

Tau Beta Pi Fellows for 2011-12

THE FELLOWSHIP BOARD SELECTED 35 Tau Beta Pi Fellows for 2011-12, 17 of whom will receive \$10,000 cash stipends for one year of graduate study and 18 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 a total approaching \$5,300,000 to 943 stipend recipients.

Now in its 78th 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, and friends and the earnings of the invested Fellowship Fund have all contributed to these awards.

Matching gifts to the Association from 225 companies on behalf of their TBPi employees are allocated to fellowships and scholarships, and the Society is most appreciative of this generous 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 34th 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-three fellowships are named for members. The TBPi-Williams Fellowship, established to honor the Association's Founder, Dr. Edward H. Williams Jr., 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, who served during 1936-47, is awarded for the 56th time. It is presented to the winner who has made significant contributions to his or her collegiate chapter. The Harold M. King Fellowship honors the 1954-58 President, whose special interest was in the student branches of the national technical societies. Given for the 50th 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. left a bequest in 1979 to endow a fellowship for graduate study in water supply, waste-water treatment, and ecology. The Matthews Fellowship is awarded for the 14th time and honors Secretary-Treasurer Emeritus R.C. "Red" Matthews, *IL A '02*, who served as Secretary during 1905-12 and as Secretary-Treasurer in 1912-47. Red died in 1978 at the age of 99. The 14th Nagel Fellowship is awarded in honor of Secretary-Treasurer Emeritus Robert H. Nagel, P.E., *NY A '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 Lynnworth Fellowships are named for Lawrence C. Lynnworth, *NY E '58*, TBPi Fellow No. 140, and matched by the GE Foundation.

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 founded at the University of Nebraska in 1904. When it merged with TBPi in 1974, the assets of its foundation were transferred to the Fellowship Fund.

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

Tau Beta Pi received 217 fellowship applications. Board members Darrell W. Donahue, Susan L.R. Holl, Jammie L.H. Jamieson, and Director of Fellowships D. Stephen Pierre Jr. made the selections on March 26. Fellows are introduced on the following pages.

Lauren H. Logan



Lauren received her bachelor's degree in electrical engineering in 2010 from Ohio University, where she was first in her class and served as TBII Chapter President and later as Advisor. She also has

a B.Sc. in geological sciences. She plans to attend Purdue University and commence graduate studies by working on a master's degree in ecological sciences and engineering. Lauren wants to focus her research on improving energy harvesting materials in order to increase efficiency and decrease pollution as well as costs. This could include nano cantilevers, cleaner solar cells, and biologically based batteries. After completing her doctorate, she will seek a full-time faculty position with the correct balance of teaching and research. She wants to inspire students to inspect the world around them critically while searching for ways to improve technology. It will be her duty to promote green technology to the next generation of engineers, while pursuing her own research in the field.

Eric M. Anderson



Eric received a B.S.E. in bioengineering and a B.S. in biochemistry in 2010 from Arizona State University, with a 4.0 G.P.A. He has developed a passion for biomedical engineering, which resulted from more

than a year receiving medical treatment after a baseball injury. He is completing a year of research as a Fulbright scholar at the academic medical center of the University of Amsterdam, and plans to pursue M.D. and Ph.D. training at Stanford University for a career in academic medicine. Experience at the translational genomics research institute has solidified Eric's interest in academic medicine through his research on invasive brain and breast tumors and clinical shadowing experience. He has also found time to be a volunteer clinical technician at the Mission of Mercy mobile clinic. Other volunteer service included work at the Hospice of the Southwest and the migrant health education program. Earlier awards included the TBII Winkler No. 9 Scholarship and a Barry M. Goldwater scholarship.

Camila Dorin



Camila graduated first in her department with a B.S. in computer engineering at Union College. She has applied to Imperial College London for graduate school in computer engineering. A scholarship

allowed her to spend her junior year studying at University College London, and internships have included working at the geometric image processing lab at the Technion, Israel Institute of Technology. Her areas of interest are robotics and embedded systems, and she would like to take classes on personal robotics, along with computer-aided design of digital systems. Camila would like to work on research and development in industry and plans eventually to open her own company. She has also been active in organizations including SWE and Engineers Without Borders. She is sure that after she starts graduate studies, a whole new world will open and her ideas could change. So she is confident that further education will allow her to manage future aspirations and objectives.

