

Tau Beta Pi Fellows for 2012-13

THE FELLOWSHIP BOARD selected 40 Tau Beta Pi Fellows for 2012-13, 21 of whom will receive \$10,000 cash stipends for one year of graduate study and 19 who have other extensive financial aid for their year of advanced work.

Implemented by President A.D. Moore in 1929, the Fellowship Program has provided over \$5,500,000 to 964 stipend recipients.

Now in its 79th year, the Fellowship Program remains a principal philanthropic activity of the Association and continues to receive strong support from alumni. The program was initiated with funds from the operating budget of the Society, including the eventual transfer of fees from deceased life subscribers of THE BENT. It was first enlarged in 1938 by a gift from the Southern California Alumnus Chapter, and in 1948 the first Alumnus Fellowship was awarded. Since that time, gifts from alumni, industry, friends, and the earnings of the invested Fellowship Fund have all contributed to these awards.

Matching gifts to the Association from 230 companies on behalf of their TBPi employees are allocated to fellowships and scholarships, and the society truly appreciates this support.

In addition to its own awards, TBPi selects recipients for named fellowships, which are administered just as other society fellowships.

The TBPi-Stark Fellowship is named for Donald A. Stark, who contributed much to progress in the fluid-power industry. This award, given for the 35th time, is presented to a fellow who plans graduate study in engineering with emphasis in the field of fluid power or fluid mechanics. Stipends are provided by the earnings from a \$150,000 gift to TBPi in 1986 from the Donald A. and Jane C. Stark Charitable Trust.

Twenty-eight fellowships are named for members. The TBPi-Williams Fellowship, established to honor the Association's Founder, Dr. Edward H. Williams Jr., *PA A 1875*, is awarded to a candidate who plans to work toward a doctoral degree and enter the engineering teaching profession.

Two fellowships honor former TBPi Presidents. The one named for Charles H. Spencer, *MI Γ 1896*, who served during 1936-47, is awarded for the 57th time. It is presented to the member who has made significant contributions to his or her collegiate chapter. The Harold M. King Fellowship honors the 1954-58 President, *MA A*

1910, whose special interest was in the student branches of the national technical societies. Given for the 51st time, the King Fellowship is awarded for outstanding participation in volunteer technical-society work.

Fifteen named awards are sponsored by the late William Fife, *CA A '21*, who bequeathed the earnings of an irrevocable trust for TBPi fellowships. They are named in honor of his father, James Fife.

Walter E. Deuchler Sr., *IL A 1910*, left a bequest in 1979 to endow a fellowship for graduate study in water supply, wastewater treatment, and ecology.

Two fellowships recognize former Secretary-Treasurers. The Matthews Fellowship is awarded for the 15th time and honors R.C. "Red" Matthews, *IL A 1902*, who served as Secretary during 1905-12 and as Secretary-Treasurer in 1912-47. Red died in 1978 at the age of 99. The 15th Nagel Fellowship is awarded in honor of Robert H. Nagel, P.E., *NY Δ '39*, who served as Secretary-Treasurer in 1947-82 and Editor of THE BENT during 1942-82. Bob died in 1997.

The Hanley Fellowship is named for Mary A. and Edward P. Hanley, *IL B '42*, who left a bequest in 2007.

The Anderson Fellowship is named for Mabel E. and Marshall Anderson, *MI Γ '32*, who left a bequest to the society in 2005.

The Lynnworth Fellowships are named for Lawrence C. Lynnworth, *NY E '58*, TBPi Fellow No. 140, and matched by the GE Foundation.

The Arm Fellowship is named for Rena M. and David L. Arm, *PA E '30*, who left a bequest in 2007.

The inaugural Forge Fellowship is named for Charles O. Forge, *CA Γ '56*, who left a bequest in 2010.

The first Zimmerman Fellowship is named for Marlin U. Zimmerman Jr., *MD A '44*, who left a gift of \$200,000 to TBPi in 2010.

The Centennial Fellowship, given to that fellow who the board determines is most outstanding, commemorates TBPi's 100th anniversary.

The TBPi-Sigma Tau award commemorates Clarel B. Mapes, Sigma Tau's former national president and secretary-treasurer, and perpetuates the memory of Sigma Tau, former national engineering honor society which merged with TBPi in 1974.

The TBPi-Best Fellowship commemorates Ina C. and Raymond A. Best, *NY Γ '33*, and is for a member to acquire an M.B.A. at Rensselaer Polytechnic Institute. There was no applicant.

