, Glenn M., '78, May 16, 2025.

Brown, Paul, '84, April 8, 2024.

GAMMA FL Γ

Ruppenthal, Robert Metcalf, '77, no details.

GEORGIA

ALPHA GA A

Allison, Patton Manuel, '08, April 28, 2025.

ILLINOIS

ALPHA IL A

Bitzer, Donald L., '55, December 10, 2024.

Moon, Donald Wayne, '56, May 1, 2022.

BETA IL B

Dombroski, Richard Walter, '63, Jan. 4, 2020.

ZETA IL Z

Simon, Peter A., '92, January 8, 2025.

INDIANA

ALPHA IN A

Young, Robert G., '44, Nov. 30, 2023. *Cent.*

Milligan, James W., '48, April 1, 2025. *Cent.*

Grosh, Richard Joseph, '50, January 23, 2025.

Hyland, Jerry E., '57, March 31, 2025.

Sorensen, Peter F., '57, February 13, 2025.

Cotterman, Jack Doyan, '58, Feb. 21, 2025.

Roby, Dennis Edgar, '60, January 15, 2024.

Watson, Richard Elam, '60, March 27, 2025.

Stern, Stuart Edward, '61, May 6, 2025.

Nemier, Stanley Edwin, '63, March 31, 2015.

Hoffman, James William, '65, no details.

Cable, Daniel Hobbs, '67, January 28, 2025.

Franklin, William Jay, '68, April 6, 2025.

Gilbert, William Frederick, '68, July 26, 2023.

Diemond, Glenn R., '69, February 18, 2022.

GAMMA IN Γ

Henry, Eugene Walter, '54, May 21, 2025.

IOWA

ALPHA IA A

Miller, Max J., '62, June 28, 2025.

BETA IA B

Gurnett, Donald Alfred, '62, January 13, 2022.

Entwhistle, George E., '69, January 19, 2022.

KANSAS

ALPHA KS A

Metzger Jr., James Irvin, '60, no details.

KENTUCKY

ALPHA KY A

Skelland, A. H. Peter, '48, October 19, 2023.

Winstead, Wallace Beecher, '57, Jan. 3, 2001.

LOUISIANA

BETA LA B

Boyle Jr., William Milnor, '62, no details.

MAINE

ALPHA ME A

Brigham, Ernest Bennett, '53, Nov. 1, 2019.

Hunter, Robert E., '53, May 30, 2025.

Harris, Arthur W., '60, February 3, 2014.

MARYLAND

ALPHA MD A

Rueckert, John Edward, '51, October 4, 2023.

BETA MD B

Clerman, Norman Stanley, '68, May 17, 2025.

Richmond, Howard Eric, '80, Nov. 3, 2016.

Terpstra, Jack William, '81, no details.

Lutz, Michael Scott, '93, October 4, 2018.

MASSACHUSETTS

ALPHA MA A

Simon Jr., Philip Edward, '53, no details.

BETA MA B

Perkins, Edward Lee, '50, December 6, 2024.

Howard, Ronald Arthur, '55, October 6, 2024.

Schofield, Robert Hayden, '59, April 14, 2025.

Calvano, Charles Natale, '70, June 30, 2021.

DELTA MA Δ

Dibeneditto, Joseph Peter, '71, no details.

EPSILON MA E

Roberge, Conrad Pual, '78, August 25, 2024.

ZETA MA Z

Doyle, John A., '63, May 10, 2025.

Lewis, Nelson David, '73, Dec. 27, 2024.

California Epsilon '71

**Marshall Lew,
Ph.D., P.E.**

April 6, 2025

Marshall was a geotechnical and earthquake engineer recognized as a leading practitioner and generous contributor to professional organizations. He worked on many important projects in Southern California, including the Library Square Tower, a seismic evaluation of the Elizabeth Tunnel, and the Petco Park Baseball Stadium.





Florida Alpha '78

Glenn M. Renwick

May 16, 2025

Spent half of his 32-year career at Progressive Corp. as CEO. Known for open communication and data-driven decision making, Glenn was twice included in Forbes' listing of the 40 most admired CEOs. Originally from New Zealand, earned an industrial & sys. eng'g M.S. from UF.



Pennsylvania Beta '62

George R. Sterner, VADM, USN (ret)

November 29, 2024

His career included command of two nuclear submarines, the USS Sturgeon and the Trident submarine USS Florida, and of the Naval Sea Systems Command (NAVSEA) responsible for the design, construction & support of all Navy ships, submarines, and small craft.

MICHIGAN

ALPHA MI A

Springer, William S., '49, June 6, 2024. *Cent.*
Scheffler, Clarence Edward, '62, July 9, 2024.

BETA MI B

Holley, Donald Leon, '53, June 8, 2025.
Predebon, William W., '65, July 21, 2023.

GAMMA MI Γ

Roberts, Gordon Alfred, '55, no details.
Springer, George S., '59, August 15, 2024.
Townsend, William Harold, '60, Jan. 6, 2025.
Danzeisen, Larry Arthur, '62, Dec. 29, 2021.
Vander Molen, Donald Roy, '64, Sept. 8, 2016.
Schaadt, Richard Anton, '76, April 8, 2022.

DELTA MI Δ

Schalk, Eugene N., '55, February 24, 2025.
George, Robert J., '64, no details.

EPSILON MI Ε

Juengel, Reynold H., '50, February 17, 2024.
Turczynski Jr., Raymond, '61, Feb. 10, 2025.
Edwards, Richard Bryan, '66, Jan. 1, 2018.
Lapchak, Markian, '73, May 1, 2025.
Park, Soon C., '85, March 19, 2021.

ZETA MI Ζ

Holbrook, John L., '83, June 4, 2025.

ETA MI Η

Zwally, Chester Lee, '41, April 8, 2020. *Cent.*

MINNESOTA

ALPHA MN A

Kretchmer, Richard Allan, '62, Feb. 16, 2024.

MISSOURI

ALPHA MO A

Adams, Charles Ray, '65, February 24, 2025.
Gray, Michael Robert, '83, August 25, 2023.

BETA MO B

Walker, William Dewey, '58, Sept. 1, 2021.
Boston, Lawrence Allan, '60, Dec. 12, 2024.

GAMMA MO Γ

Jones, William Scott, '59, Sept. 25, 2023.

MONTANA

ALPHA MT A

Nickelton, Robert Leland, '51, April 12, 2025.

NEW JERSEY

ALPHA NJ A

Shook Jr., Louis Lathrop, '48, Jan. 27, 2025.
Kimmich, Herbert Ludwig, '57, Jan. 29, 2025.

GAMMA NJ Γ

Sadvary, John William, '53, April 30, 2025.
Posik, Ernest W., '79, August 4, 2024.

NEW YORK

ALPHA NY A

White, Ralph Paul, '51, no details.

BETA NY B

Acrivoss, Andreas, '50, February 17, 2025.

GAMMA NY Γ

Loewy, Robert Gustav, '47, January 23, 2025.
Botshon, Morton, '54, June 24, 2025.
Hill, J. Wade, '56, February 27, 2025.

