Learning from Nature
Studying the strength of the Allegheny Mound Ant.
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Honors & Awards
Alumni, faculty and students shine at 2014 awards program.
Pages 6-7

Alumni In Action
Class of '68 and '08 graduates share their enthusiasm for life.
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Product design sets imaginations soaring
Retractable wheel for rolling luggage just one of the concepts that takes off. p. 8
Undergraduate researcher picks up former grad student’s interest in “that little old ant”

When mechanical engineering student Hiromi Tsuda was first searching for a topic for her undergraduate honors research thesis, she didn’t anticipate that working with the university insectary and learning how to care for specimens of Formica exsectoides (Allegheny Mound Ants) would be requirements of her research study.

But after learning more about the research conducted by a former graduate student in the department, she knew that while the subject of her study might be small in size there could certainly be a sizable payoff in terms of lessons learned and knowledge gained.

To start, her research advisor Assistant Professor Carlos Castro provided an overview of the work that his former student, Vienny Nguyen (BS ’10/MS ’12), had begun on the tensile strength of the neck joint of the ant. Nguyen was interested in understanding how such a small insect could hoist loads that were several hundred times their own body weight. Prior to Tsuda’s involvement, the work of Nguyen, Castro and Associate Professor Blaine Lilly had been submitted for publication to the Journal of Biomechanics. That paper, which was published earlier this year (volume 47, issue 2), detailed how the tensile loading behavior of an ant neck joint (along with its exoskeletal structure) affects its ability to lift and carry heavy loads relative to the ant’s body mass.

According to Castro, “One of the critical findings from that work was to identify the transition between the soft material of the neck joint and the hard exoskeletal material of the head as a critical region where failure occurs.” He noted that generally transitions between dissimilar materials result in stress concentrations. One of the major questions that he and his team had after their initial study was “how is that soft-to-hard transition designed in the ant neck to optimize mechanical function?” Tsuda focused on trying to answer that question.

After Tsuda obtained the specimens needed for further research, Castro sent her off to Ohio State’s Center for Electron Microscopy and Analysis to learn to use the facility’s scanning electron microscope (an FEI Quanta 200 SEM). The next steps in her research required that she overcome any squeamishness she might encounter in dissecting the insect in order to obtain a clean cross sectional image of the ant’s neck. After some trial and error in learning how to best achieve the cleanest cut, Tsuda was able to obtain some extraordinary images.

Tsuda’s results confirmed some of Nguyen’s initial work and revealed additional details of a stepped interface that Castro believes plays a very important role in minimizing stress concentrations. When Tsuda returns to campus this fall she will continue her imaging work, hoping to identify the local microstructure of the neck joint material near the interface. Ultimately, Castro wants to learn more about the principles of how nature forms these interfaces in order to mimic its design in new materials or robotic systems.

“Ants are impressive mechanical systems. Before beginning our research, we conservatively estimated that an ant might withstand 1,000 times their weight, and it turned out to be much more,” Castro said. In fact, the research published in the journal article stated that the neck joint of the ant could withstand loads up to 5,000 times its weight.

Nguyen commented, “I view biological systems as a balance of form and function. Insects in particular are even more fascinating because of their exoskeletal structure and their scale. At their scale, gravity is not necessarily the main factor driving function (e.g. surface tension, electrostatics, etc.), which makes them suitable for study and analysis for applications in space structures and mechanisms. As a robotics engineer, I am actively searching for non-traditional solutions for designing structures and mechanisms. We are at an exciting time in mechanical design. As additive manufacturing continues to develop, our ability to mimic nature expands and we can further explore that landscape.”

For her part, Tsuda admitted, “I was shocked at how something so small and microscopic could be easily displayed and photographed. I had never really taken particular interest in ants before, but upon starting this research project, I have found them to be more and more fascinating creatures.” Having seen the results of her research and having been exposed to the field of biomimetics, she’s confident she selected the perfect research thesis. Of course, it may have also helped that she could always amuse herself with the lyrics of “High Hopes” anytime she wondered if the findings would be worth the hours invested in learning more about “that little old ant.”
Aerospace Engineering PhD candidate Kevin Disotell researches the unsteady fluid mechanics of dynamic stall for helicopters, fighter jets, and wind turbine applications. He is advised by Assoc. Professor James Gregory.

Q: Best class you ever took and why?
A: I've had the privilege of learning from a variety of outstanding professors, but the most invigorating class I've taken was in response to higher demands being placed on the aircraft-operating envelope, such as during instrument landings or in turbulence. The class focused on the three-dimensional flow patterns that occur when the incidence angle of the wing relative to the flight path exceeds the angle of maximum lift, and it incorporated many aspects of my research.

Q: Hometown?
A: I was born and raised in Boardman, Ohio, which is in the northeast part of the state on the outskirts of Youngstown.

Q: Previous degrees?
A: I graduated from Ohio State with my BS in aerospace engineering in 2010, and I've been directly pursuing my doctoral studies since then.