*Tau Beta Pi
received 265
fellowship
applications.
Board mem-
bers Darrell W.
Donahue,
Susan L.R.
Holl, Jammie
L.H. Jamieson,
and Director of
Fellowships
D. Stephen
Pierre Jr. made
the selections
on March 30.
Fellows are
introduced on
the following
pages.*

Benjamin W. Gasser



Ben received his bachelor's degree in mechanical engineering in 2011 from the University of Alabama in Huntsville. He was first in his class with a 4.0 G.P.A. and served as TBPI Chapter President. Ben

plans to attend Vanderbilt University and start graduate studies by working on a master's degree and doctorate in medical mechatronics. He aims to research beyond strict mechanical design, studying intelligent mechatronics capable of mimicking human motion and adapting to the user. He hopes to learn and build a strong collaborative network at Vanderbilt. This will prepare him for a research career in medical device development in either a device company or in the world of academia. Ben believes that although prosthetics has received a recent boost from returning injured veterans, it still has a long way to go and he wants to be part of that process. He has also been active in TeenPact Leadership Schools, teaching government and leadership to high school students.

Jennifer L. Cooper



Jennifer received her B.S. in biomedical engineering from Worcester Polytechnic Institute, where she served as TBPI Chapter President. She plans to stay at WPI for graduate studies focused on her research for a

novel scaffold to improve wound healing. There is a large need for skin substitutes to treat burns and chronic ulcers. She will work on a cell-derived matrix with angiogenic qualities that is comparable to native dermis. Jennifer hopes to not only gain experience of laboratory techniques, technical writing, and data analysis, but to also provide insight and crucial data on tissue engineering to the medical community. Her ultimate goal is at least one published paper and possibly obtaining funding to continue her research. From there, she plans to work in industry as a biomedical engineer, seeing herself as one day leading a company into the future of medicine and saving lives. As an intern, she took part in training and was able to pass the exam for Lean Six Sigma, a concept for much of industry.

Christina E. Darling, E.I.



Christy has graduated from Clemson University with a B.S. in biosystems engineering. She was first in her B.E. group, passed the F.E., and was TBPI Chapter President. Christy's interest lies in water move-

ment, hydrology, and its effects on the natural and manmade environment. Her next planned move is to work on a master's at Johns Hopkins University in the environmental water resources engineering program. Her passion for hydraulic movement stems from childhood experience of the force and impact of water. It was shaped by flooding in her hometown of Richmond, VA, due to Hurricane Gaston, volunteer work in Mississippi after Hurricane Katrina, and the aftermath of the BP oil spill. Graduate studies will be aimed at increasing her knowledge of modeling systems and problem resolution in natural and man-made water systems. Christy believes availability of clean water and control of water's destructive qualities are worldwide concerns.

Kyle M. Dunning, E.I.



Kyle has graduated with a B.S. in civil engineering at the University of Missouri-Kansas City, where he was top of his group. He is pursuing a master's with plans to advance research on carbon nanotube

(CNT) carbon reinforcement to improve the material's usefulness and cost-effectiveness. Kyle believes the nation's crumbling infrastructure and inefficient design call for a reinvention of the way we build and repair. Civil engineering appears to have reached a plateau where we linger in technologies developed decades ago. Kyle has already researched in improving concrete design and use. Now he plans to look at ways of mixing CNTs with concrete to optimize strength and durability. He is considering a Ph.D., although his ultimate desire is to enter the workforce and become a Professional Engineer. In the end, he wants to help the engineering community advance into a more innovative and sustainable future.

Clayton N. Greenwell, E.I.



Clay received a B.S. in civil engineering from the University of Kentucky. He plans to go for a master's degree at either UK or Purdue University. Initial research was in hydrosystems and water systems. He is

now focusing on structures with a strong interest in design-build. Current research is in bridge repair and reinforcement. This has included using carbon strengthening that can be epoxied onto damaged bridges as an alternative to bolting up steel plates or rebuilding the entire structure. Clay is now interested in structural building design. He has held various jobs in the private sector. Work with a highway contractor led to bidding, leadership, and construction experience, while a post at a property management company taught him about running a company and communication skills. He has always considered being a teacher and would like to be a professor and researcher; however, plans include becoming a P.E. and working in industry for a least five years.

Duff R. Harrold



Duff has received a master's in mechanical engineering at California State University, Sacramento, where he was top of his class and group. He hopes to pursue a Ph.D. program at University of

California, Davis, studying energy and sustainability with a focus on converting biomass to fuel. Another objective is to work on the development of engineering education from primary school level through to university. Duff graduated earlier with a B.S. in biochemistry and worked for two years in enzyme research. Interest in the energy field as a social issue led him into engineering and rebuilding his foundation. This process included a two-year stint at a community college, three years at Sacramento State, and two internships. He is now looking at research in thermochemical biomass conversion and properties of charcoal as they relate to emissions. Another interest is a UC Davis program pairing engineering Ph.D. students with elementary teachers to develop innovative STEM curricula.