EPSILON NY Ε

Kleinman, Paul Henry, '44, Feb. 17, 2014.
White, Franklin H., '50, May 19, 2025.
Niebanck, Charles F., '54, February 24, 2025.
Guenther, William, '60, no details.
Hofstein, Harold, '62, no details.

ZETA NY Ζ

Lander, Ferris Harvey, '72, Sept. 3, 2017.
Losik, Charles Michael, '72, Feb. 26, 2022.

ETA NY Η

Sonnenschein, Abraham, '48, Jan. 23, 2015.
Steinberg, Charles A., '55, March 12, 2024.

THETA NY Θ

Wright, Robert O., '47, March 24, 2025.

IOTA NY Ι

Matthews, William George, '66, Dec. 1, 2021.

LAMBDA NY Λ

Gorman, Gerard A., '73, August 12, 2021.

NU NY Ν

Weber, Thomas William, '53, July 19, 2024.

NORTH CAROLINA

ALPHA NC A

Woodman, Richard Carter, '62, April 25, 2021.
Parker, Gerald Brent, '71, no details.

GAMMA NC Γ

Russell Jr., Parvin Masters, '57, no details.

NORTH DAKOTA

BETA ND B

Stephan, Gregory, '76, March 5, 2025.

OHIO

ALPHA OH A

Case, Richard Paul, '56, no details.
Kinser, David E., '60, August 1, 2024.
Myers, David Lee, '67, January 11, 2022.
Coate, Larry Dean, '70, September 13, 2023.
Crecca, Michael Alan, '81, Sept. 6, 2023.

BETA OH B

Chalk, David Lloyd, '62, January 11, 2025.
Vieth, Donald L., '63, May 8, 2025.

GAMMA OH Γ

Gamble, Wesley Eugene, '60, July 2025.
Cook, James Howard, '65, Dec. 29, 2024.

DELTA OH Δ

Batchelder, Paul J., '74, May 25, 2025.

EPSILON OH Ε

Fischer, Joseph P., '68, March 23, 2025.

ZETA OH Ζ

Frederick, Wm G. D., '58, no details.
Dennis, Richard Everett, '61, no details.
Heitman, Glenn K., '80, April 10, 2024.

ETA OH Η

Titmas, Gary William, '75, September 9, 2022.
MacInnis, William H., '77, June 1, 2024.

IOTA OH Ι

Ryan, Robert Grady, '81, July 14, 2025.

KAPPA OH Κ

Gross, Richard Joseph, '61, January 6, 2025.

LAMBDA OH Λ

Semancik, Joseph M., '81, March 27, 2022.

OKLAHOMA

ALPHA OK A

Schwenker, John E., '52, no details.
Scott, Jerry Allan, '74, September 17, 2024.

GAMMA OK Γ

Case, Kenneth Eugene, '66, Dec. 4, 2024.

OREGON

ALPHA OR A

Alexander, Grayson Theodore, '62, no details.

PENNSYLVANIA

ALPHA PA A

Dowdell, Thomas deWindt, '51, Aug. 29, 2022.
Scavuzzo, Robert John, '60, Feb. 14, 2022.
Rush, Robert Sherman, '61, April 30, 2024.
Nagel, Eric Jay, '74, August 1, 2023.

BETA PA B

Magnus, John Calhoun, '48, July 22, 2024.
Getson, William J., '60, April 26, 2025.
Sterner, George Rudolph, '62, Nov. 29, 2024.

GAMMA PA Γ

Ziesse, Norman Gerard, '65, Sept. 1, 2024.
Schmalz Jr., James A., '71, August 27, 2022.

EPSILON PA Ε

Hughes III, Alexander S., '62, Oct. 30, 2013.
Oberholzer, David J., '68, July 19, 2025.
Petura Jr., Richard C., '69, March 2, 2023.

Continues on page 38.

CHAPTER ETERNAL

Continued from page 37

ZETA PA Z

Raupp, George F., '61, January 25, 2012.
Fromm, Eli, '62, January 20, 2025.

ETA PA H

Wolff, Thomas Joseph, '67, April 5, 2024.
Dengler, Jeffrey Lynn, '70, July 5, 2021.

THETA PA Θ

Fozo, Geza, '63, April 7, 2025.
Fletcher, Glenn Carl, '88, December 2, 2023.

LAMBDA PA Λ

Krebs, Christopher Paul, '76, Nov. 15, 2022.
Colclaser II, Robert G., '81, March 12, 2020.

SOUTH CAROLINA

BETA SC B

Gillam, Hugh Allen, '64, June 23, 2025.

GAMMA SC Γ

Nolte, Hampton Venning, '73, Feb. 18, 2021.

TENNESSEE

ALPHA TN A

Shafer, Robert W., '47, March 17, 2025. *Cent.*
Vandenbulck, Charles F., '56, Dec. 17, 2023.
Edward, Charles R., '63, July 13, 2025.
Kenny, Landon N., '64, March 31, 2025.

BETA TN B

Duke, Frank M., '52, March 30, 2025.
Kammerud, John Eric, '70, April 5, 2025.
Sadler Jr., Henry Philip, '71, Dec. 27, 2015.
Havermans, Corwyn Carl, '72, May 16, 2023.

GAMMA TN Γ

McCormick, Jack Randall, '64, no details.

DELTA TN Δ

Gillespie Jr., Clarence Earl, '65, Nov. 11, 2022.

TEXAS

ALPHA TX A

Gillham, Hugh I., '49, October 25, 1969.
Phipps Jr., A. J., '59, April 14, 2025.
Castiglione, Paul Alfred, '70, May 26, 2025.
Cooper IV, John W., '70, July 16, 2025.

BETA TX B

Anderson, Roger Kent, '60, January 8, 2025.

GAMMA TX Γ

Korin, Hope Waggener, '86, Sept. 15, 2024.

DELTA TX Δ

Hinds, Benny Leon, '55, March 17, 2025.
Hughes, Robert W., '61, March 30, 2025.
Le Tourneau, Ben W., '70, February 15, 2021.
Sturrock, John Michael, '72, April 19, 2025.
Crager, Bruce Lee, '75, December 19, 2024.
Kunze, Glenn Ray, '77, January 1, 2025.

EPSILON TX E

Shafer, Lora Horton, '77, no details.
Sams, William Neal, '81, April 5, 2024.

UTAH

ALPHA UT A

Sadauskas, Leonard, '66, June 10, 2025.

GAMMA UT Γ

Bassett, Day L., '48, Dec. 4, 2023. *Cent.*
Holdredge, Russell M., '56, April 1, 2025.

VERMONT

ALPHA VT A

Trudell, Richard Paul, '68, January 22, 2025.

VIRGINIA

BETA VA B

Blankenship, Charles P., '60, Jan. 21, 2022.
Carpenter, Joseph Andrew, '63, July 10, 2024.
Alvestad, Reidar, '71, January 11, 2025.

GAMMA VA Γ

McRee, Griffith John, '60, October 5, 2023.