Q: Where did you graduate school and what programs have much in common with your Aerospace program?
A: I found that my research skills were very much in line with my Aerospace program.

Q: What was the most surprising aspect of my study?
A: I've come to better understand the meaning behind the degree title "Doctor of Philosophy." I'm constantly confronted with my own knowledge and mindset in an attempt to create new knowledge. It requires a different kind of mindset, one that embraces constant growth and a commitment to rigorous, thorough failures. These are the traits of being a lifelong learner, and my research activities reflect that mindset.

Q: Any internships along the way?
A: I've been fortunate to work as a summer intern for Ford Motor Company in Dearborn, MI several years ago in the Thermal and Aero Systems Engineering group, and I've also worked with an individual from TechColumbus.

Q: Any hobbies?
A: I greatly admire the leadership skills of Kim Mulkey, a fellow aerospace engineer. While he was CEO at Ford, I had the chance to experience firsthand the positive environment created by his leadership. It's amazing what a compelling, comprehensive vision and supportive culture can achieve. And it's not limited to just car manufacturers; it can happen anywhere. I've been expected to model behaviors crucial to working as one team, and these behaviors were listed on a small badge everyone wore. I still keep mine as a reminder.

Q: Any hobbies or interests outside of aerospace engineering?
A: I'm active in fantasy football and baseball fantasy for the strategy and teamwork aspects of the game, and I enjoy playing those sports in real life as well. I also enjoy another aerodynamics game, Frisbee®.

Fifteen competing universities gathered in Milford, Michigan, June 1-8, for rigorous vehicle testing and evaluation on drive quality and environmental impact at the GM Proving Ground. From there, the competition moved to Washington, D.C., for a second round of judging by automotive industry experts and vehicle displays for elected officials.

The Ohio State EcoCAR 2 team consisted of 15 graduate students and 30 undergraduate students, advised by Ohio State faculty members Shawn Midlam-Mohler, Giorgio Rizzoni and other faculty from the Ohio State’s Center for Automotive Research and College of Engineering. Team members represent a wide range of majors, including mechanical engineering, electrical engineering, business and photography. “It takes an integrated team of engineers and business students to make a project like this successful,” said Midlam-Mohler. In addition to the final standings, Ohio State’s team earned at least 15 first place awards in individual event categories that included lowest petroleum consumption, best controls presentation, best technical report, and best outreach presentation, among others.

The team put in a lot of time and effort and really focused on trying to make a strong vehicle,” said M.J. Yatsko, who received her BS in ME this past May and is now working on her MS in ME. Yatsko, who was a controls team member and is a strong vehicle,” said M.J. Yatsko, who received her BS in ME this past May and is now working on her MS in ME. Yatsko, who was a controls team member and is a second place overall in the 2012 Year 1 competition and third in the 2013 Year 2 competition. The top six overall winners for the EcoCAR 2 Competition were: Ohio State; University of Washington; Penn State; Purdue; Embry Riddle Aeronautical University, and Virginia Tech.

Ohio State EcoCAR 2 Team Wins Year 3 Competition

The Ohio State University team took first place in Year 3 of EcoCAR 2: Plugging In to the Future, the three-year competition sponsored by the U.S. Department of Energy, General Motors (GM) and 30 other government and industry leaders. The award included $32,000 in cash prizes.

The national competition, managed by Argonne National Laboratory, gives students real-world automotive engineering experience, while striving to improve the environmental impact and energy efficiency of an already highly-efﬁcient vehicle. The team’s exceptionally engineered 2013 Chevrolet Malibu with energy storage, electric drive and ethanol (E85) fuel cell technology, earned them the top honor. “Ohio State met and exceeded the EcoCAR 2 goals at every point in the competition,” said Dr. Michael Knotek, Deputy Under Secretary for Science and Energy of U.S. Department of Energy. He also praised the team for its innovative work and contribution to the future of energy efﬁcient technology in the automotive industry.

EcoCAR 3 Set to Start!

The Ohio State team will continue on in the next competition series – EcoCAR 3, a four-year automotive program to redesign a Chevrolet Camaro into a highly performance hybrid vehicle. Follow them online at acocar3.ohio.edu.
Alumni Awards

The Thomas French Achievement Award was presented by Dr. Gary Kinzel. The award is presented to alumni who have distinguished themselves as educators. Elliott earned all of his degrees (BS, MS and PhD) at the University of Michigan. After receiving his doctorate in 1993, he remained with the university and is currently a professor of Aerospace Engineering at Ohio State as a postdoctoral research associate until 1995. He then joined the faculty of the Georgia Institute of Technology where he became an associate professor with the University of Illinois-Urbana-Champaign's Department of Aeronautics. He is now a professor and the associate head for undergraduate programs at UIUC. He continues to be a great collaborator, having authored numerous journal articles and articles for conference proceedings with peers from other 10 universities and beyond.

