

Tau Beta Pi Fellows for 2007-08

THE FELLOWSHIP BOARD SELECTED 37 Tau Beta Pi Fellows for 2007-08, 17 of whom will receive \$10,000 cash stipends for one year of graduate study and 20 of whom 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 exceeding \$4,565,000 to 870 stipend recipients.

Now in its 74th 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 money from BENT life-subscription fees. 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. All matching gifts to the Association from 204 companies on behalf of their Tau Beta Pi employees are allocated to the program, and the Society is most appreciative of this generous support.

In addition to its own awards, Tau Beta Pi selects recipients for named fellowships, which are administered just as other Society fellowships.

The Tau Beta Pi–Stark Fellowship is named for Donald A. Stark, who contributed much to progress in the fluid-power industry. This award, given for the 30th 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 Tau Beta Pi in 1986 from the Donald A. and Jane C. Stark Charitable Trust.

Nineteen fellowships are named for members. The Tau Beta Pi–Williams Fellowship, established in 1980 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.

Walter E. Deuchler Sr. left a bequest in 1979 to endow a fellowship for graduate study in water supply, waste-water treatment, and ecology.

Two fellowships honor former Tau Beta Pi Presidents. The one named for Charles H. Spencer, President during 1936-47, is awarded for the 52nd 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 46th time, the King Fellowship is awarded for outstanding participation in volunteer technical-society work.

A record 13 named awards are sponsored this year 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.

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

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

The Tau Beta Pi–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 Tau Beta Pi in 1974, the assets of its foundation were transferred to the Fellowship Fund.

The Astronaut Fellowship is being given for the seventh time and third in memory of the members who died at Cape Canaveral in the fire aboard their Apollo spacecraft on January 27, 1967: Virgil I. Grissom, IN A '50, Edward H. White II, MI Γ '52, and Roger B. Chaffee, IN A '57.

The Tau Beta Pi–Best Fellowship commemorates Ina C. and Raymond A. Best, NY Γ '33, and is to be used by a member for the purpose of acquiring an M.B.A. at Rensselaer Polytechnic Institute.

Tau Beta Pi received 204 fellowship applications. Board members Susan L.R. Holl, Lawrence J. Hollander, Velio A. Marsocci, and Director of Fellowships D. Stephen Pierre Jr. made the selections on March 30. New Fellows are introduced on the following pages.

| FELLOWSHIP | RECIPIENT | CHAPTER | FIELD OF ADVANCED STUDY |
|---------------------|----------------------------|----------|---------------------------------|
| Centennial No. 22 | Jeffrey S. Schlosser | GA A '07 | Mechanical Engineering |
| Fife No. 93 | Christopher M. Abela, E.I. | CA P '07 | Civil Engineering |
| Fife No. 94 | Nathan J. Falkiewicz | NY Γ '06 | Aerospace Engineering |
| Fife No. 95 | Kevin M. Ford | IN Δ '07 | Transportation Engineering |
| Fife No. 96 | Ariane I. Fund, E.I. | RI A '06 | Civil Engineering |
| Fife No. 97 | Shawn M. Gargac | OH M '07 | Biomedical Engineering |
| Fife No. 98 | Aaron J. Hartwell | SD A '07 | Civil Engineering |
| Fife No. 99 | Nicole L. Heacock | IA B '07 | Mechanical Engineering |
| Fife No. 100 | John W. Kelly | NC A '07 | Electrical Engineering |
| Fife No. 101 | Jeffrey J. LaBundy | MO B '07 | Electrical Engineering |
| Fife No. 102 | Anirban Mazumdar | MA B '07 | Mechanical Engineering |
| Fife No. 103 | Ashley C. Smith, E.I. | SC B '07 | Construction Engineering & Mgt. |
| Fife No. 104 | Mopelola A. Sofolahan | MD E '07 | Electrical Engineering |
| Fife No. 105 | Daniel M. Studer | AZ A '07 | Civil Engineering |
| Spencer No. 52 | Jeremy L. Schroeder | OH I '07 | Civil Engineering |
| King No. 46 | Jennifer M. Cloud | TN Γ '07 | Industrial Engineering |
| Sigma Tau No. 34 | Emily P. Chang | PA Δ '07 | Chemical Engineering |
| Stark No. 30 | Ryan J. Staab | WI E '07 | Mechanical Engineering |
| Williams No. 28 | Sterling J. Anderson | UT B '07 | Mechanical Engineering |
| Deuchler No. 28 | Rick A. Nugent | LA A '07 | Civil Engineering |
| Matthews No. 10 | Kevin Zhou | IL A '06 | Aeronautics |
| Nagel No. 10 | Katherine L. Muterspaugh | CO A '07 | Biomechanical Engineering |
| Astronaut No. 7 | Travis B. Wolf | MD Γ '07 | Aerospace Engineering |
| Best No. 4 | Dr. MD Baniamin Sarder | TX H '06 | Business |
| Anderson No. 3 | Alan D. Berger | PA B '07 | Engineering Science |
| Tau Beta Pi No. 746 | Ryan M. Boehler | KS A '07 | Chemical Engineering |
| Tau Beta Pi No. 747 | Qike K. Chen | NY P '07 | Chemical Engineering |
| Tau Beta Pi No. 748 | Craig M. Dana | NJ B '07 | Chemical Engineering |
| Tau Beta Pi No. 749 | Jennifer Ehrhardt | PA Θ '07 | Chemical Engineering |
| Tau Beta Pi No. 750 | Garratt M. Gallagher | CA Λ '07 | Robotics |
| Tau Beta Pi No. 751 | Pavel Gershteyn | OK B '07 | Computer Science |
| Tau Beta Pi No. 752 | Nikolce Gorevski | PA E '07 | Chemical Engineering |
| Tau Beta Pi No. 753 | Bradley C. Hansen | UT A '07 | Bioengineering |
| Tau Beta Pi No. 754 | Kevin S. Tang | NJ B '07 | Biomedical Engineering |
| Tau Beta Pi No. 755 | Philip B. Vanderwerker | NJ B '07 | Fluid Mechanics |
| Tau Beta Pi No. 756 | Luke J. Venstrom | IN Δ '07 | Thermal Sciences |
| Tau Beta Pi No. 757 | Stephanie I. Wilson, E.I. | TN Z '06 | Chemical & Biomolecular Eng'g. |