DELTA VA Δ

Michael, Glenn P., '66, October 5, 2023.

WASHINGTON

ALPHA WA A

Gintz, John R., '51, September 2, 2008.
Miller, Drew Charles, '53, Sept. 20, 2024.
Anderson, Martin Montana, '55, no details.
Corey, Patrick James, '58, no details.
Ross, Robert Bruce, '61, August 14, 2024.
Hood, Timothy S., '79, July 6, 2023.

BETA WA B

Leitz, Emil E., '53, April 4, 2025.
Larson, Raoul E., '67, February 9, 2024.
Serley, George Henry, '75, Dec. 23, 2024.

GAMMA WA Γ

Denby, Kenneth Miles, '82, August 19, 2020.

WISCONSIN

ALPHA WI A

Lamb Jr., Gilbert C., '50, March 28, 2013.

BETA WI B

Krause, Donald C., '58, no details.
Vander Heyden, William H., '58, Oct. 16, 2016.

GAMMA WI Γ

Cronce, Richard Gordon, '77, Dec. 3, 2024.

WYOMING

ALPHA WY A

Jennings, James W., '78, April 12, 2020.
Milner, Joseph R., '78, February 26, 2025.

SPEC

Stewart, Judy A., February 25, 2025.



Utah Alpha '66

Leonard Sadauskas

June 10, 2025

A retired engineering duty officer in the U.S. Navy, Leonard worked as an investment analyst in the office of the Secretary of Defense for the U.S. Department of Defense. He was active with the Association and spent several years leading the DC Alumni Chapter.



Tau Beta Pi Headquarters

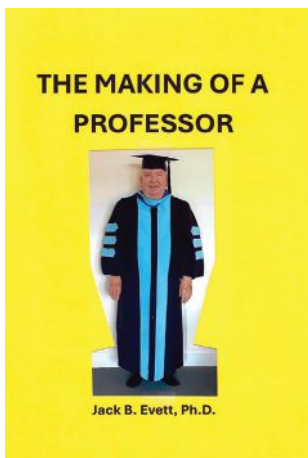
Judy A. Stewart

February 25, 2025

Spent more than a decade as the editorial assistant to The Bent magazine. Earned a B.A. in art from the University of Redlands and was an artist focused on weaving and textiles. Judy was also active in the benevolent organization, P.E.O., serving as president for a time.

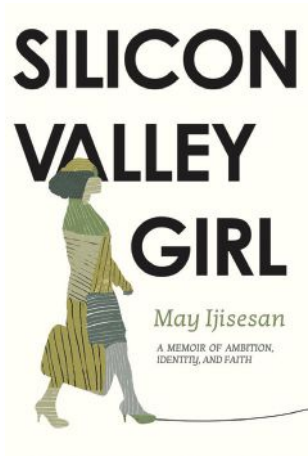
Authors

Recently published a book? If so, we would like to recognize you! Send details and a cover image to d.lane@tbp.org.
 Note: Due to the popularity of this section, submissions are first come, first served, as room allows. Thanks!



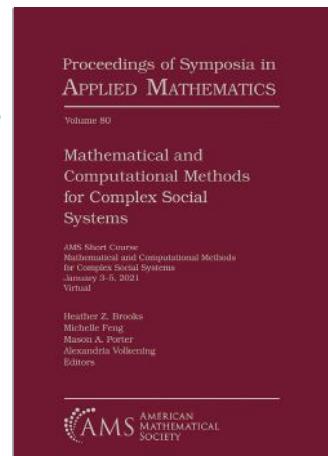
Jack B. Evett, Ph.D., P.E.
South Carolina Beta '64
The Making of a Professor
 A book all about professors: how they teach, how they grade, what they do for their own advancement, how they are evaluated, and more. After a 32-year career, Jack is now an Emeritus Professor and wrote this book with the assistance of other university professors to share the inside story as to what goes on behind the scenes. He has authored or co-authored seven textbooks and since retiring has written one fiction and four non-fiction books.

K. Mann
Ohio Beta '99
Isolated Chamber: Blitzkill
 The sequel to "Isolated Chamber: The Powder Keg" has arrived from K. Mann (pen name). This follow-up science fiction thriller to his debut novel picks up four months since the events of "Powder Keg" and contains strong language, dark themes, and violence. A business executive, he's a past OH Beta Chapter president with a chemical engineering degree and the protagonist of his work is also a Tau Bate.



Mayowa "May" A. Ijisesan
Oklahoma Alpha '98
Silicon Valley Girl
 More than a career memoir, May shares a powerful and personal story of what it means to build a career without losing your soul. From being one of three women in her engineering class in Nigeria to becoming the only Black woman in high-tech American boardrooms, she offers a raw and inspiring account of navigating ambition, identity, faith, and bias. May is a business intelligence consultant, serves as Executive Director of KingsWord International Church & has B.S. and M.S. eng'g degrees.

Mason A. Porter, Ph.D.
California Beta '98
Mathematical and Computational Methods for Complex Social Systems
 Dr. Porter, a professor of mathematics at UCLA, co-edited this book which was recently published by the American Mathematical Society. In this volume, a collection of diverse articles about complex social systems, researchers investigate many social phenomena and their societal relevance to improving our understanding of how individuals interact with each other and their environment, giving rise to collective group dynamics.



Need Content from a Back Issue?
 You can find previous features from the magazine dating back to 1979 on our website. One month after each *Bent* is published, the features from that issue are posted in PDF format at: <https://www.tbp.org/bent-features.cfm#feature>
 Past Brain Tickler and Caption Contest information is also available on our website. Contact d.lane@tbp.org with any questions or other requests.

ASSOCIATION BRIEFS



Ohio North Coast Alumni Chapter at Topgolf.



GSMAC members at Del Conca USA.

ALUMNI ACTIVITY: OHIO NORTH COAST ALUMNI CHAPTER

In celebration of “Two Pi Day” (June 28), the ONCAC held an event at the local Topgolf.

Attendees included seasoned alumni, recent grads, and current students hailing from Cleveland, Akron, and Toledo. All enjoyed food and fellowship while trying to drive some golf balls.

Credit: Shelton D. Caruthers, Ph.D., *LA G '89*, for the image and summary. Want to join the chapter? Send an email to: oncac.tbpi@gmail.com

ALUMNI ACTIVITY: GREAT SMOKY MOUNTAINS (TN) ALUMNI CHAPTER

GSMAC was invited on a tour in July exploring the Del Conca USA factory in Loudon, TN. With 200+ foot-long automated kilns, giant “printers” putting designs on tile, and automated robotic pallet movers, there was much technology to observe.

It was also a great opportunity to meet amazing people while learning about what it takes for an Italian company to establish such a large factory.

Learn more about GSMAC activities by contacting: GSMAC@tbp.org



Image Left: Bob Katin, P.E., *CA D '74*, and Diane Spencer, P.E., *AZ A '78*, pictured with the California Delta Bent monument. Bob recently returned to his alma mater, the University of Southern California, and was recognized for his service as a Vietnam Veteran.