Shekhar K. Gadkaree



Shekhar is a biomedical engineering graduate of the University of Rochester, where he finished first in his biomedical engineering class. He plans to study at the Johns Hopkins School of

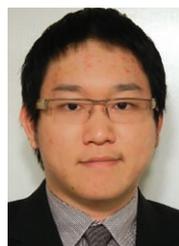
Medicine for an M.D. and believes that the future direction of healthcare rests in the integration of medical knowledge and clinical engineering. He currently plans to specialize in endocrinology or cardiology, both of which he sees as areas that would greatly benefit from engineering advances. Shekhar's ultimate goal is to elucidate problems in his patients as a specialist and use his engineering background to develop devices to address these concerns. He has been working on a project in Peru aimed at developing a diagnostic device using pressure sensors to identify ulceration risks for patients with diabetic neuropathy. Diabetes is on an upward trend in developing countries, and he plans to focus on a single clinical engineering undertaking that targets global healthcare in a nation like Peru or Uganda.

Matthew T. Grant



Matt has graduated from Oklahoma State University with a B.S. in chemical engineering. He has applied to start his graduate studies at the University of Cambridge and has already been granted an opportunity to begin medical school at Baylor College afterward. At Cambridge, he plans to complete a master's in bioscience enterprise, focusing on pharmaceutical and technological discoveries. Matt believes this will equip him with the analytical and entrepreneurial skills needed to bring medical advances to market. During a trip to Honduras, he worked at a government-run hospital assisting with hip and knee replacements. He witnessed a desperate level of medical need and also the connection between for-profit companies and volunteer medical work. He has completed undergraduate minors in economics and Spanish, and the master's in enterprise will be the thread that ties all his interests together. He is passionate about bridging the resources and innovations of groups across national borders.

Albert Hsia



Albert has graduated with a B.S. in biomedical engineering and a 4.0 G.P.A. at Arizona State University, where he served as TBII Chapter Treasurer. He has taken the Fundamentals of Engineering exam

and has been accepted for ASU's accelerated master's program in biomedical engineering, hoping to obtain this degree in one year. Albert was inspired to pursue this study by his interest in how technology can serve the greater good by creating innovative healthcare solutions while reducing medical costs. During his undergraduate study, he was involved in creating an electrocardiogram that can be interfaced to any computer for less than 10 percent of the average cost of a commercial device. This showed him the enormous potential for engineering to address rising healthcare costs, and he plans to focus on courses that will help him prepare for a career in the medical-device industry. It is possible that he will establish his own company in the next few years.

Fife Fellow No. 144

Michael D. Krak, E.I.



Michael has graduated with a bachelor's in mechanical engineering from Ohio Northern University, where he served as TBP Chapter Corresponding Secretary. He plans to pursue a master's at Ohio

State University and has passed the Fundamentals of Engineering exam. His objective is to earn a doctorate in mechanical engineering, specializing in vibrations, acoustics, and mechanics. Graduate research will focus on vibration monitoring systems, turbomachinery, engines, and automotive suspensions. This follows his co-op experience, in which he was responsible for maintaining pumps, compressors, and turbines at an oil refinery. Vibration analysis allows failing machinery to be taken off-line before catastrophic failure occurs and is a diagnostic tool for repair personnel. It is Michael's ultimate goal to teach at an undergraduate engineering college. His acoustic vibration experience at Ohio Northern included playing the saxophone in the university's orchestras and the marching band.

Fife Fellow No. 145

Joy L. Marsalla, E.I.



Joy is an environmental engineering master's graduate of Arizona State University, where she ranked first in her department with a 4.0 G.P.A. She has already passed the Fundamentals of Engineering exam

and believes it is important for her to obtain her certificate in project management eventually. Joy plans to remain at her *alma mater* for environmental engineering graduate studies, focusing on water system management, environmental chemistry, and water regulations. She plans to work for a governmental agency ultimately so that she can concentrate on water quality and regulation. This will most effectively enable her to influence the management of what she believes to be our most important resource. She is also active in SWE and believes in the importance of ethics in engineering. She plans to work with the school administration on an Order of the Engineer ceremony in which seniors, alumni, and professors take an ethical oath, similar to the Hippocratic oath for doctors.