Charles A. Holt, E.I.



Chase graduated with a B.S. in civil engineering at Texas A&M University at the top of his class and group, with a 4.0 G.P.A. Next objective is a master's in structural engineering at Texas A&M to help complete his

knowledge of the way structures behave and how to build one from the ground up. He has already gained valuable work experience during two summer internships putting up steel buildings and the placement of concrete structures. Chase plans to take extra courses on concrete and steel design, as well as classes on mechanics, finite element, and dynamics. He had great expectations for a design studio course, where he will get to apply everything he has learned to a project. Graduate school aim is to learn to design a structure to be safe, economical, constructible, and functional by improving his understanding and knowledge base. Chase has already helped to build a water distribution system in Costa Rica, a well in Guatemala, and a food distribution warehouse in Haiti.

Sarah Elizabeth McCandless



Sarah Elizabeth has graduated with a B.S. in aerospace engineering from the University of Kansas. This is to help achieve Her ultimate ambition is to develop systems which support and sustain life in space.

Her graduate studies include Ae.E. and geophysics, and she believes studying these two subjects will help her bridge the gap between engineering and science, so that they more fully understand each other. Courses she plans to pursue include space habitat design, aerospace environment, flight dynamics, space life sciences, evolution of planetary systems, and space plasmas. She hopes to work with NASA's Graduate Student Researchers Program in order to apply her skills to existing problems. Study abroad, potentially at the International Space University in France, is another goal. She believes future space exploration is a global effort and that it will produce incredible innovation not only beyond our planet, but across all areas of society on earth.

Yichao Pan



Yichao graduated from University of Notre Dame, where he served as TBII Chapter President, with a B.S. in mechanical engineering. He is taking the F.E. exam and plans graduate studies in mechanical engineering (green manufacturing). His plans include a Ph.D. toward his objective of developing manufacturing technologies for a more sustainable world and helping recovery from financial crisis. With a higher degree, he would be able to facilitate positive global change through mechanical engineering. Yichao hopes to be a professor and that one day, he can direct his own laboratory. He could become a consultant promoting new, green technologies to manufacturing companies. His chapter's Chief Advisor credits Yichao with using his energy and creative spirit to revitalize Indiana Gamma in areas like expanding programs and inducting a strong group of new members. His rare example of commitment and leadership will serve him well in graduate school.

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Alyssa Joy Rose Hensley



Alyssa maintained a 4.0 G.P.A., graduating first in her group and department with a B.S. in chemical engineering at the New Mexico Institute of Mining and Technology. She served as TBII Chapter President.

Alyssa is taking the F.E. exam and plans graduate studies in chemical separation and purification, specifically water recycling. In addition to improving the health of millions of people worldwide, she sees this as a critical part of the modern economy. Water is vital for chemical plants, as a solvent, coolant, heating vapor, and is often a by-product. Alyssa wants to research current techniques and learn to apply them to smaller scale operations. Her ultimate career goal is to work with organizations like Engineers Without Borders and Engineering World Health to improve lives around the world with clean water. She believes her master's program will mean a deeper look at chemical engineering principles and research. This will equip her for future challenges such as difficult settings and limited resources.

Joshua L. Solomon, E.I.



Joshua has received a bachelor's in mechanical engineering from the University of Tennessee at Chattanooga. He was top of his class and group and served as TBII Chapter President. His ambition

is to be a design engineer for a top automotive company. When Volkswagen announced it was building its first production plant in the U.S. in his hometown Chattanooga, Joshua worked successfully to win a prized VW internship. His interest in cars grew, along with his interest in Volkswagen, and he began studying German. This led to an internship in Germany and, while working at a university there, he researched fiber-reinforced composites. Joshua has concluded that his real talent lies in working with advanced materials used in vehicles. He has applied to graduate schools in Germany, where the curriculum requires working in cooperation with industry. After graduation, he will work there and then eventually bring his skills back to the U.S.

Dmitriy Timerman



Dmitriy is a biomedical engineering graduate of Columbia University, where he served as TBII Chapter President and led rankings for his group with a 4.17/4.333 G.P.A. He is starting graduate studies

in biomedical engineering and medical imaging. Dmitriy will continue to concentrate on ways to make diagnostic and interventional imaging give physicians and scientists a better view inside the human body. He believes that advances in imaging will revolutionize biomedical engineering during his career, and his goal is to be a major contributor. To achieve this, he will combine research in imaging and neuroscience. He is already working on a technique for blood flow and oxygen use in the brain for neurosurgeons to use during operations. Alongside research, he intends to be active in innovation and social entrepreneurship. Dmitriy's eventual plan is to work on local and international projects to produce biological devices. He also plans to continue serving as a community leader.