Image Right: The Mid South (TN) Alumni Chapter recently hosted an outing at Topgolf. Even though it was 93 degrees, the alumni, and their families, had a great time.





WELCOME: DIRECTOR OF ALUMNI AFFAIRS

On July 1, **Sean Aiton**, NC A '22, was named the Association's new Director of Alumni Affairs. A structural analysis engineer at Spirit Aerosystems, he's responsible for engaging and supporting alumni, guiding the formation of new alumni chapters, organizing events, and connecting alumni with collegiate chapters.

Sean earned a B.S. in aerospace engineering and an M.S. in mechanical engineering from North Carolina State University. As a NC Alpha Chapter leader, he served as president, vice president, and corresponding secretary. He was also a member of the TBP Student Advisory Board, focusing his work on better understanding how to support collegiate chapters. He attended the 2024 annual Convention, coordinated with the Chapter Development Committee in support of struggling chapters, and mentored the Utah Gamma Chapter.

One of his goals is to excite alumni to reengage with the Association and give back to the collegiate chapters in their area. Contact Sean at: s.aiton@tbp.org

The Association would like to recognize and thank **Tricia E. Gomulinski**, SD A '98, for her distinguished service as the Director of Alumni Affairs for the past 12 years. Under her leadership, the number of active alumni chapters has increased from 18 in 2011 to 52. In addition, the number of alumni chapters attending the annual Convention has grown from less than 7 to consistently more than 25. Tricia also played a key role in organizing the Convention Program Planning Committee and started the Tau Bate Talks series during the pandemic.

Thank You,
Tricia!

HEADQUARTERS STAFF RETIREMENT

Many know her voice from calling Tau Beta Pi Headquarters or recognize her welcoming smile at Convention registration. After 35 years of dedicated service, **Angie R. Boles** retired on July 31, 2025, from TBP HQ in Knoxville, TN.

She joined Tau Beta Pi in 1989, starting out processing name and address changes. Several years later, she became the administrative assistant to then Secretary-Treasurer, Jim Froula, P.E. (ret.), TN A '67, while also handling merchandise orders. Less than ten years later, Angie began attending the annual Conventions assisting with logistics and worked as Executive Assistant to Director Gomulinski. For the past six years, she's been responsible for coordinating nearly all aspects of Convention while also serving as copy editor to this magazine.

Angie has been essential to the completion of *The Bent* magazine for 15+ years and her commitment to producing an accurate and readable publication is unmatched.

Not only will she be missed for her invaluable knowledge of all things Tau Beta Pi, but also for her caring personality and willingness to help her colleagues and the Association be their best. Over the years, Angie has forged lasting relationships with members across the country. This was evident at her retirement celebration, which included Tau Bates traveling in from Alabama, Kansas, and Washington D.C. to commemorate Angie.



Fall Problems *Continued*

4: Pyramid Climbers

Phil and Quentin enjoy climbing Egyptian style pyramids. Phil always climbs directly up the middle of a face from the base to the top, but Quentin climbs up an edge between two faces. Given that the base of the pyramid is 100 m by 100 m, what is the altitude of the pyramid if the difference between the angles (relative to the ground) of ascent of the two climbers is a maximum?

—Puzzle Corner by Allan Gottlieb
in *Technology Review*

5: Darts

On Earth, the standard dartboard is circular and divided into 20 sectors of 18 degrees each. Each sector provides a single score, ranging from 1 to 20 points, except for the centered round bull's-eye and two narrow concentric scoring rings, one for double score and one for triple score. The middle of the bull's-eye is worth 50 points (a double), and the narrow concentric surrounding ring is worth 25 points. Diameters of the various scoring areas are: the overall scoring area is 340 mm, the 50 point (inner) bull's-eye is 12.7 mm, the 25 point (outer) bull's-eye is 31.75 mm (i.d., 12.7 mm), the doubles and triples rings are each 10 mm wide (difference between outer and inner radius), the triples ring has an o.d. of 214.8 mm, and the doubles ring has an o.d. of 340 mm.

The World of Oscura uses this same standard dartboard; but, unlike on Earth, their game consists of only a "checkout" round (always using all 3 darts), and a player's score is the sum of the scores of the three darts. Each dart is retrieved before the next dart is thrown.

To play, a referee randomly selects the checkout score that must be obtained by each player, and the third dart thrown must be a double (otherwise no score). The first player to checkout wins.

Strangely, professional Oscuran darts players always hit the scoring area, and their inexplicably peculiar physiology causes them to always throw a final double (including double bull's-eyes), but otherwise, the darts hit the board entirely at random.

Under Oscuran rules:

1) Which scores less than 171 are impossible to achieve (other than 1, 2, and 3)? 2) What score is an Oscuran most likely to achieve, i.e., what score has the highest probability of occurring? And, what is that probability, and in how many ways can it occur? 3) Obtain the same information for the score with the greatest number of ways to achieve it. For this problem, take the universe of scores to be only those possible under Oscuran rules.

— Stanley W. Zison, CA @ '83

BONUS: Family Ages

Three families make a remarkable discovery: the sum of the ages of their members are the same; the sum of the squares of the ages of their members are the same; and the sum of the cubes of the ages of their members are the same. Everyone in all three families has a different (non-zero integer) age, and nobody is older than 100. What are the ages of the members of the three families (with minimum sum)?

— The Contest Center

COMPUTER BONUS: Primes Up

What is the largest prime such that when its digits are right-truncated one at a time, the resulting numbers are all prime? An example of such a number is 311, since 311, 31, and 3 are all primes.

— *Prime Numbers: Most Mysterious Figures in Math* by David Wells

Email your answers (plain text only) to any or all of the Fall Brain Ticklers to BrainTicklers@tbp.org or by postal mail to **Dylan Lane, Tau Beta Pi, P.O. Box 2697, Knoxville, TN 37901-2697.**

The method of solution is not necessary. The Computer Bonus is not graded. Where possible, exact answers are preferable to approximations. The cutoff date for entries to the Fall column is the appearance of the Winter *Bent* which typically arrives in early January (the digital distribution is several days earlier). We welcome any interesting problems that might be suitable for the column. Dylan will forward your entries to the judges who are:

J.C. Rasbold, OH A '83,
J.R. Stribling, CA A '92,
K.D. Berthold, TX B '04,
and the columnist for this issue,

— **F.J. Tydeman, CA Δ '73**

Note: This is Fred Tydeman's 50th year as a Brain Tickler judge, beginning in 1975. The Brain Tickler column started in 1951, a few months before he was born.

Introducing the MindSET Logo

The Tau Beta Pi K-12 MindSET Program has been bringing chapters and their local K-12 schools together to host engineering-related workshops for nearly 20 years, and now we have a logo!

Earlier this year, the MindSET Program launched a logo design competition. The goal was twofold: spread the word about the program's revival to Tau Bates and solidify new branding in conjunction with the ongoing campaign to increase project activity involvement from alumni and collegiate chapters.