Fife Fellow No. 146

Katrin Passlack



Kat graduated from the University of Oklahoma, where she was first in her class with a G.P.A. of 4.0, receiving a B.S. in mechanical engineering. She plans to start postgraduate studies in bioengineering at

the University of Washington and plans to pursue an academic career. Her specific research focus will be cancer detection and treatment technology development, at the intersection of molecular biology, genetics, and nanotechnology. This follows a summer that she spent as an NSF intern at Johns Hopkins. Kat believes that by fostering collaboration among engineers, scientists, and doctors to probe the boundaries of technology, engineering in oncology will be a contributing factor toward accelerating the downward trend in cancer death rates and improving patient quality of life. She has also been active in collegiate rowing as both a competitive team member and as a coach, as well as being a gymnast. She plans to take the Fundamentals of Engineering exam when rowing commitments allow.

Fife Fellow No. 147

Nathan G.F. Reaver, E.I.



Nathan has received his B.S. with a dual major in bioengineering and physics from the University of Toledo. He is remaining on campus to start graduate studies in bioengineering and has passed the

Fundamentals of Engineering exam. He wants to undertake research and take many advanced education courses along the path to an engineering doctorate. He plans to research biomedical optics or biomass conversion into useful products and genetic engineering of microbes. Nathan is interested in ways of making more efficient conversion of cellulose into sugars, and hence better ethanol conversion. He has developed an interest in alternative energy and sustainability. He has also undertaken extensive work on photovoltaics, believing that new energy sources will be vital to our society in the near future, and wants to bring them into the commercial realm. His ultimate goal is to use the fruits of his studies to start a company specializing in making renewable energy available to the average individual.

Fife Fellow No. 148

Teneil K. Ryno



Teneil has completed a bachelor's in metallurgical engineering at the South Dakota School of Mines & Technology, where she ranked first in her department. She will remain in Rapid City and start

postgraduate studies in materials science. She plans to earn a P.E. license to work as a failure-analysis consultant and will be taking the Fundamentals of Engineering exam because of her interest in forensic engineering. Teneil has studied the reliability of tin-alloy solders that are widely used in industry. The transition from lead to tin alloy has impacted major companies like Toyota and Swatch Watches, and they have carried out substantial product recalls due to electronic failures. This also has aerospace applications in department of defense projects, in which she has some experience. She believes that prolonged studies on the life expectancy of lead-free solders will provide data to help create manufacturing guidelines. Other activities has included involvement in SWE and Engineers Without Borders.

Fife Fellow No. 149

Meredith A. Stella, E.I.



Meredith graduated at the top of her class with a B.S. in civil engineering and a G.P.A. of 4.0 at the Illinois Institute of Technology. She has already passed the Fundamentals of Engineering exam. Her next move is

graduate studies in structural engineering at the University of Maryland, College Park. Meredith comes from a family of baseball fans. She was inspired by engineering when a childhood friend's engineer father helped build a new home for their beloved Seattle Mariners, and she was awed by downtown skyscrapers. She hopes that a graduate degree will help her become a professional structural engineer and one day help to design structures like the ones that inspired her as a child. Coming from the earthquake-prone West Coast, she is also extremely interested in seismic design for large structures. She would like to study more efficient damping methods and ways to control the destructive vibrations caused by seismic events. Other activities have included the ASCE and Alpha Sigma Alpha.

Raguez Taha, E.I.



Raguez has received her B.S. in civil engineering from the University of Illinois at Chicago. She plans to commence graduate studies in structural engineering at her *alma mater* after a semester at Illinois

Institute of Technology and has passed the F.E. exam. After receiving her master's, she would like to work in industry for a few years to develop her professional skills. She would delay a doctorate at this stage because she learned the most as an undergraduate from professors with industrial experience who could connect theory to real practice. Since she and her family left Iraq 13 years ago, she always planned to return some day. Raguez would like to use her knowledge to help rebuild Iraq's infrastructure, with a focus on public facilities like schools and hospitals. She was appalled by the neglected state of such facilities when she last visited there. After working in Iraq, she plans to pursue a Ph.D. in structural engineering. She has also been active in ASCE, SWE, and Engineers Without Borders.

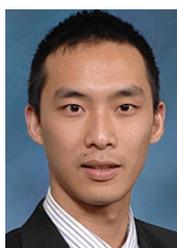
Abigail R. Wooldridge, E.I.