Jeffrey S. Schlosser

Jeffrey is a mechanical engineering graduate of the Georgia Institute of Technology. An NSF fellow, he plans to conduct graduate research at Stanford University on the sequencing of decisions in

the engineering design process. He laid the groundwork in his undergraduate research, where he formalized a strategy for managing the collection of information to support a single design decision using information economics. His research indicated that single decisions had less effect on the overall performance of the product than expected. He intends to expand his work to include analyzing multiple decisions within a problem formulation from a systems perspective. Ultimately, he hopes to develop a method for efficiently formulating sequences of multiple design decisions to improve the quality and efficiency of design processes. A member of the ASME, Pi Tau Sigma, and Tau Beta Pi, Jeffrey had a paper accepted by the Society of Automotive Engineers world congress. He is an experienced pianist and has been active in intramural sports.

Fife Fellow No. 93

Christopher M. Abela, E.I.

Chris is a civil engineering graduate of California State University, Fresno. A childhood fascination with ancient pyramids and modern super-tall buildings have led him to pursue a master's degree in structural

engineering at his *alma mater*. As an undergraduate, he became impatient and began taking graduate-level engineering courses. A guest lecturer sparked his interest in the use of dampeners to minimize earthquake damage, wherein a computer can increase or decrease the stiffness of a building's structural components when seismic activity is detected. His internships immersed him in such fundamentals of civil engineering as preparing groundwater reports, studying the properties of various soils, and designing mixes of concrete and asphalt. An Eagle Scout and an active high-school athlete, Chris was captain of his college intramural basketball team. He is a member of Tau Beta Pi and Alpha Phi Epsilon. After graduate school, he plans to focus on successfully completing the professional engineer examination.

Nathan J. Falkiewicz

Nathan is an aerospace/mechanical engineering graduate of Rensselaer Polytechnic Institute, where he ranked first in his class of 802. His educational objective is to earn a Ph.D. in aerospace engineering with

a focus in spacecraft structures, dynamics, and controls. He intends to work at a research facility such as NASA's Jet Propulsion Laboratory. His interest in the field solidified during a summer internship as a stress analyst for the 787 airplane at Boeing Aircraft. He also interned at Lincoln Labs and Converge Medical. His aerospace focus culminated in a planned stint at NASA's Jet Propulsion Laboratory, where he could work on the Mars Science Lab. After that, he hopes to start graduate school at the University of Michigan, where he plans to conduct research into the structures, dynamics, and controls of spacecraft. He was the lead saxophonist in the school's jazz ensemble and a tutor in aerospace engineering. He served as community service chair of Theta Xi fraternity. He was initiated into Tau Beta Pi, Pi Tau Sigma, and Sigma Gamma Tau.