Jeffrey B. West



Jeffrey is a mechanical engineering graduate of Ohio Northern University, where he maintained a 4.0 G.P.A. and served as TBI Chapter President. He spent two summers working on development

of Cleveland, OH, city lots for community gardens and local food production. Jeffrey then developed an interest in research, specifically in robotics, where he is starting graduate studies towards a Ph.D. He plans to investigate interaction between humans and assistive robotics designed for rehabilitation or shared tasks. New robotic platforms, he believes, must be designed with both function and human perception in mind to increase human acceptance and trust of the machine, as well as efficiency. For example, rehabilitation patients who interact with more capable systems featuring intuitive controls may develop deeper trust in robots to aid their therapy. Jeffrey plans to follow a career in research, either as a university professor or at a government funded research laboratory.

Matthew A. Williams, E.I.



Matthew graduated first in his class and group at the University of Kansas with a 4.0 G.P.A. and a B.S. in aerospace engineering. He is pursuing graduate studies in mechanical/aerospace engineering and has

passed the Fundamentals of Engineering examination. A continuing internship led to his decision to work on non-linear control systems with an emphasis on wind turbines and wind farms. The industry needs control systems, and he plans to develop regulation systems for entire wind farms. Turbines will be networked to communicate with each other and react to environmental conditions. This would make them more efficient and safer to operate. Matthew believes there will be more demand for such control systems as wind power becomes more popular and governments are pushed towards cleaner energy sources. He hopes to promote the profitability and the scale of wind energy to reduce, and even eliminate, the need for subsidies and tax breaks.

Yifan Zhang, E.I.



Yifan graduated first in his group and department with a B.S. in petroleum engineering at the University of Wyoming. He maintained a 4.0 G.P.A., passed the Fundamentals of Engineering exam and is going on for

his master's. Growing up in an oilfield, he always wanted to be a petroleum engineer. He has decided to focus on carbon dioxide sequestration. Yifan believes it is vital for his native China, the #1 emitter of CO₂, to develop sequestration technology. He has already had internships in geology, carbon dioxide, and rock/fluids, and will work on at least one of these topics for his master's and Ph.D. Yifan finds it fascinating that CO₂ produced through natural processes has been stored in geologic formations for hundreds of millions of years. That has inspired people to look to this technology. He believes sequestration has great potential to relieve climate change and to help the engineering profession increase flexibility by cutting greenhouse gas emissions.

Luz Angela Zidziunas



Angela has completed a bachelor's in civil engineering at the New Jersey Institute of Technology, ranking first in her class and group, with a 4.0 G.P.A. She is going on to graduate school, planning to

concentrate on building design and analysis. This would be based on a sustainable approach, choosing materials that can survive and preserve the environment as well as making efficient use of funds. Angela would then join a large structural design company and gain the experience required for professional certification. Her ultimate goal is to start her own consulting firm to apply her experience to the environmental and structural fields. She is a married mother of three children and balances her engineering studies with work at Joseph Environmental LLC, a Newark, NJ, consulting firm she co-owns with her husband. This involves remedial and repair services for the cities of Newark and New York, as well as working closely with agencies such as the EPA.

Kaitlyn F. Mallett



Kaitlyn completed a bachelor's in mechanical engineering at the top of her class and group at the University of Michigan-Dearborn, where she served as TBI Chapter President. She completed a concurrent

major in engineering mathematics. Graduate studies at Michigan in Mech.E. with a focus on dynamics and vibrations are her next move, and she has been recommended for admission to a Ph.D. program. She also plans to continue her mathematical education. Kaitlyn has been involved in research into mechanical properties of certain biocomposites under loading, and the behavior of the corneal shell of the mammalian eye. These tissues deform under stresses, including the actions of diseases like glaucoma. She has learned the significance of thinking deeply about research results and not jumping to conclusions; so she plans to continue studying cellular biomechanics. The research process is very rewarding for her and she is looking forward to carrying this out in a laboratory over the next year.

Christopher C. McComb



Chris graduated from California State University-Fresno with a B.S. in mechanical engineering. He placed first in his class and group, achieved a 4.0 G.P.A., and served as TBI Chapter President. Chris is entering a Ph.D. program

at Carnegie Mellon University. His dissertation will be on large-scale design optimization, with applications to renewable energy. Focus will be on siting offshore wind farms and the design of concentrated solar power plants. He has been an undergraduate intern at the National Renewable Energy Laboratory working on wave energy converters. Other internships included structural engineering, consulting and working as a student assistant at CalTrans. Chris will pursue a postdoctoral position, then a full engineering position, at a Department of Energy laboratory, preferably at the NREL. After about 10 years, he plans to seek a tenure-track teaching position at the University of California, then devote the rest of his life to teaching, research, and mentoring.