Abigail graduated at the top of her class at the University of Louisville with a B.S. in industrial engineering and a G.P.A. of 4.0. She is remaining on campus to pursue her master's and has passed the Fundamentals of Engineering examination.

During a co-op assignment, she worked in the healthcare-solutions department at a consulting company. Abigail saw the application of efficient engineering practices at hospitals and believes that there are many areas of industrial engineering that would benefit the healthcare system. She is also interested in the application of industrial engineering to the evacuation of hospitals, which traditionally have been viewed as only service providers in an emergency situation. Recent events like Hurricane Katrina have shown the importance of topics like evacuation planning. Her ambition is to teach eventually at a nationally-recognized research institution. She plans to follow her master's degree with studies for a doctorate in order to achieve her goals.

Xuyang Zhang, E.I.



Xuyang graduated at the top of his class at the University of Cincinnati with a B.S. in mechanical engineering and a G.P.A. of 4.0. He plans to pursue a master's at Stanford University and has passed

the F.E. exam. TBI Stabile Scholar No. 129, he intends to obtain a Ph.D. and eventually become a technical leader in industry or research. Xuyang attended UC through its joint degree program with Shanghai Jiao Tong University, and believes engineering professionals will be a valuable resource for development in China. He has already undertaken research in areas such as finite-element analysis and computational fluid dynamics. His primary research interests are in renewable energy technology because of the world's energy situation. He wants to learn how to contribute his experience in control, modeling, and simulation to solving this. He is also interested in biomechanics and robotics and has been looking at robotic prosthetics for people who have lost limbs.

Jennifer A. Johnson, E.I.



Jennifer received her B.S. in civil/transportation engineering from Clemson University, where she served as TBI Chapter President and graduated first in her class with a 4.0 G.P.A. She was also SWE

president. She is staying on campus for her master's in transportation and has already passed the F.E. exam. Her research has involved integrating electric vehicles into an emerging concept in which vehicles and infrastructure communicate with one another in real-time to improve efficiency, mobility, and safety. Jennifer's project encompasses the necessity of communication and computer tools so that vehicles, infrastructure, and electric grid/charging resources can work together in sustainable communities. She will focus on real-world situations where electric vehicles can be supported, while considering mobility, economic, environmental, and public-policy issues. She will have opportunities to collaborate and intern with professionals at Ford Motor Company and Argonne National Laboratory.

Anahid A. Behrouzi



Anahid graduated first in her class with a 4.0 G.P.A. gaining a B.S. in civil engineering from North Carolina State University. She will enter the University of Illinois at Urbana-Champaign for

graduate work in structural engineering and is taking the F.E. exam. Anahid has been a research assistant at her school's center for nuclear-power-plant structures, equipment, and piping and working on evaluation of seismic behavior. She has long been interested in the impact of earthquakes on buildings and believes there is a global need to investigate construction methods. She plans to go on for a doctorate relating to earthquake performance of structures and join an international engineering firm to design or retrofit buildings to make them safer. She hopes one day to join faculty at an institution striving for interdisciplinary research on structural design, particularly for earthquake-prone regions. She has also been active in SWE and ASCE and served as a volunteer Spanish translator.

Kelli M. Luginbuhl



Kelli graduated first in her class scholastically at Colorado State University, with a B.S. in chemical and biological engineering. She plans to begin graduate studies in biomedical engineering at Duke University

and believes that graduate school will enable her to realize her full potential as an engineer. Kelli's summer internships and community service have been the most important factors in her aspirations. The first, at the National Institutes of Health, taught her research discipline and led to her presenting her summer's work at a conference. The second was at Cornell University, where she worked with cutting-edge technology in nanotechnology and biomaterials. She has mentored Native American women to pursue science and higher education and helped middle-school girls become interested in math and science. She plans to pursue a doctorate in biomedical engineering, focusing on ways to improve medicine, surgery, and the quality of life, extending the possibilities of medicine through human design.

Andrew J. Komendat



Andrew is a mechanical engineering graduate of the Rochester Institute of Technology, where he had a 4.0 G.P.A. and was TBI Chapter President. He is remaining on campus for graduate work in mechanical

engineering and plans to take the F.E. exam. He will begin work on a project to create a cheap device to track the orientation and position of objects. This would be miniaturized for micro air vehicles, specifically for environments where GPS capabilities are unavailable, including jammed territories, cave networking and mapping, and underwater applications. During the summer, he began his second co-op assignment at NASA Glenn Research Center and will be attending the AIAA conference on guidance, navigation, and control. Andrew is considering later study for a doctorate, but does plan to enter industry after completing his master's. He hopes to work on aircraft control applications, possibly designing control systems for autopilot systems and unmanned air vehicles.