Fife Fellow No. 95

Kevin M. Ford

Kevin is a civil engineering graduate of Valparaiso University. He looks forward to the rigors of his upcoming graduate studies at Purdue University, where he will concentrate on transportation engineering. He

wants to use his professional skills to countermand urban sprawl and reduce the negative consequences of industrial production. He sees sustainability as being an integral part of future transportation engineering. Some examples include the use of improved urban planning, synchronized traffic controls to save fuel, and using recycled materials to create new roads. His goal is to make a positive difference in the health, welfare, and safety of society as a whole. He has dedicated time to tutoring students of all ages, including those who face physical or mental limitations. President of the Indiana Delta Chapter of Tau Beta Pi, he has performed volunteer work for Engineers Without Borders and Habitat for Humanity and is a member of Alpha Lambda Delta and Mu Alpha Theta. He plans to become a college professor.

Ariane I. Fund, E.I.

Ariane is a civil engineering graduate of Brown University. She plans to enter a graduate program at MIT focusing on structures, with an eye toward applying her professional skills to designing

buildings. She has used internships to prepare herself, working first at Odeh Engineering and then serving as a structural engineer at Severud Associates. Her work included a large arena project, a concrete apartment building in New York City, a steel-framed municipal building in New Jersey, and a new university building in New York. She quickly discovered that this work required even more knowledge than she first believed. She adjusted accordingly and is pursuing her passion for finding innovative solutions to structural design problems. A Record Scholar, Ariane was Treasurer of her chapter of Tau Beta Pi. She received the outstanding student award in civil engineering and is a member of Phi Beta Kappa and the Society of Women Engineers. Her accomplishments include a portfolio of drawings, paintings, and sculptures.

Fife Fellow No. 97

Shawn M. Gargac

Shawn majored in biomedical engineering at Wright State University, where he plans to pursue a graduate degree. His studies will concentrate in the biomechanics, with emphasis on the mechanics of

the heart. His coursework will include Six Sigma for engineers, as well as a research project. He hopes to build directly on his experience as an undergraduate research assistant in a cardiac-support laboratory. He wants to study the effects of synchronizing the timing of a cardiac assist device with the native beat of the heart. After obtaining an advanced degree, he intends to design and develop cardiac assist or replacement devices. He is excited by the advances that are being made in this life-saving field and wants to navigate its complexities. Shawn was active in intramural basketball, volleyball, and flag football and volunteered at church and charitable events. A member of Tau Beta Pi and Alpha Lambda Delta, he served on the student advisory council and has had papers published in medical journals.

Aaron J. Hartwell



Aaron received a bachelor's degree in civil engineering from the South Dakota School of Mines and Technology. He plans to attend graduate school at his *alma mater*, focusing on the aspects of

design of structures. Simultaneously, he plans to minor in business administration through a service provided by Black Hills State University. Eventually, he hopes to use his master's degree and B.A. minor to move to a management position in a structural-engineering firm. He is performing an ongoing internship at Albertson Engineering and plans to take the professional engineering exam to become an engineer-in-training. He envisions starting a career in South Dakota working as a structural engineer. He is active in the web-casting department of his church, where he performs as a drummer. Aaron is a member of the American Society of Civil Engineers and played as a linebacker/defensive back on the varsity football team.

Nicole L. Heacock



Nicole graduated from the University of Iowa with a bachelor's degree in mechanical engineering. She has passed up job offers to pursue a higher degree within her *alma mater's* program. She is intrigued by scientific equations that mimic the perfections found in nature. Her interest in engineering was inspired by scientific discoveries that turned seemingly impossible technologies into daily reality. She interned at John Deere for two summers, which gave her broad insights into the applications of engineering. She is particularly passionate about research investigations of fuel cells, which she views as a subject of global significance. Nicole served as an engineering student ambassador and is a member of Women in Science and Engineering, the Society of Automotive Engineers, ASCE, Theta Tau, and the American Institute of Aeronautics and Astronautics. She performed volunteer service with CircleK International, Adopt-a-Highway, and local fundraising running events.

John W. Kelly



John studied electrical and computer engineering at North Carolina State University, where he was ranked first in his class of 2,045 engineering students. His immediate goal is to

obtain his M.S. degree through one additional year of study at NCSU. During that time, he intends to study robotics, control systems, machine vision, and math. He views this as excellent preparation for the multi-disciplinary nature of the field of robotics. With that completed, he plans to repeat his grandfather's accomplishment of earning a Ph.D. at Massachusetts Institute of Technology. John has learned the value of conducting research in national laboratories in Oak Ridge where the levels of funding were more ample than he had experienced previously. There, he won a U.S. Department of Homeland Security scholarship. John is a member of Phi Kappa Phi and Eta Kappa Nu. He has raised funds for various causes through organizing road races and harbors a desire to travel and become fluent in Spanish.