Megan E. Godsey



Megan is a chemical engineering graduate of the University of Kansas, where she finished first in her class and group with a 4.0 G.P.A. She has applied to graduate schools, seeking to combine her interest in biology

with the knowledge from her degree to create products that directly improve people's lives. Megan has been interested in gene therapy for some time and has been looking at the introduction of small interfering RNA (siRNA) into cells in the body. This helps treat conditions with a genetic component. Her focus is searching for ways to deliver the siRNAs to the correct cells with the ultimate aim of producing a therapeutic tool. Specifically, she hopes to develop a technique to help prevent joint degradation in rheumatoid arthritis sufferers. She would like to find a way of delivering the treatment orally, as opposed to the current therapy using site injection. This is where she wishes to make a contribution during graduate school and her career.

Yoke P. Leong



Yoke is graduating with a master's in mechanical engineering at Northwestern University, where she studied under a four-year scholarship from the Malaysian Public Service Department. She is pursuing a Ph.D. and her study

objective is to learn to increase the quality of higher education in her homeland and to start her own research group. Her passion for robotics developed from a project on simulation and control of an artificial finger. Existing prosthetic arms do not usually come with a dexterous hand. She plans to give amputees more manual control, and is looking into development of a robotic hand. She believes this project will also help her to forge partnerships with private and government organizations. Improving leadership skills is one of the objectives of her doctorate program. She also plans to strengthen her teaching skills, acquiring feedback from students to polish her technique. Then she will go on to become an inspiring teacher and an innovative researcher.

David E. Korenchan



Dave has received his B.S. in bioengineering and physics from the University of Illinois at Urbana-Champaign, where he was TBP Chapter President. Ranking first in his class and group, he maintained a

4.0 G.P.A. Dave expects to be accepted into a Ph.D. program at one of the nation's top universities for biomedical engineering. He believes engineers and researchers are on the verge of developing and marketing novel micro/nano-electromechanical systems (MEMS/NEMS) for highly accurate, inexpensive, and portable bioparticle detection. After gaining his doctorate, he plans to work with a healthcare company to bring such diagnostic devices to medical professionals so they can use this new technology to save lives. He is particularly interested in exosomes, small particles whose release from cells may indicate initial tumor formation. Their study could lead to a new method of early cancer detection using BioMEMS devices to find them in blood or cultured cells.

Krista M. Kirievich



Krista is an aerospace engineering graduate of the University of Cincinnati, where she was first in her group. She plans to stay there for graduate studies. She will be working on fluid mechanics in relation

to current aerospace technologies like aircraft engines and advanced flight vehicles. Working with General Electric Aviation, she will be developing ways to include unsteady flow effects into turbomachinery design. This is important in near-stall conditions. Simulations in this field are computationally very expensive and it is important to find a more efficient way to model this behavior. Krista has already studied wind turbine design and computational fluid dynamics. Future work will cover topics like propulsion systems, combustion, heat transfer, compressible flow, and turbomachinery. Her master's degree will give her a greater understanding of these topics, and help her gain the conceptual understanding and skills needed for a career in the aerospace industry.

Andrew D. Matsumoto



Andrew graduated at the top of his department with a B.S. in civil engineering at Gonzaga University, where he was TBP Chapter President. He has applied to graduate schools to start working towards a

Ph.D. in environmental engineering, and is taking the F.E. exam. Andrew's passion is solving environmental contamination problems. This stems from watching his mother and grandparents suffer from illnesses linked to the pesticides sprayed on their family farms. He plans to specialize in environmental process engineering, with the focus on contaminant transport and remediation in soil and groundwater. He is aiming at a career as an environmental researcher, professor, and policy advocate, fighting for tougher restrictions on pollution. Andrew spent two summers interning at the Hanford Nuclear site working on a soil desiccation system to immobilize Technetium-99 threatening the Columbia River. This preceded his receipt of a 2010 Goldwater scholarship.

Kalman A. Katlowitz



Vigi graduated at the top of his class and group at Cooper Union with a B.S. in interdisciplinary engineering and a G.P.A. of 4.0. He plans to continue his studies for an M.D./Ph.D., an eight-year program to train a

new generation of Ph.D. students who apply their knowledge to medicine. Just as his interdisciplinary track in engineering allowed him to combine the electrical, chemical, and biomedical fields, he believes a physician-scientist can combine the best of both worlds. One can only understand truly how to improve the system by being immersed in it. Vigi is particularly interested in neuroscience, specifically interactions between our neural systems and electronics. He believes technology is close enough to begin understanding this largest enigma in the body. His dual background in medical research and engineering uniquely qualifies him for this field. The brain must be approached computationally, biochemically, electrically, and in so many other fashions.