Pamela E. Jreij



Pamela graduated first in her class at the University of California, Riverside with a 4.0 G.P.A. and a B.S. in bioengineering. She was TBI Chapter Vice President. Graduate school plans include moving

to UC, Berkeley, to pursue a Ph.D. in bioengineering with an emphasis on biomechanics. Research in this field has highlighted the critical role of the mechanical properties of biological systems. Her independent research has included developing a method to characterize electrostatic properties of cell layers and involved designing a device, establishing an experimental protocol, and developing a mathematical model to measure across cell layers. Pamela also developed models that capture the human brain's biomechanical response to traumatic brain injuries. Her goals have been focused on establishing a research career path in biomechanics, while contributing to overall knowledge within that field. Later, she plans to pursue a research career as an engineering professor and researcher in academia.

Samantha E. Beardsley, E.I.



Samantha is a 2009 B.S.E. graduate of Duke University. Having passed the Fundamentals of Engineering exam in 2008, she will attend graduate school at the University of California, Berkeley. Her ambition is to

pursue a Ph.D. in environmental engineering and become an expert in water quality engineering, working to improve resources in the U.S. and internationally. She sees the worldwide degradation of water quality and quantity as increasingly prominent issues and as a negative impact of climate change. Samantha plans to pursue high-level research on a specific and critical water quality issue to improve her knowledge and make a contribution. While in graduate school, she also plans to mentor undergraduates, as well as middle- and high-school students interested in engineering. She believes in promoting this field, especially to young women, and hopes to continue mentoring throughout her career. She has also taken part in the Boston, Disney World, and Sydney marathons.

Alexander Salazar, E.I.



Alexander majored in civil engineering at the New Jersey Institute of Technology. He is going to Princeton University to study for a master's in civil engineering, and he has passed the Fundamentals

of Engineering examination. He will be specializing in structures and will study design as related to earthquakes and composite materials, and he would like to be able to determine building applications using alternative composite materials. While interning with a large construction and aggregate-materials-supply company, Alexander has furthered his understanding of the behavior of components in composites. His goal is to obtain a position with a large structural design firm, working on innovative and exciting projects all over the world. He would also like to start his own engineering consulting firm, providing solutions for the aging infrastructure of the U.S., and working to ensure safe, efficient structures. He has also been active in the ASCE and Engineers Without Borders.

Kimberly R. Stillmaker, E.I.



TBI Nagel Scholar No. 26, Kimberly will enter the master's degree program in structural engineering at the University of California, Davis, with the goal of becoming a college professor. She currently serves

as a District 15 Director, the most recent of a series of positions in TBI. Kimberly is currently teaching a course on professional topics in mechanical engineering at California State University, Sacramento, and also works in her family's property-management business. She graduated first in her class with a G.P.A. of 4.0 at California State University, Fresno in 2008. She stayed there and received an M.B.A. in 2010. Although she enjoyed the time spent working at a structural design firm, she prefers the social interaction, challenge, variety, and level of autonomy of being a professor. Research will be in either structural health monitoring or earthquake engineering. She believes that either of these will expose her to the engineering process and prepare her to advise students as a professor.

Casey M. Davis, E.I.



Casey graduated first in his mechanical engineering department at the University of Tulsa with a 4.0 G.P.A. Graduate school plans include relocation to Stanford University, and he has passed the

Fundamentals of Engineering exam. He served as 2009-10 TBI Chapter President. He has spent the last two years working on a new theory of fatigue-crack growth in ductile metals, which would reduce the amount of testing necessary in material selection by using the finite-element method for a single computational effort. This project has solidified Casey's decision to pursue research professionally. He has been praised for assisting and tutoring other students, as well as serving his community by volunteering at churches and helping with a summer engineering academy for high-school students. He has been an undergraduate researcher with NASA and interned as a design engineer. He also presented a paper at the International Conference on Multiaxial Fatigue and Fracture in Parma, Italy.