Jeffrey J. LaBundy



Jeffrey majored in electrical engineering at the University of Missouri-Rolla. He plans to attend graduate school at the University of Texas at Austin. He is fascinated by miniature components, as he proved

by taking the carburetor from a favorite car to his dorm room and rebuilding its small inner mechanisms. His focus has shifted to electrical components. As an intern at Bunn-O-Matic Corporation, he converted an existing coffee brewer model from an electromechanical system to an electronic microcontroller-based system. He was to design both the hardware and software of the prototype from scratch. In the course of the work, he had to learn assembly language and the structure of his design's microcontroller. That experience led him into the modeling of more complex integrated circuits. His dream is to design systems to make someone else's life better. He was president of Eta Kappa Nu and a member of Kappa Mu Epsilon. He earned a black belt in Tae Kwon Do before entering college.

Anirban Mazumdar



Ani earned a bachelor's degree in mechanical engineering from the Massachusetts Institute of Technology. He is interested in how robotics and control systems can be used to improve the quality of human life.

This was demonstrated during his internship spent working on a robotic device to help spinal-cord-injured subjects exercise and even relearn basic leg functions. He helped develop a force-feedback-control system to offer knee support during exercise and also studied interconnections between robotics and nature's machines. For example, he was fascinated to learn that studying the stealthy behavior common among fish might help lead to the development of a robot or swarm of robots capable of evading unfriendly detection. In graduate school at MIT, Ani hopes to implement a closed-loop trajectory-tracking-control system for certain aquatic mechanisms in the hope of someday applying the technology to detecting pollution sources or even explosive mines. He is a member of Pi Tau Sigma.

Ashley C. Smith, E.I.



Ashley is a civil engineering graduate of the University of South Carolina. Her lifelong passion for sports paid off when she earned a scholarship to play Division 1 softball for the South Carolina Gamecocks as a

four-year starter as catcher. She not only was eventually named first-team Academic All-American, but also maintained a 4.0 GPA in her engineering courses. She plans to begin graduate school at the University of Michigan, where she will study construction engineering and management. After earning her master's degree and obtaining engineering employment, she will pursue a master's in business administration. Ashley was the chapter president of Chi Epsilon and served as Secretary of her Tau Beta Pi Chapter. She is a member of Gamma Beta Phi, the Institute of Transportation Engineers, and the American Society of Civil Engineers. She has volunteered extensively for youth sports organizations, hurricane relief, the "Homeworks" program, and other charitable causes.

Mopelola A. Sofolahan



Mopelola is an electrical engineering graduate of Morgan State University, and she plans to pursue an advanced degree at Purdue University. Her desire is to become both an excellent researcher and

innovator. During her doctoral work, she intends on specializing in the area of communication and signal processing. She is particularly interested in research on smart antennas and multiple antenna technology and how they can be implemented to improve the user capacity and efficiency for wireless networks. By excelling in her field of study, she hopes to be a leader and blaze a trail for others to pursue advanced degrees in engineering. After obtaining her Ph.D., Mopelola plans to go into teaching while continuing to gain industrial experience through collaborative research work. Faculty members admire her commitment, diligence, and work ethic. She was President of her Tau Beta Pi Chapter and a member of Alpha Lambda Delta, Phi Eta Sigma, and the National Society of Black Engineers.

Daniel M. Studer



Daniel is an aerospace engineering graduate of the University of Arizona. A demanding and rewarding class on mechanical behavior of engineering materials ignited his interests and led to a summer intern-

ship with Raytheon Missile Systems. He emerged with the desire to shift toward the study of environmentally friendly building programs. He found exactly what he wanted in the master's program at the University of Colorado at Boulder, which includes a building-systems program. There, he can study aspects of sustainable building design, including lighting, alternative energies, HVAC systems, and energy analysis. He finds generalization, rather than specialization, to be intriguing. Daniel was awarded the NASA space grant undergraduate research internship and took first place in the university undergraduate research showcase. An Eagle Scout, he also served as an engineering ambassador and held engineering demonstrations for middle- and high-school students.

Jeremy L. Schroeder



Jeremy is a civil engineering graduate of Ohio Northern University. He plans to begin graduate school at the University of Virginia to prepare him to work as a planner and designer of large-scale

highway projects. After perhaps 10 to 15 years, he aspires to teach at the university level and, in anticipation of that, will earn a Ph.D. in civil engineering with special focus on transportation engineering. He has interned with the Ohio Department of Transportation where he observed the construction of a new freeway first-hand, including various issues relating to concrete, soils, and drainage. Later work with the Texas Transportation Institute solidified his interest in his chosen profession. Former Ohio Iota President, Jeremy is a member of the IEEE and was chapter vice president of the American Society of Civil Engineers. He is a member of Phi Eta Sigma, Kappa Mu Epsilon, and Phi Kappa Phi. He has been a mentor to youth, active in chorus, and played organ for his church.