Our membership did not disappoint! Six different logo concepts were submitted and reviewed by the MindSET Committee. While each logo had its merits and unique design, two of them stood out and were selected as winners for future use.

In first place, **Erican J. S. Santiago, MI B '21**, submitted a detailed and thoughtful idea for the new logo. Together with the TBPI HQ Development & Communications team and MindSET Committee, a final design was created. This will be the new primary program logo (**Figure 1**) used on the Association's website, for MindSET promotional materials, and with potential related merchandise.

When reviewing the design submissions, the judges could not ignore another submission. **Liza Goldstone, NC G '25**, submitted a logo (**Figure 2**) that was clean, precise, and deemed as a great option for use on MindSET merchandise and in conjunction with the primary logo to simplify branding, when needed.

A special thank you to all those who submitted designs, TBPI HQ Communications Specialist **Renea Lewis** for her work on the primary logo, and to our alumni and collegiate chapters currently hosting hands-on K-12 activities to help spread the word about career opportunities in STEM, engineering disciplines, and the importance of preparing the future generation of leaders.

For more information on the K-12 MindSET Program visit our website at <https://www.tbp.org/k12-mindset.cfm> or send an email to tbp.mindset@tbp.org.



Figure 1: The new MindSET logo from Erican Santiago.

Figure 2 (below): The alternate/landscape MindSET logo from Liza Goldstone.



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ENGINEERING CHANGE THROUGH COMMUNITY AND MENTORSHIP

A CONVERSATION ON TAU BETA PI'S NEST PROGRAM

By: Drew Boughton, MI G '23, Nancy Chang, MA B '87, and Chris Potts, CA U '16



Image Right: 3D printed prototype for PreCompose, MI Gamma's winning proposal from the 2023-24 NEST Competition.

In the heart of Tau Beta Pi's mission to foster integrity, leadership, and service, the NEST program stands as a powerful conduit for hands-on learning and alumni mentorship. This interview with Drew Boughton, former participant and now NEST Project Coordinator, spotlights the inspiring journey of the Michigan Gamma Chapter's (MI G) first NEST team – an ambitious group of student engineers whose passion for environmental innovation led to PreCompose, a mechanical grinding device aimed at revolutionizing organic waste management.

What began as an effort to extend MI G's local service – removing invasive shrubs in Ann Arbor – soon flourished into a fully-fledged engineering solution designed to accelerate composting and elevate sustainability in everyday spaces. Having worn the hats of both student leader and alumni mentor, **Drew Boughton, MI G '23**, reflects on the profound lessons of leading, learning, and giving back.

Briefly describe your NEST project. What were your biggest challenges and how did your project coordinator help you overcome them?

MI Gamma's NEST project for the Waste Management competition this past year was a mechanical grinding device called PreCompose that breaks down organic waste before it goes into composting piles. Inspired by the community service work MI G does for Ann Arbor's nature areas by cutting invasive shrubs, breaking down organic waste increases the surface area of the waste and thus, the rate of decomposition. In an effort to apply this concept to composting efforts in households and public settings, we created PreCompose as a way to conveniently break down both hard and soft organic waste to increase the effectiveness and speed of composting.

Since this was MI G's first NEST team, there were a number of challenges we faced, including not having a dedicated alumni coordinator to provide guidance and mentorship. Thankfully, **Chris Potts, CA U '16**, the NEST Program Lead, was very willing to act in this role when we needed help and provided great professional insight into task planning, requirement formulation, and competition expectations in general.

What inspired you to continue your involvement with NEST as a coordinator? How does it feel to support students now compared to being in their shoes not long ago?

As the founder of NEST at MI G and a Chapter Advisor, and an officer for the Ann Arbor Area Alumni Chapter, I wanted to remain involved with NEST since I saw growing chapter interest in the program and increased recognition of its usefulness towards chapter goals, especially after we won the 2023-24 NEST Competition at the 2024 Convention. More tangibly, NEST also provides consistent meetings and opportunities for the chapter, which helps bolster the chapter's event count and provides electees and members an opportunity for students to earn community service hours toward their election requirements or active distinctions.

The NEST Committee at the 2024 Convention assembled with the 2023-24 NEST Award.



It is incredibly rewarding to mentor the current MI G NEST leads, all of whom are chapter officers, and knowing that I can rely on them to value the program and bring the effort necessary to make this year's project successful. It's also fulfilling to serve as the alumni coordinator, a position we didn't have during our first competition season.

Can you share a moment this season that made you especially proud as a project coordinator?

I am proud of the growth and participation in our asynchronous task system, which is housed in spreadsheet format and allows us to create task descriptions and deliverables that members can complete on their own time. Anyone who completes a task (such as research, concept development, or design) is awarded community service hours that contribute towards election requirements or distinctions. So far, we've been able to delegate many hours of research and concept development through this system, which has greatly helped with our current project while simultaneously increasing NEST participation and diversifying MI G's community service offerings.

How has the act of mentoring changed your perspective as an engineer, teammate/colleague, or coordinator?

Being an alumni mentor has heightened my awareness of real-world aspects of being an engineer, colleague, and leader. For example, when I began the formation of this year's NEST team, it took several months of leading meetings on my own before I successfully recruited the three NEST leads (project manager, project engineer, and account manager) required to register the team for competition. By successfully navigating this process, I learned that maintaining development despite uncertainty, clearly explaining vision and expectations, and – most of all – being persistent yet patient, are crucial for the success of any new initiative. I've also been able to improve my abilities as a task delegator and advertiser, which are invaluable engineering soft-skills that aren't easily learned outside of direct experience.

In what ways do you think mentoring as a NEST coordinator has benefited you?

As someone who believes that engineers should be continuously learning and challenging themselves post-graduation, NEST mentoring has been a great motivator for ongoing learning. For example, to effectively mentor MI G's current project, I've had to improve my knowledge of certain science and engineering concepts that I wasn't as familiar with, including irradiation, optics, and energy storage, as well as improve my ability to find and apply research findings and standards to decision-making processes. Additionally, even though I've already been deeply involved with MI G for years as an officer and current advisor, NEST mentoring has been a great way to connect even more with new students and officers.

What insights would you give to an alumni member who is on the fence about becoming more involved with NEST?

It has been a tremendous addition to MI G and other participating chapters through its encouragement of increased activity, collaboration on exciting multi-disciplinary projects, and student professional growth. Also recognize that your professional experience and mentorship puts you in a unique position to encourage the founding of a NEST team at your local collegiate chapter. **You may be the catalyst the chapter needs to get things started.** Lastly, if you're finding that creating traction for NEST is hard at your chapter, remain present, patient, and persistent is the best way to lay the groundwork for a team to develop. Also, don't forget that Chris Potts is a fantastic resource for answering questions and supporting the creation and of new NEST teams.

.....

As this interview with Drew Boughton makes clear, the NEST program isn't just about innovative engineering – it's about building lasting bridges between experience and potential. For alumni, stepping into a mentorship role is a powerful way to multiply your impact. Your guidance can ignite a student's confidence, strengthen a chapter's foundation, and shape projects that serve communities beyond the college campus. If you've ever looked back and wished you had just a bit more support when starting out, NEST offers you that opportunity. Your insight and presence could be the catalyst that launches the next great idea – or simply helps a student believe in their own. Alumni interested in becoming involved, please contact Chris Potts at tbp.nest@tbp.org.