Hanley Fellow No. 8

Daniel J. Preston



Dan graduated top of his class and group at the University of Alabama with a B.S. in mechanical engineering and a G.P.A. of 4.0. He is continuing Mech.E. studies at graduate school and has applied to take the

F.E. exam. Studies will focus on meeting the growing demand for renewable energy to counter the decline in fossil fuel production. He believes the sun is the most promising raw source of energy and that research in two areas is already making photovoltaic cells more efficient and economically viable. These are innovations in multijunction cells and using optics to concentrate the solar power applied to PV cells. Dan is interested in researching the latter and looking at ways of cooling the panels to maximize power production. He plans include a Ph.D., and becoming a researcher and professor at a renowned university with a strong STEM program. This would help to find a solution for the impending energy crisis, and spread knowledge about renewable sources.

Anderson Fellow No. 6

John R. Lewandowski



John received a bachelor's in mechanical engineering from Case Western Reserve University, where he maintained a 4.0 G.P.A., and placed first in his group and department. He was also a senior captain

in varsity baseball, and plans to take the F.E. exam when sporting commitments permit. John plans graduate studies in mechanical engineering and management science. On entry to Case Western, he was extremely interested in medical school, but changed to Mech.E. after an internship with the functional electrical stimulation laboratory there. He wanted to not only come up with his own design problems, but also to find the solutions. John wants to stay involved with design, and after completing his doctorate would ultimately be interested in technological consulting. This would allow him to make the biggest impact on others in a wide variety of industries. His long-term goal is to develop and market a cheaper material, or revolutionize a current material used within the body, for implant devices.

Lynnworth Fellow No. 5

Joseph M. Argento



Joseph graduated with a bachelor's in electrical engineering at Manhattan College, where he is starting graduate studies. He will be working on an M.S. in electrical and computer engineering, which he plans to

complete in a single year, and then go on for a doctoral degree while working in the field. Joseph has planned a graduate curriculum to make him quickly contribute to robotics and engineering as a whole. It will be focused on autonomous systems, specifically AI, machine learning, algorithms and controls. He chose autonomous systems after seeing an unmanned air combat system as an intern at Northrop Grumman Aerospace Systems. The aircraft not only had to be controllable from thousands of miles away, but also had to do things like land autonomously on the deck of a moving aircraft carrier. He has been Chapter Treasurer and intends to stay active in the campus community and with Tau Beta Pi by becoming a student advisor.

Lynnworth Fellow No. 6

Michael J. Hand III



Mike graduated first in his department and group with a B.S. in electrical engineering at University of Michigan-Ann Arbor. He had a 4.0 G.P.A. there and is staying at Ann Arbor to pursue

a master's in control systems engineering. This would lead to improving the efficiency and sustainability of existing systems by developing more advanced control algorithms. He is fascinated by ways of stabilizing and governing the behavior of an unstable system. Mike plans research on system-controller integration to achieve better results than more classical approaches. This summer, he was interning at Whirlpool, with a project on control categories to save energy and cut waste in appliances like refrigerators and washer/dryers. After graduation, he plans to explore areas of technology previously considered inaccessible, like flight of open-loop unstable aircraft and robotic bipedal locomotion. He will be prepared for a job in controls engineering or to go on for a doctorate in control systems.

Arm Fellow No. 4

Jeffrey D. O'Brien



Jeff graduated first in his department with a B.S. in mechanical engineering from the University of Notre Dame. Graduate studies will be aimed at a Ph.D. in Mech.E. so that he can eventually work as a

research and development engineer creating new products and improving existing technologies. He plans to specialize in the relatively new field of computational combustion (CC) which has many applications in the power, aviation, and automotive industries. Jeff has always been interested in how engines and power plants work. Once he began to understand how they function, he became enthralled by the science involved. Spending summers with General Electric, he learned that controlling emissions and improving fuel performance are important design problems that are difficult to solve experimentally. He wants to make CC a more reliable and efficient tool for predicting combustion performance. This will allow cheaper and enhanced engines and turbines.

Forge Fellow No. 1

Craig M. Western



Craig graduated first in his class and mechanical engineering department at the University of Southern California with a 4.0 G.P.A. He is going on for a master's in Mech.E. and plans to continue for a Ph.D.