Jennifer M. Cloud



Jennifer holds a double major at Tennessee Technological University—industrial engineering and professional communications. She is interested in human factors engineering and plans to

pursue this field of study at Wright State University. She has already conducted research into biomechanical ergonomics, safety of chemical handling and disposal, and cognitive issues of chemical and inventory management. She has studied risk perception, which explores such issues as why people do not heed severe weather warnings and how children perceive risk. She would like to synthesize such experiences within her graduate program. She is a member of the Institute of Industrial Engineers and has participated in planning activities for Engineering Week. She is a member Alpha Lambda Delta, Alpha Pi Mu, Omicron Delta Kappa, and Phi Kappa Phi. Tau Beta Pi Treasurer, Jennifer was an active volunteer for the engineering a future program that encourages middle-school girls to study engineering.

Emily P. Chang



Emily earned her chemical engineering degree from the University of Pennsylvania. She plans to follow her undergraduate work with graduate-level teaching and research at MIT.

After achieving her master's degree, she will seek experience in industry, conducting pharmaceutical research and development followed by the attainment of a Ph.D. Her interests lie in the areas of biochemical engineering and biopharmaceutical technology, such as recombinant proteins, gene therapy, and stem cells. She hopes to take part in related projects to derive treatments for such debilitating conditions as cancer or neurological disorders. She completed an internship at Merck & Co., where she tested the inactive ingredients in drugs for certain reactive species that could degrade the active ingredient. She also participated in a National Science Foundation research experience at the University of Maryland. A member of the AIChE and president of her SWE group, Emily is an active flutist and served as president of Penn Flutes.

Ryan J. Staab



Ryan earned a bachelor's degree in mechanical engineering from the University of Wisconsin-Platteville. He plans to complete a master's degree at the University of Minnesota-Twin Cities and eventually pursue a

Ph.D. He then hopes to obtain a position at a university to teach and continue his research. He wants to apply his knowledge of heat transfer and fluid dynamics to work in the renewable energy industry. On a recent internship, he worked on a large-scale hybrid ground-source heating-and-cooling system for a housing subdivision. This type of project has become the subject of continuing interest to him because of the likelihood that it will soon be adopted on a larger scale throughout the rest of the country. A Record Scholar, Ryan served as President of his Tau Beta Pi Chapter and is a member of Phi Kappa Phi, Phi Eta Sigma, Alpha Lambda Delta, and Pi Tau Sigma. He is an Eagle Scout, a member of Engineers Without Borders, and has been active in the university cycling club.

Sterling J. Anderson



Sterling graduated from Brigham Young University with a bachelor's degree in mechanical engineering and where he was ranked first in a college of engineering class of 1,347. He has been involved

in the design of piezoresistive microelectromechanical systems (MEMS) devices. His academic goals include creating a comprehensive design model for a promising MEMS device called a thermomechanical in-plane microactuator. He will study mechanical engineering design as an NDSEG fellow at the University of Michigan with the ultimate goal of earning a Ph.D. He envisions a career devoted to research and teaching in areas relating to MEMS. He served as the president of his local congregation service and welfare organization, performed service projects for families in southern Ecuador, and mentored and tutored middle-school students. He has been active in intramural sports. An Eagle Scout and Tau Beta Pi Record Scholar, he has received multiple professional and academic accolades.

Rick A. Nugent



Rick is a civil engineering graduate of Louisiana State University, where he intends to remain to pursue his graduate degree and doctoral degree. He is firmly committed to his home region, where recent hur-

ricanes demonstrated the importance of sustainable coastal wetlands. He has adopted the sustenance of Louisiana's coastline as a personal and professional cause. In preparation, he has taken extra science and geotechnical courses and participated in a number of research activities within different disciplines. He has taken particular interest in the nanoscale interactions between clay and organic polymers and their applications to coastal wetland restoration. Besides Tau Beta Pi, Rick is a member of Chi Epsilon, Phi Kappa Phi, Alpha Lambda Delta, Phi Eta Sigma, Mu Alpha Theta, and the American Society of Civil Engineers. He has volunteered for numerous charitable causes, which include packing care boxes for soldiers in Iraq and preparing food boxes for hurricane evacuees.