ALUMNI NOTES

Your fellow Tau Bates are interested in news about **you**.



CALIFORNIA EPSILON '12

Regan F. Patterson Ph.D.

Regan was named Professor of the Year by the UCLA ASCE Chapter. An assistant professor, she focuses on environmental justice, air quality, and sustainable transportation. Regan founded the non-profit Black in Environment and was previously a Congressional Black Caucus Fdn. transportation equity research fellow.



CALIFORNIA KAPPA '83

Glen K. Van Peski P.E., PLS

Glen's book (2024), *take less. do more. - Surprising Life Lessons in Generosity, Gratitude and Curiosity from an Ultralight Backpacker*, won the gold medal in the "Inspirational" category at the 2025 International Book Publishers Assoc. awards. A retiree, he uses his civil eng'g background in his writing and speaking.



CALIFORNIA ALPHA BETA '21

Kimberly R. Bennett

Kimberly received the 2025 Outstanding Service Award from Harvard-MIT Health Sciences and Technology for her team's work in improving the first-generation MIT graduate experience. A Ph.D. candidate, she specializes in tissue engineering patient-derived 3D microvascular models of the blood-brain-tumor barrier.



INDIANA ALPHA '87

Michael G. Barker Ph.D.

Michael received the 2025 Market Development Industry Leadership Award from the American Iron and Steel Institute. A Univ. of Wyoming professor of civil & architectural eng'g, his research pertains to bridges, field-testing, and reliability analyses of structures; having introduced 2,000+ students to steel design solutions.



MISSISSIPPI ALPHA '24

Benjamin S. Roberts

Ben has joined ACP Technologies as a chemical engineer at the Kentucky pilot plant. His focus will be on helping to optimize and scale production of isotropic and mesophase pitch for use in energy, aerospace, and defense applications. Ben is a recent ChE graduate of Mississippi State University with an EIT certification.



NEBRASKA ALPHA '12

Kyle M. Hanquist Ph.D.

Kyle was recently honored by The Air Force Office of Scientific Research with his second Young Investigator Program Award of 2025. He is an assistant professor of aerospace & mechanical engineering at the University of Arizona, studying the effects of hypersonic flight speeds on compliant, or flexible, aircraft structures.



NEW YORK BETA '99

John W. Maly J.D.

John's book, *Juris Ex Machina*, won Best Science Fiction Novel at the 2025 American Fiction Awards. A registered U.S. Patent Agent with 25+ years of experience, he offers consulting services in intellectual property and computer technology. John earned a B.S. degree in computer eng'g from Syracuse University.



NEW YORK EPSILON '67

Thomas L. Maniscalco DEN

Tom recently became the oldest graduate of Rutgers University, earning a master's degree in engineering this May. After working as an engineer in the Department of Defense for 30 years, he retired in 2019. Wanting to fill his free time, Tom was accepted as a special student and has taken one remote course each semester since.



NEW YORK KAPPA '14

Amanda Chen Ph.D.

Amanda has been promoted to vice president at Vertex Ventures HC, a fund network investing globally in various sectors of the healthcare industry. She's credited with expanding the company's presence in the newly established Boston office. A TBI Scholar, she has an MPhil in ChemE from the Univ. of Cambridge.



OHIO LAMBDA '93

Doneen M. McDowell

Doneen was named to the *Automotive News* list of "100 Leading Women" in the North American auto industry. She is vice president, truck sector at General Motors and has worked in the industry for 31 years. Doneen has a passion for growing diverse talent and serving as a mentor. Her master's degree in manufacturing management is from Kettering University.

Send news about promotions, honors, civic activities, weddings, etc. to Tau Beta Pi, P.O. Box 2697, Knoxville, TN 37901-2697 or to d.lane@tbp.org. Deadlines: November 1 for **Winter** issue and February 1 for **Spring** issue. Include head shot, name, address, chapter/class year, and email address or phone number. We cannot accept graduation announcements. Thank you!

CONNECTICUT BETA

Marat Kulakhmetov Ph.D. (Top left)

Michael W. Lamont P.E., S.E. (Top right)

John E. Leonard (Bottom left)

Peyman J. Zamani (Bottom right)



CLASS OF 2025

The University of Connecticut College of Engineering hosted its annual induction ceremony of the Academy of Distinguished Engineers in late May. This year's class of alumni was honored for their exemplary contributions to the engineering profession through research, practice, education, policy, or service. Four of the ten members of the 2025 class are Tau Bates:

- Marat Kulakhmetov, '09, is head of analysis & hypersonics at Varda Space Industries.
- Michael W. Lamont, '90, is major bridges technical director at HDR.
- John E. Leonard, '89, B.S. in mechanical engineering and an M.S. from Arizona State University.
- Peyman J. Zamani, '95, is CEO of Jorni and Founder of iX Investment, LLC.

Shape the Future of Tau Beta Pi: Volunteer Your Expertise!

To our honored alumni and graduating members, your journey with Tau Beta Pi doesn't end at graduation — it evolves. As you apply the principles of integrity and excellence in your careers, we invite you to bring your leadership and vision back to the Association that recognized your potential.

Tau Beta Pi is seeking members **like you** to serve on our national committees. This is your opportunity to give back, network with fellow engineering leaders from across the country, and directly influence the programs and direction of our respected society. You will find the more you put into this organization, the more you get out.

Find Your Place and Make a Difference

Help guide the Association's future by lending your skills to one of our committees, such as Convention Planning, Chapter Development, Fellowship, Public Relations, Alumni Advisory, MindSET, NEST, and more.

Find more information about all TBP committees at: <https://www.tbp.org/boards-and-committees.cfm>



Ready to Answer the Call?

Your voice and experience are crucial as we continue to honor promising students and celebrate engineering excellence. Take the next step in your Tau Beta Pi journey. To learn more and express your interest, please complete the Volunteer Interest Form at: <https://www.tbp.org/?Volunteer>

ATTENTION ALL MEMBERS SEEKING JOBS,
INTERNSHIPS + GRADUATE SCHOOL!



Do not miss the 2025 Tau Beta Pi
RECRUITING FAIRS

Virtual - OCTOBER 16

10:00 a.m. to 5:00 p.m. ET

OPEN TO ALL MEMBERS VIA THE VIRTUAL APP

In-Person - OCTOBER 30

10:45 a.m. to 4:00 p.m. MT

at the Tau Beta Pi Convention
Albuquerque Convention Center (NM)

**See full details on Recruiting Fairs, including
a list of recruiters and link to upload your resume at:**

<https://www.tbp.org/recruiting-fair.cfm>

**Questions? Is your company or school interested in recruiting?
Contact Erin Andrews at e.andrews@tbp.org**

THE BENEFITS OF MEMBERSHIP

See the complete list at: <https://www.tbp.org/member-benefits.cfm>

CIVIL SERVICE: Automatic entry-level advancement of U.S. Government applicants to GS-7. More at: <https://www.tbp.org/?TBPGS-7>.