Timothy M. Douglas, E.I.

Tim has received a bachelor's in electrical engineering at the Colorado School of Mines, where he served as TBII Chapter President. He was named to the dean's list every semester and plans his graduate

studies at his *alma mater*. He has served two summer internships with Lockheed Martin's missiles and fire-control group and plans to do a third. This involved assisting with hardware and guidance software integration of a new version of the *Patriot* missile system and evaluating the effects of radio-frequency radiation on discrete circuit components in enemy aircraft. Tim plans to apply for full-time employment with the firm after completing his master's. He plans to dedicate his career to the improvement of existing technologies and the creation of new, innovative ones for the nation's state-of-the-art defense systems. His specializations will increase his professional value and make significant contributions to advanced defense technologies. He has also been an active in the IEEE.

James D. Follum, E.I.

TBII Stable Scholar No. 107, Jim is an electrical engineering graduate of the University of Wyoming, where he served as TBII Chapter Recording Secretary. He is on the B.S./M.S. program there, which

allows students with strong academic backgrounds to enroll in the master's program during their junior year. He is remaining on campus to continue his graduate education in electrical engineering. Jim has been researching in signal analysis and power systems. He spent a summer internship at the Department of Energy's Pacific Northwest National Laboratory, working with an electrical energy group that is deeply involved in *smart-grid* applications. He spent a summer working at a Cheyenne, WY, utility and developed databases to help large customers manage their electricity use. He has also been involved with an NSF program on topics related to the reliability of the Western U.S. power grid. These experiences have influenced his plans for further graduate study.

Amanda J. Bares, E.I.

Amanda is an electrical engineering graduate of Montana State University, where she was first in her E.C.E. department. She plans to begin graduate school this fall at Cornell University,

where she will take courses on the basic concepts of biomedical engineering, and she has passed the F.E. exam. Her plans are to pursue a Ph.D., and she wishes to perform research in industry or academia. Amanda would like to design imaging systems or techniques to understand further how the human body operates and how to fix problems that occur when one of the millions of bodily processes malfunctions. She believes that her undergraduate research on laser systems for atmospheric imaging has provided the skills she needs to succeed in independent research. Her interest lies in noninvasive imaging techniques that are key technologies in areas like cancer diagnostics. Extracurricular activities include playing trombone for her university's orchestra and for the Intermountain Opera Association.

Elizabeth M. Beckett, E.I.

Liz graduated with a B.S. in nuclear engineering at Purdue University. She has passed the F.E. exam and will begin her graduate work at the University of Michigan. She has always been fascinated by the subject

of energy and believes that the problem of sustainable energy is one of the biggest challenges facing civilization. She further believes that nuclear power will play a major role. Liz has spent the last two summers working on spent-fuel management and disposal, the last one on a project at Lawrence Livermore National Laboratory involving spent fuel from a fusion-fission hybrid system. Her proposed research in graduate school will be to investigate interactions of actinides in borosilicate-glass matrix. Her long-term ambition is to serve as a professor of nuclear engineering and to continue research in nuclear materials or radioactive waste management. She loves to tutor and teach and wants to help produce the next generation in her field. She has also been active in the Society of Women Engineers.

Alisha V. John

Alisha graduated first in her department with a B.S. in chemical engineering at Wayne State University, where she served as TBII Chapter President. She plans to enter a Ph.D. program in genetics at the

University of Michigan and believes that her engineering background will continue to serve as a driving force and that this mindset will be unique to her Ph.D. program peers. Alisha plans to focus on human genetic diseases, determining causes, working on treatments, or improving testing and screening procedures. After completing graduate studies, she plans to obtain experience for further training and then seek a tenure track-position as a university professor. Once established in genetics and at a university, she will pursue positions like departmental chair or dean to hone her leadership skills. She has additional research experience as an engineering technician and aide at the U.S. Army's tank automotive research, development, and engineering center, conducting tests and analyzing data.

Matthew C. Johnson, E.I.

Matthew graduated with a B.S. in electrical engineering at Texas A&M University at the top of his class and with a 4.0 G.P.A. He plans to stay there for graduate studies in power electronics and has passed the

Fundamentals of Engineering examination. Matthew will divide his time between academic work and research with an emphasis on power-converter topologies, electric-motor drives, and digital-signal processing. He will draw heavily on his summers of internship experience at Raytheon and L-3 Communications, where he observed power considerations in the design process for a variety of products. After earning his master's, and possibly a doctorate, he plans to work in industry on either electric vehicles or power systems for applications like aircraft and unmanned vehicles. His long-term goal is to teach at university level and help to develop the next generation of America's engineers. Activities outside class and lab included being an intramural basketball team captain.