Kevin Zhou



A 2006 graduate of the University of Illinois at Urbana-Champaign, Kevin is working toward a Ph.D. in aeronautics at the California Institute of Technology as an NDSEG fellow. He is developing new insights

into water-vehicle design by studying the shape and configuration of certain jellyfish. His research interest arose from a biology experiment for NASA and computational simulation work for the U.S. Air Force. His upcoming research will focus on simulation, refinement, and data analysis. The simulation will expand on an earlier study seeking correlation between bell height-to-diameter and other factors. Kevin's study will incorporate muscle characteristics, time-varying locomotion and flow characteristics, new computational methods, and detailed analyses of the vortices trailing from the bell. A member of Phi Kappa Phi, Alpha Lambda Delta, Phi Eta Sigma, and Engineers for a Sustainable World, he served Sigma Gamma Tau as president and was on the University of Illinois Engineering Council.

Katherine L. Muterspaugh



Katherine graduated from the Colorado School of Mines with a major in mechanical engineering and a minor in public affairs. An NSF fellow, she will conduct her graduate studies of biomechanical engineering

at Stanford University. Her passion for this field was ignited during undergraduate internships that demonstrated how biomechanical engineering can positively affect the freedom, control, and overall quality of life for many individuals around the world. Her studies have laid the foundation for more advanced learning and, possibly, some teaching responsibilities. A 2006-07 Tau Beta Pi Dodson Scholar, Katherine served as Vice President of her Colorado Alpha Chapter, was president of the local SWE group, and is a member of the American Society of Mechanical Engineers. She views participation in those organizations as valuable opportunities to build professional and personal connections. She coached volleyball at the Boys & Girls Club and has been a lifetime member of Girl Scouts.

Travis B. Wolf



Travis is an aerospace engineering graduate of the United States Naval Academy and an ensign. He will continue his studies in the aerospace graduate program at the Massachusetts Institute of

Technology, and he intends to become an aviator with the U.S. Navy. As such, he may attend graduate school only at the navy's pleasure; however, he plans to complete a doctoral program eventually. He plans to investigate whether advanced or *smart* materials could help integrate critical aircraft functions into its structure and thereby reduce both weight and required maintenance. He has participated in aerospace engineering internships at Lawrence Livermore and elsewhere. His research involved electromagnetic energy harvesting for application to micro-unmanned aerospace vehicles. Former Corresponding Secretary of Maryland Gamma and a member of Phi Kappa Phi and the American Institute of Aeronautics and Astronautics, Travis played Division II rugby and boxed.

Dr. MD Baniamin Sarder



Dr. Sarder earned a Ph.D in industrial engineering at the University of Texas at Arlington in December. Through his research, he has developed a methodology of product and process design ontology for manufactur-

ing enterprises. Holder of a bachelor's degree in 1996 from BUET in Bangladesh and a master's in industrial engineering in 2001 from Wichita State University, he received a National Science Foundation scholarship for his research in 2005. In order to better prepare himself to lead major engineering projects, he plans to acquire a M.B.A. at Rensselaer Polytechnic Institute. He is a member of the IIE, Association for Operations Management, Society of Lean Manufacturing, Tau Beta Pi, and Alpha Pi Mu. He has volunteered to help hurricane and tornado victims and Special Olympics. An officer in multiple professional societies, he served as student congress senator for engineering. Dr. Sarder has received numerous academic awards, attended 10 conferences, and published extensively.

Alan D. Berger



Alan earned his bachelor's degree in engineering science at the Schreyer Honors College of Pennsylvania State University. He plans to remain there for a year and obtain a master's degree while expanding his

current research into nanocomposite solar-cell devices—collecting and analyzing current-voltage characteristics to determine charge-transport properties of materials. He plans to continue that research with the goal of testing how composition and film thickness affect device performance. His undergraduate biofuel research involved the extraction of sugar from trees as part of a program at Michigan Technological University. Faculty have praised him for his intense interest and commitment to solving energy and sustainability problems. He will eventually transition to another school and begin working on a Ph.D. related to the study of energy. Alan is a member of the ASME and remained active in scouting long after he became an Eagle Scout. He enjoys ultimate frisbee and club soccer.

Qike K. Chen



Qike earned his chemical and biological engineering degree at Polytechnic University. As he prepared himself for a medical career, he felt little enthusiasm towards typical biological and chemical science subjects.

However, a graduate course in applied mathematics for chemical engineering triggered his curiosity. The usefulness of quantitative analysis in solving science and engineering problems fascinated him. Success in courses on thermodynamics, transport phenomena, and reactor engineering boosted his confidence. He was drawn to a crime-mystery series where math was used to solve unconventional problems. He began a senior thesis on mathematical modeling of ecological systems, which introduced him to advanced computational ecology. In graduate school at Princeton University, he plans to pursue subjects such as systems modeling, optimization and analysis, and materials science. Vice president of Omega Chi Epsilon, Qike was activity coordinator for the international student organization.