Internships and his research have made him interested in robotics, which provides an ideal mix of theory, implementation, software, and hardware. They have also developed his skills in hardware design, control, and programming. Robotics also provides potential for entrepreneurship and leadership roles to emerge from the field's growing applications. He aims to become a leader in industry, academia, or a mix of the two—as do many leading talents in the field. Craig also believes that breadth of knowledge is critical, particularly for business ventures. He prides himself in engaging in a range of pursuits. For example: he spent a year in Taiwan as a Luce Scholar and is confident that the resulting intermediate-level Mandarin and knowledge of local culture will benefit his engineering and business activities.

Sheniqua R. Brown



Sheniqua is a chemical engineering graduate of Howard University, where she ranked first in her group. Her field of study was determined by the personal experience of three family members losing their bat-

tles with cancer at relatively young ages. Throughout her undergraduate career, interactions with individuals in engineering, science, and humanity courses showed that even small contributions can make major impacts on a community. This led to a desire to improve the lives of others through research. Work on nanoparticle fabrication exposed her to the vast capabilities of nanoscience and technology in healthcare. Sheniqua's desire to focus on this field was confirmed by an internship at a pharmaceutical company. Her special interests are biomaterials, drug delivery and nanomedicine. She plans to pursue a doctorate in chemical engineering, and work on research and development in the pharmaceutical industry. After a career in industry, she plans to become a university professor.

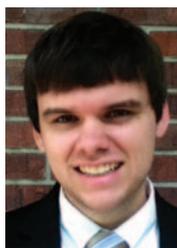
David S. Bergsman



David graduated from the University of Washington with a B.S. in chemical engineering and is going on to graduate school for a Ph.D. He plans to make significant advances in pharmaceuticals, nanotechnology or

energy-related fields. David plans to contribute to future generations of engineers as a professor, producing new intellectual property while sharing expertise with undergraduates. He has already written a program regarding chemical equilibrium in large systems, and this simulation is currently being used to detect planets with earth-like living conditions. The planned focus for graduate school will be surfactants and surface modification. He is particularly interested in the use of surface-modified gold nanoparticles for detecting and treating cancer cells. David takes great pleasure in simplifying difficult concepts, which led him to become a teaching assistant. Directing and encouraging his peers has been a fantastic experience, which he hopes to continue as a professor.

Claude S. Bridges IV



Claude has graduated from the University of Alabama in Huntsville with a dual major bachelor's in industrial and systems engineering and mathematics. He placed first in his class and group with

a 4.0 G.P.A. He is staying at Huntsville for graduate studies to work on a master's in systems engineering. Currently, he is fascinated by the integration of systems in healthcare areas like hospitals and the manufacture of biomedical instrumentation. Claude is checking out employment possibilities that might help with study plans. He might consider a career path opportunity in healthcare engineering as a serious alternative for his future. However, he would like his next move to be as a research assistant or graduate teaching assistant for engineering courses. Upon obtaining a master's (or even possibly achieving a doctorate), he will look for a long-term career that would incorporate his interests in both research and health systems.

Erinn C. Dandley



Erinn is a chemical engineering graduate of the University of Massachusetts at Amherst. Graduate studies for a Ph.D. will allow her to continue conducting and advancing research in the field of biomedical

engineering. Combining skills from her undergraduate career, like problem solving, time management, and determination, with knowledge from graduate school, she hopes to successfully combat disease. Two research experiences dealing with cancer, one on drug delivery and the other on metastasis, have led Erinn to conclude that she wants to do this sort of problem solving for the rest of her life. After completing her master's, she plans to work for a small company focused on developing treatments for cancer, malaria, HIV/AIDS, or heart disease. Such an environment will mean that she can make major contributions. This will also allow Erinn to utilize her effective and creative skills which will be sharply honed while pursuing her Ph.D.

Nicholas J. DeLuca



Nick has graduated with a B.S. in aerospace engineering at the United States Naval Academy. He is taking the F.E. exam and is going on for his master's in Ae.E. Nick is destined for the U.S. Marine Corps and

his aim is to become a naval aviator. He first "slipped the surly bonds of earth" with his first flight at the age of six, and obtained his private pilot's certification during his senior year of high school. After graduate education, he will go to military flight school. Later, Nick will have a chance to apply for the U.S. Naval Test Pilot School. As a Marine Corps test pilot, he would be in a position to analyze and improve on experimental platforms with potentially extraordinary implications. This path will prepare him to lead future aerospace design programs in and out of the military. Pursuing a master's in aerospace systems will make him an engineer who can see the whole picture, yet have the knowledge and analytical ability to deal with specific problems as they arise.