Katherine F. Maass



TBPI-GEICO Scholar No. 21, Katie received a bachelor's in chemical engineering from the University of Texas at Austin. She will begin graduate work at the Massachusetts Institute of Technology, where

she interned, and will take the F.E. exam. She plans to help develop and refine a novel drug-delivery system to improve cancer treatment. It would target the drugs specifically at cancer cells and avoid toxic effects to organs throughout the body. This follows the early loss of her grandmother to breast cancer, and she wants to see that no cancer patient must suffer the unnecessary side effects of chemotherapy. Katie plans to earn a doctorate and pursue a research career for five years in the pharmaceutical or biotechnology industry. She has already interned at drug company Merck. She would like to work as a professor and believes that her experience in industry will provide a different perspective and help her to show students how their studies apply to the *real world*.

Chandra A. Macauley, E.I.



Chandra has received her B.S. in chemical engineering from Montana State University, where she ranked first in her department. Graduate school plans involve work toward a Ph.D. in materials engineering at the University of California, Berkeley. TBPI Record Scholar No. 564, she is focusing on the materials science advances needed to overcome society's energy challenges. Given the importance of materials in energy-conversion systems, she plans to contribute to the field of high-temperature coatings. After receiving her doctorate, Chandra intends to continue pursuing a career in research, education, and outreach while working at a national laboratory or in academia. She has already done research at a university in Sweden and plans a future internship at a national laboratory. Her belief in the importance of educating youth means that she plans to work in outreach programs. She would also like to initiate new ventures like the "shadow an engineering major" program that she coordinated at her university.

Ehimwenma Nosakhare



Ehi is an electrical engineering graduate of Howard University, where she ranked first in her class with a 4.0 G.P.A. and served as TBPI Chapter President. TBPI Record Scholar No. 567, She plans to attend the

Massachusetts Institute of Technology for graduate studies in E.E. and has already taken part in a summer research program there. Ehi plans to become a research professor of the first rank in analog-circuit design. Growing up in the developing country Nigeria showed her the positive impact that readily available and efficient electronic systems can have on such nations. She believes that with a Ph.D. and more experience she will be equipped to take part in research that will have a global impact. Particular interest lies in RF mixed signal circuit design, along with design for applications in biomedical electronics and medical implants. Experience in the laboratory and during an industrial internship have given her an urge to discover, invent, and discover the unknown.

Cynthia R. Sung, E.I.



Cindy graduated first in her department with a B.S. in mechanical engineering from Rice University. She plans to start graduate studies at the Massachusetts Institute of Technology and has passed the

F.E. exam. She decided to enter the field of bio-inspired robotics research after her sophomore year when she interned at the NASA Robotics Academy. They discussed bio-inspired locomotion alternatives to the currently more common, but less versatile, strategies like wheels. She heard about work on dragonfly-inspired flight, crawling and gliding robots, and even designs based on amoebas. So Cindy plans to work on these ideas at graduate school and then at a research institution. She has supplemented her education with skills in programming, circuit design, signal processing, and algorithm design, in addition to a solid foundation in mechanical engineering. She plans to remain an active member of the Society of Women Engineers and to provide a good role model for any female aspiring to a STEM field.

Alexander P. VanFosson



Alex has completed a bachelor's in chemical engineering at the University of Iowa, at the top of his class with a G.P.A. of 4.0. He plans to begin graduate studies at the University of Colorado at Boulder.

After traveling in Ghana and Mexico, he is eager to help people in the developing world. Alex does not want the world to remain as it is—he wants to make it better. TBPI Stanley Scholar No. 1, he is a member of Engineers Without Borders. Undergraduate studies taught him the basics of researching and problem-solving, and he designed a hand-held chlorination device to make water potable. When funding for the project ended, the design was cheap, durable, and could produce significant amounts of bleach disinfectant. He wants to continue studying chemical engineering and eventually become a professor, not just because of his interest in the subject, but also because it is the discipline most suited to solving the problems of water quality in the developing world.

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