Jennifer Ehrhardt



Jenny is a chemical engineering graduate of Villanova University. She completed an internship with Rohm and Haas in its emerging technologies department, but it is the environmental aspect of chemical

engineering that interests her the most. She has taken environmental electives and completed courses in industrial liquid- and solid-waste management, as well as air-pollution control. She will begin her master's program at Clarkson University, where she may perform research within the environmental field. She prizes her interpersonal skills and views them as important both inside and outside engineering. Faculty members praise her personality, and one stated: "You could grade the test by what she hands in." Jenny was treasurer of the AIChE and a member of the Society for Women Engineers. She was also vice president of fundraising for the Villanova Band. A Record Scholar, she served as Recording Secretary for her Pennsylvania Theta Chapter of Tau Beta Pi.

Ryan M. Boehler



Ryan is a chemical engineering graduate of the University of Kansas. Despite the allure of immediately joining a petrochemical company, he intends to continue with higher education at Northwestern

University. He sees the occupational landscape as ever-changing and wants to be prepared to do whatever work will yield the greatest benefits to society. Several areas of academic study have caught his interest. The fields that relate to his work in tissue engineering include scaffold design and micro and nano-particles for use in drug delivery. His experience in cell culture, cell differentiation, scaffolds, and tissue engineering in bone cartilage has piqued his interest in pursuing research in gradient structures. The interplay of signals in tissue engineering remains a strong interest, but it is the area of drug delivery that he finds intriguing, including the use of nano-particles to target tumors and of inhaled nanoparticles to cure respiratory ailments. Ryan plans to revisit his professional options after gaining more knowledge and experience in graduate school.

Craig M. Dana



Craig earned a bachelor's degree in biochemical engineering from Rutgers University, where he was first in an engineering class of 450. He was named a Merck engineering and technology fellow and

spent 13 weeks working at Merck & Co., Inc. There, he initiated a project to develop and validate an improved moisture quantification method for four lyophilized vaccine products. The method resulted in a \$7 million savings for the company. He was offered full-time employment with the firm, but chose graduate school instead. He anticipates beginning a Ph.D. program at the University of California, Berkeley, with a specialization in protein engineering and directed evolution in the context of rational drug design. After that, he will seek biochemical engineering research and development positions in the pharmaceutical industry that could provide opportunities for creative thought and novel discovery in an multidisciplinary environment. Craig has performed volunteer work for Habitat for Humanity and has been inducted into Omega Chi Epsilon and AIChE.

Garratt M. Gallagher



Garratt holds a double major in electrical engineering and physics from the University of California, Davis. His applications to graduate programs included the fields of electrical engineering, computer

science, and robotics. He sees a raw potential for the field of robotics to reshape the public's daily lives, and so he spent the summer working for iRobot Corporation, which specializes in home robots. As an NSF fellow at Carnegie Mellon University, he hopes to start his own robotics company. He is interested in exploring swarm robotics, which use many small robots to perform a task that a single, more complex robot could not complete. Alternately, he may research ways to develop a low-cost, microwave-scanning sensor capable of distinguishing objects based on their density and material composition. His main ambitions are to unify the field of robotics and bring the technology into everyday life. An Eagle Scout, Garratt joined the physics club, Sigma Phi Sigma, IEEE, and the Society for Women Engineers. Among other interests, he acted in campus productions of Shakespeare.

Pavel Gershteyn



Pavel majored in computer science at the University of Tulsa, where he will continue graduate work as an NDSEG fellow. His area of interest is the authentication of digital video. He interned

at the U.S. Secret Service headquarters in Washington, DC, helping investigate electronic crimes. He believes the most prominent law enforcement challenge is in the prosecution of pornography cases, wherein officers must prove that images are genuine. Unlike digital-image forgery detection, there has been little work done on the problem of digital-video forgeries. He proposes a holistic examination of the video stream, looking for inconsistencies, not only in separate frames, but also in the sequence of images. Pavel lettered in cross country and enjoyed intramural soccer and ultimate frisbee. Recording Secretary of his Tau Beta Pi Chapter, he is a member of Phi Eta Sigma and Phi Kappa Phi. His career goal is to design security and forensic solutions for next-generation network architectures while at a major laboratory.