Nimit Jain



Nimit maintained a 4.0 G.P.A., graduating first in his group and department with a B.S. in biomedical engineering at Yale University. Next move is work towards a biomedical/bio-engineering Ph.D. program. He

decided to dedicate his life to engineering solutions to biomedical problems when he was diagnosed with Type 1 diabetes at the age of 16. Graduate-level classes already taken range from mathematical modeling to medical image processing. An example of research accomplishments so far includes development of computational methods to accurately assess biological parameters. Nimit worked as an intern in surgical device development at Carl Zeiss Meditec in Germany. His ultimate goal is to set up his own laboratory as a professor to develop medical devices and imaging techniques for conditions like diabetes, malaria, and cataracts. Nimit believes that the ability to synthesize knowledge from across several disciplines holds the key to solving even the most complicated biomedical problems.

Tau Beta Pi Fellow No. 796

Matthew R. LaRue



Matthew received his B.S. in electrical engineering from Valparaiso University, where he was TBI Chapter President. He is taking the F.E. exam and is going on for graduate studies in E.E. Matthew started

learning about military radar systems and radio frequency (RF) engineering during an internship with the Air Force Research Labs. His research will be in the design of high power transmitter technologies for ultra-wideband, multi function operations. The focus will be on technologies to deliver unparalleled bandwidth and power. This could lead to transmitter architecture allowing simultaneous radar, communications, and navigation operations via a single aperture. Thus, versatility could revolutionize communications for the military, NASA, and commercial users. Outside the classroom and laboratory, Matthew's sporting interests have included volleyball and floor hockey. He captained the Valparaiso University competitive ballroom dancing team and performed with the dance ensemble.

Tau Beta Pi Fellow No. 797

Timothy M. Moeller



Tim is an aerospace engineering graduate of the University of Notre Dame where he was top of his department. Internships included a summer at NASA-funded Blue Origin, where he began development of cryo-

genic insulation for the company's first LOX/LH2 vehicle. He is staying in aerospace for graduate studies, planning to obtain a research position at an institution with a strong space systems research program. Particular interest lies in research on overall vehicle design and optimization, astrodynamics, or spacecraft robotics. After gaining a master's, he expects to go on for a Ph.D. He will then seek a systems engineering job with a company or in a laboratory at the cutting edge of exploration technology. Tim wants to be part of the next generation of spacecraft or exploration missions, contributing to discovering all about our solar system. He would like to end his career as manager of a design team or research laboratory, so that he can pass on his expertise to the next generation of engineers.

Tau Beta Pi Fellow No. 798

Robert A. Sinko



Bobby is a mechanical engineering graduate of Miami University, where he was first in his class and group with a 4.0 G.P.A. He is taking the F.E. exam and is pursuing an advanced degree in Mech.E.

as part of his goal to become a professor. Having been a tutor throughout college, he discovered that he has a passion for teaching. Bobby hopes to continue research so that one day he can consider himself an expert in his chosen specialty. He has already spent two summers as a NASA intern, focusing first on system design and analysis, then more on theoretical research. Independent research at Miami for the past two years included work on smart materials. He also traveled abroad to work at the Korea Advanced Institute of Science and Technology, having both experience of working with international colleagues and an impactful cultural experience. He believes that graduate school will help him advance the engineering community in the future, while achieving his own goals.

Tau Beta Pi Fellow No. 799

Vahagn F. Yeranossian



Vahagn completed a bachelor's in chemical engineering at the top of his class with a 4.0 G.P.A. at Case Western Reserve University. Next move is graduate school with the objective of a Ph.D. from a thesis

dealing with solar cell or energy storage development. He would then like to work in a research or development lab for either a company or a national laboratory, creating longer-lasting and more efficient solar cells or batteries. After several years of research, he plans to become a university professor and pursue his own research, while helping future students reach their own goals, and advance their fields. Vahagn was TBI Chapter President at Case Western, and he worked to use Tau Beta Pi as an umbrella organization for engineering student groups to help them achieve projects in the community. He believes this can enable student groups with little funding to complete projects that require cross-departmental cooperation. This has been met by support from student groups, as well as TBI members.

STAY INVOLVED WITH TAU BETA PI

Don't let your graduation be the end of your involvement with Tau Beta Pi! We are actively working with alumni across the country to reactivate and reinvigorate alumnus chapters. Opportunities for participation in the MindSET, District, and Engineering Futures Programs are available as are positions as chapter advisors. All alumni are encouraged to join our LinkedIn and Facebook groups to learn about the latest activities going on in Tau Beta Pi.

To connect with alumni in your area, visit:
www.tbp.org/alumni/involve.cfm

To learn more about volunteer opportunities, visit:
www.tbp.org/pages/ForMembers/Volunteer/Potential.cfm

To attend an alumni gathering check dates and locations: in your area:
www.tbp.org/alumni/

Pictured to the right is an alumni gathering held in Minneapolis in May 2012.