DELL: Discount program on Dell-branded personal products, electronics, and accessories. See **back cover** for more details.

HP: Partnership providing exclusive discounts on HP products.

LOCAL HOSPITALITY: Access to a worldwide inventory of hotels at discounted rates.

PPI: Receive a 20% discount on PPI-published preparation materials for the FE/EIT and PE engineering licensing exams.

LINKEDIN: Join 38,275 members in our official group for professional networking and career discussions (search: Tau Beta Pi Engineering Honor Society).

TAU BETA PI JOB BOARD: Post a resume online and browse hundreds of engineering jobs at top companies.

COLLEGIATE CHAPTERS

264 COLLEGIATE CHAPTERS
258 ACTIVE — 648,593 MEMBERS

6 Inactive chapters shown in **BLUE**

A = ALPHA
B = BETA
Γ = GAMMA

Δ = DELTA
E = EPSILON
Z = ZETA

H = ETA
Θ = THETA
I = IOTA

K = KAPPA
Λ = LAMBDA
M = MU

N = NU
Ξ = XI
O = OMICRON

Π = PI
P = RHO
Σ = SIGMA

T = TAU
Υ = UPSILON
Φ = PHI

X = CHI
Ψ = PSI
Ω = OMEGA

AL ALPHA Auburn University
BETA University of Alabama
GAMMA Univ. of Ala. at Birmingham
DELTA Univ. of Ala. in Huntsville
EPSILON Univ. of South Alabama
AK ALPHA Univ. of Alaska Fairbanks
AZ ALPHA University of Arizona
BETA Arizona State University
GAMMA Northern Arizona University
DELTA Embry-Riddle Univ., Prescott
AR ALPHA University of Arkansas
BETA Univ. of Ark. at Little Rock
CA ALPHA UC Berkeley
BETA Calif. Institute of Technology
GAMMA Stanford University
DELTA University of Southern Calif.
EPSILON UC Los Angeles
ZETA Santa Clara University
ETA San Jose State University
THETA Calif. State Univ., Long Beach
IOTA Calif. State Univ., Los Angeles
KAPPA Calif. State Univ., Northridge
LAMBDA UC Davis
MU Calif. Poly St. Univ., San Luis Obispo
NU Calif. State Poly Univ., Pomona
XI San Diego State University
OMICRON Loyola Marymount Univ.
PI *Northrop University (inactive)*
RHO California State Univ., Fresno
SIGMA UC Santa Barbara
TAU University of California, Irvine
UPSILON Calif. St. Univ., Sacramento
PHI University of the Pacific
CHI California State Univ., Fullerton
PSI UC San Diego
OMEGA Harvey Mudd College
ALPHA ALPHA Calif. St. Univ., Chico
ALPHA BETA UC Riverside
ALPHA GAMMA San Francisco St. Univ.
ALPHA DELTA UC Santa Cruz
ALPHA EPSILON Univ. of San Diego
CO ALPHA Colorado School of Mines
BETA Univ. of Colorado Boulder
GAMMA University of Denver
DELTA Colorado State University
EPSILON Univ. of Colorado at Denver
ZETA U.S. Air Force Academy
CT ALPHA Yale University
BETA University of Connecticut
GAMMA University of Hartford
DELTA Fairfield University
DE ALPHA University of Delaware
DC ALPHA Howard University
BETA Catholic Univ. of America
GAMMA George Washington Univ.
FL ALPHA University of Florida
BETA University of Miami
GAMMA University of South Florida
DELTA University of Central Florida
EPSILON Florida Atlantic University
ZETA Florida Institute of Technology
ETA FL A&M Univ.-FL State Univ.
THETA Florida International Univ.
IOTA Embry-Riddle Aero. Univ.
GA ALPHA Georgia Institute of Technology
BETA Mercer University
GAMMA Georgia Southern Univ.
DELTA University of Georgia
ID ALPHA University of Idaho
BETA Idaho State University
GAMMA Boise State University
DELTA Brigham Young Univ.-Idaho
IL ALPHA Univ. of IL at Urbana-Champaign
BETA Illinois Institute of Technology
GAMMA Northwestern University
DELTA Bradley University
EPSILON S. Illinois Univ. at Carbondale
ZETA University of Illinois at Chicago
IN ALPHA Purdue University
BETA Rose-Hulman Inst. of Technology
GAMMA University of Notre Dame
DELTA Valparaiso University
EPSILON Trine University
ZETA Indiana Univ.-Purdue Univ. Indpls.
IA ALPHA Iowa State University
BETA University of Iowa
KS ALPHA University of Kansas
BETA Wichita State University
GAMMA Kansas State University

KY ALPHA University of Kentucky
BETA University of Louisville
GAMMA Western Kentucky University
LA ALPHA Louisiana State University
BETA Tulane University
GAMMA Louisiana Tech. University
DELTA Univ. of Louisiana at Lafayette
EPSILON University of New Orleans
ME ALPHA University of Maine
MD ALPHA Johns Hopkins Univ.
BETA University of Maryland
GAMMA U.S. Naval Academy
DELTA Univ. of Maryland Baltimore Co.
EPSILON Morgan State University
MA ALPHA Worcester Polytechnic Inst.
BETA Massachusetts Inst. of Tech.
GAMMA *Harvard University (inactive)*
DELTA Tufts University
EPSILON Northeastern University
ZETA University of Mass. at Amherst
ETA Boston University
THETA Univ. of Massachusetts Lowell
IOTA Western New England Univ.
KAPPA Merrimack College
MI ALPHA Michigan State University
BETA Michigan Technological Univ.
GAMMA University of Michigan
DELTA University of Detroit Mercy
EPSILON Wayne State University
ZETA Kettering University
ETA Lawrence Technological Univ.
THETA Oakland University
IOTA Univ. of Michigan-Dearborn
KAPPA Western Michigan Univ.
LAMBDA Grand Valley State Univ.
MN ALPHA Univ. of Minnesota-Twin Cities
BETA Univ. of Minnesota, Duluth
MS ALPHA Mississippi State University
BETA University of Mississippi
MO ALPHA Univ. of Missouri-Columbia
BETA Missouri Univ. of Science & Tech.
GAMMA Washington University
DELTA Univ. of Missouri-Kansas City
EPSILON Saint Louis University
MT ALPHA Montana State University
BETA Montana Tech. of the Univ. of MT
NE ALPHA Univ. of Nebraska-Lincoln
NV ALPHA University of Nevada, Reno
BETA Univ. of Nevada, Las Vegas
NH ALPHA Univ. of New Hampshire
BETA Dartmouth College
NJ ALPHA Stevens Institute of Technology
BETA Rutgers University
GAMMA New Jersey Inst. of Tech.
DELTA Princeton University
EPSILON Rowan University
ZETA The College of New Jersey
NM ALPHA New Mexico State University
BETA University of New Mexico
GAMMA NM Inst. of Mining & Tech.
NY ALPHA Columbia University
BETA Syracuse University
GAMMA Rensselaer Polytechnic Inst.
DELTA Cornell University
EPSILON *New York Univ. (inactive)*
ZETA *Brooklyn Polytechnic (inactive)*
ETA City College of CUNY
THETA Clarkson University
IOTA Cooper Union School of Eng'g.
KAPPA University of Rochester
LAMBDA *Pratt Institute (inactive)*
MU Union College
NU SUNY at Buffalo
XI Manhattan College
OMICRON SUNY at Stony Brook
PI Rochester Institute of Tech.
RHO NYU Tandon School of Eng'g.
SIGMA Alfred University
TAU Binghamton University
UPSILON U.S. Military Academy
NC ALPHA North Carolina State Univ.
BETA *Univ. of North Carolina (inactive)*
GAMMA Duke University
DELTA Univ. of NC at Charlotte
EPSILON NC A&T State University
ZETA East Carolina University
ETA Western Carolina University