Nikolce Gorevski



Nikolce is a chemical engineering graduate of Lafayette College in Easton, PA. He plans to attend graduate school at Princeton University and eventually pursue a Ph.D. His early studies of chemical

engineering left him disheartened. The study seemed too empirical and at times arbitrary. Connecting with the theoretical framework revived his passion and interest. Transport phenomena and thermodynamics, in particular, captivated him. In graduate school, he will further his knowledge of continuum mechanics and its subfields. He also plans to take advanced mathematics and biology courses. He intends to continue ongoing research into nanomaterials science, as well as supplementing his computational experience with experimental work. Nikolce hopes to teach someday in both the U.S. and in his native Macedonia, which he perceives as being stuck in a state of academic and technological lethargy. He is a member of the American Institute of Chemical Engineering, and he performed a major role in a production of Anton Chekov's *Cherry Orchard*.

Bradley C. Hansen



Brad earned his mechanical engineering degree from the University of Utah. He emerged from high school as an experienced jazz pianist and sports enthusiast, but it was not until he entered engineer-

ing school that his academic excellence found expression. His studies and his home life became unexpectedly entwined when his wife developed cancer. He took advantage of his school's biomedical science program and began developing and designing a drug-delivery pump that could be used for patients like his wife. His research was used for the final design of the dispensing pump, as well as for a neurosurgical cutting machine. He plans to pursue interdisciplinary interests, including biomechanics, orthopaedics, gait analysis, and robotics at the University of California, San Diego. Brad plans a career in the medical-device industry. Eventually, he hopes to work in academia where he can help recruit and mentor students. Tau Beta Pi Vice President and member of Pi Tau Sigma, he spent two years in Finland.

Kevin S. Tang



Kevin majored in science at the Rutgers University School of Engineering. He plans to pursue a Ph.D. at Yale University in biomedical research, partly because of its eclectic nature.

In graduate school, he hopes to pursue research in the therapeutic applications of tissue engineering to treat human trauma and diseases. He sees biomedical research as a multidisciplinary field with a wide variety of applications and backgrounds of those who are involved. What he learned by attending numerous research conferences helped him to "gain 50 pounds of brain." His research projects included nucleotide polymorphism genotyping and implantable biomaterial for spinal-cord injuries. Kevin is a member of Alpha Eta Mu Beta biomedical engineering honor society. He has worked with Habitat for Humanity and helped to raise funds for that cause. He plans one day to teach at a major research institution. He is a competitive ballroom dancer and has taught middle- and high-school students the Chinese art of Lion Dance.

Philip B. Vanderwerker



Phil is a mechanical engineering graduate of Rutgers University, where he intends to remain to pursue a master's degree. His current objective is to advance the understanding of particle dispersion in turbu-

lent jets and plumes and the modulation of the flow by the dispersed particles. He found that there is virtually no work in which the dispersion of particles is studied in connection with the spatially evolving dynamics of the jet. This highly complex problem intrigues him. He plans to continue research work started as an undergraduate, which may become the basis for both a master's thesis and doctoral work and, ultimately, lead to a research position at a major federal agency. An Eagle Scout, Phil was given the distinguished service award, Order of the Arrow, by the Boy Scouts of America. He is a member of Pi Tau Sigma. As part of Leave No Trace, Inc., he organized wilderness conservation training seminars for 250 participants.

Luke J. Venstrom



Luke is a mechanical engineering graduate of Valparaiso University. He will undertake graduate studies at the University of Minnesota-Twin Cities to gain the educational and research foundation

to succeed in the field of thermal science. A National Science Foundation research process introduced him to an ecologically benign path for storing sunlight in zinc, which makes it a transportable fuel. Furthermore, he developed the laboratory skills necessary to conduct research in graduate school, including the preparation of technical reports for submission to the NSF. Luke looks forward to taking classes in thermodynamics, heat transfer, and fluid dynamics. He was the Corresponding Secretary of his Tau Beta Pi Chapter and appeals chair for the university honor council. He is a member of Alpha Lambda Delta and the American Society of Mechanical Engineers and has been active in intramural softball, basketball, flag football, and volleyball. He also performed in several university and church-related musical groups.

(Continued on page 47.)

(Fellows, continued from page 35.)

Tau Beta Pi Fellow No. 757

Stephanie I. Wilson, E.I.

Stephanie is a chemical engineering graduate of the University of Tennessee at Chattanooga. She hopes her career will culminate in academic or governmental laboratory research. She plans to pursue her master's degree in chemical and biomolecular engineering at the Johns



Hopkins University. She defended her undergraduate research thesis before a committee of professors and was awarded highest honors. This project gave her experience in several technologies, including computational fluid dynamics. Her undergraduate research poster won second place at an AIChE national conference. Her research work prompted a job offer from a pharmaceutical company, which she declined in favor of beginning graduate school. Her preparations for graduate school included microreactor research work, plus classes in C++, computational dynamics, and advanced biology. Stephanie was President of her Tau Beta Pi Tennessee Zeta Chapter.

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