ND ALPHA North Dakota State University
BETA University of North Dakota
OH ALPHA Case Western Reserve Univ.
BETA University of Cincinnati
GAMMA Ohio State University
DELTA Ohio University
EPSILON Cleveland State Univ.
ZETA University of Toledo
ETA Air Force Institute of Tech.
THETA University of Dayton
IOTA Ohio Northern University
KAPPA University of Akron
LAMBDA Youngstown State Univ.
MU Wright State University
NU Cedarville University
XI Miami University
OK ALPHA University of Oklahoma
BETA University of Tulsa
GAMMA Oklahoma State University
OR ALPHA Oregon State University
BETA Portland State University
GAMMA University of Portland
DELTA Oregon Institute of Tech.
PA ALPHA Lehigh University
BETA Pennsylvania State University
GAMMA Carnegie Mellon University
DELTA University of Pennsylvania
EPSILON Lafayette College
ZETA Drexel University
ETA Bucknell University
THETA Villanova University
IOTA Widener University
KAPPA Swarthmore College
LAMBDA University of Pittsburgh
MU Penn State Erie, Behrend College
PR ALPHA University of Puerto Rico
QATAR ALPHA Texas A&M Univ. at Qatar
RI ALPHA Brown University
BETA University of Rhode Island
SC ALPHA Clemson University
BETA University of South Carolina
GAMMA The Citadel
SD ALPHA S. Dakota Sch. of Mines & Tech.
BETA South Dakota State University
TN ALPHA University of Tennessee
BETA Vanderbilt University
GAMMA Tennessee Tech. University
DELTA Christian Brothers Univ.
EPSILON University of Memphis
ZETA Univ. of Tenn. at Chattanooga
ETA Lipscomb University
TX ALPHA University of Texas at Austin
BETA Texas Tech. University
GAMMA Rice University
DELTA Texas A&M University
EPSILON University of Houston
ZETA Lamar University
ETA Univ. of Texas at Arlington
THETA Univ. of Texas at El Paso
IOTA Southern Methodist University
KAPPA Prairie View A&M University
LAMBDA Texas A&M Univ.-Kingsville
MU Univ. of Texas at San Antonio
NU Univ. of Texas Rio Grande Valley
XI University of Texas at Dallas
UAE ALPHA American Univ. of Sharjah
UT ALPHA University of Utah
BETA Brigham Young University
GAMMA Utah State University
VT ALPHA University of Vermont
BETA Norwich University
VA ALPHA University of Virginia
BETA Virginia Poly. Inst. & State Univ.
GAMMA Old Dominion University
DELTA Virginia Military Institute
EPSILON Virginia Commonwealth Univ.
WA ALPHA University of Washington
BETA Washington State University
GAMMA Seattle University
DELTA Gonzaga University
WV ALPHA West Virginia University
BETA West Virginia Univ. Inst. of Tech.
WI ALPHA University of Wisconsin-Madison
BETA Marquette University
GAMMA Univ. of Wisconsin-Milwaukee
DELTA Milwaukee School of Eng'g.
EPSILON Univ. of Wisconsin-Platteville
WY ALPHA University of Wyoming

ALUMNI CHAPTERS

82 ALUMNI CHAPTERS
52 ACTIVE

30 Inactive chapters shown in **BLUE**

DISTRICT 1

Central CT, Hartford
Greater Boston Area, MA

DISTRICT 2

Buffalo, NY
Central Jersey, NJ
Long Island Suburban, NY
Newark, NJ

DISTRICT 3

New York City, NY
New York Capital District, NY
Rochester, NY
Southern Tier, Binghamton, NY

DISTRICT 4

Lehigh Valley, Bethlehem, PA
Philadelphia, PA
Pittsburgh, PA
Wilmington, DE

DISTRICT 5

Baltimore, MD
Charlotte, NC
Hampton Roads, Newport News, VA
Kanawha Valley, Charleston, WV
Research Triangle, Durham-Chapel Hill-Raleigh, NC
Richmond, VA
Washington, DC

DISTRICT 6

Atlanta, GA
Central FL, Orlando
Daytona Beach, FL
Gainesville, FL
Miami, FL
Midlands, Columbia, SC
Palm Beach/Broward, FL
Piedmont, Clemson, SC
Puerto Rico
Southwest FL
Tampa Bay, FL

DISTRICT 7

Bluegrass, Lexington-Frankfort, KY
Central Alabama, Birmingham
Great Smoky Mountains, Knoxville-Oak Ridge, TN
Greater Gulf Coast, Mobile, AL
Louisville, KY
Mid-South, Memphis, TN
Rocket City, Huntsville, AL

DISTRICT 8

Ann Arbor Area, MI
Central MI, Lansing
Cincinnati, OH

DISTRICT 9

Chicago Area, IL
Central Illinois, Urbana-Champaign
Indianapolis, IN
Milwaukee Area, WI

DISTRICT 10

Central Texas, Austin/San Antonio
North Texas, Dallas-Fort Worth
Greater New Orleans, LA
Texas Gulf Coast, Houston
St. Louis, MO

DISTRICT 11

Ames, IA
Minnesota, Twin Cities, MN
Central Texas, Austin/San Antonio
North Texas, Dallas-Fort Worth
Greater New Orleans, LA
Texas Gulf Coast, Houston

DISTRICT 12

Ames, IA
Minnesota, Twin Cities, MN
Pikes Peak, CO
Front Range, CO/WY
Wasatch Front, UT
Treasure Valley, Boise, ID

DISTRICT 13

Albuquerque, NM
El Paso, TX
Phoenix, AZ
Sun City, AZ
Tucson, AZ

DISTRICT 14

Columbia River Basin, Richland, WA
Portland, OR
Puget Sound, Seattle, WA

DISTRICT 15

Sacramento Vly, CA
SF Bay Area, CA
SF Peninsula, Palo Alto, CA

DISTRICT 16

Los Angeles, CA
Orange County, CA
Greater San Diego, California
Southern California

DISTRICT 17



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You are the security