Among other early career honors, he received a Fluid Dynamics Paper Award from AIAA and a NSF CAREER Award in 1998. In 2006, he received AIAA's Teacher of the Year Award. And UIUC's College of Engineering has presented Elliott with two teaching awards. In 2011, he received a NASA Group Achievement Award. Today, he is a member of ASEF, ASME, and is an Associate Fellow of AIAA. In addition to his role in academia, Elliott currently serves as an Associate Editor for the AIAA Journal.

William D. Rudolph was named the recipient of the Alan Gregory Loofbourrow Business Achievement Award. The award is given to alumni who have distinguished themselves in their chosen business or industry. After earning his undergraduate degree in mechanical engineering in 1983 and earning an MBA in 1986, Bill Rudolph has built a successful career with companies operating in the Ohio/Michigan corridor and provides technology, design and management. With headquarters located near Toledo, the company ranked 105th in Solar Power World magazine's list of the 250 top solar companies in the United States in 2018. Rudolph served as chairman of the Toledo Regional Chamber of Commerce solar initiative group, and was invited to speak at a White House round table discussion on clean energy and regional business competitiveness last October. Earlier this year, the Toledo Blade identified the company as one of the "Top Workplaces" in the Toledo metro area and was focused on its commitment to employee engagement. He has also served on the boards of the Toledo Regional Chamber of Commerce and the Toledo Children's Hospital Foundation.

The E.G. Bailey Entrepreneurship Award was presented to John L. Smucker. The award is presented to alumni who have invented new products, processes, or procedures that have been successfully manufactured, adapted, or adopted. John Smucker earned a bachelor's degree in mechanical engineering at Ohio State in 1967. He next attended the "school up north" at Michigan State University and earned his MBA in 1968. He followed his days in Ann Arbor with a year's service in the United States Air Force before returning to Ohio State to develop and supervise student project teams. After earning his mechanical/ astronautics degree, he went on to work for Belcan Corp. - a full service global provider of engineering services and technical support. He joined GE Aircraft Engines in 1985 and in 1990 was promoted to the position of engineering general manager with responsibility for the design and manufacturing of military aircraft engine technology. During his career at GE, Combs was involved in the design and development of propulsion systems for a number of advanced military aircraft engines. In February 2002, he spent the next nine years as an executive with Belcan Corp. - a full service global provider of engineering services and technical support. Elin Air Force Base, Florida, was promoted to the rank of major and is now assigned to the 46th Test Squadron, Eglin Air Force Base, Florida. He retired as an associate colonel.

The second presentation of the Garvin L. Von Exchen Award was presented to Colin (Philip) Combs, 71 BS AAE. The Garvin L. Von Exchen Award is presented to alumni who have demonstrated the technical and administrative excellence to lead successful aerospace projects and organizations. Combs received his BS in AAE from Ohio State and earned his MBA from Case Western Reserve University. He began his career at Rockwell International Corporation and worked there until 1995. He then joined the faculty at Ohio State as Department Chair in 1995 and is now the Department Chair at Ohio State University. Combs earned his PhD in Aeronautical and Astronautical Engineering at Illinois in 1989. He has served as a professor at Ohio State since 1995. Currently, he is the chair of the Department of Mechanical Engineering at OSU. He has been a professor at OSU since 1995.

The Stillman Robinson Lifetime Achievement Award was awarded to Dr. Gary Kinzel. The Lifetime Achievement Award is presented to an outstanding graduate who has distinguished careers in their chosen profession. Kinzel earned both his BS and MS in ME at Ohio State (PhD in ME, Purdue, 1973). After graduating from Purdue in 1973, he joined GE Aircraft Engines in 1985 and in 1990 was promoted to the position of engineering general manager with responsibility for the design and manufacturing of military aircraft engine technology. During his career at GE, he was involved in the design and development of propulsion systems for a number of advanced military aircraft engines. In February 2002, he spent the next nine years as an executive with Belcan Corp. - a full service global provider of engineering services and technical support. Elin Air Force Base, Florida, was promoted to the rank of major and is now assigned to the 46th Test Squadron, Eglin Air Force Base, Florida. He retired as an associate colonel.

Teaching & GTA Awards

Assistant Professor - Clinical Prasad Mokashi was presented the Michael Moran Teaching Excellence Award by Dr. Paul Faulkner, the Kenan-Williams Fund. The purpose of the award is to recognize the importance of teaching and is based on student evaluations and input. This is the first year that the award has been presented since it was named in honor of Emeritus Professor Michael Moran. Pi Tau Sigma President William Hoover and Emeritus and Honorary President Joseph Stanley presented the honor society’s annual Above and Beyond Teaching Award to Associate Professor Blaine Lilly.

Top Academic Awards

Outstanding Research Awards were awarded to: Cory Stack, Qian Zhang, Chao Xu, Simon Kalouche, Achal Singhal, Valerie Yoder, and Logan Gardner. The Rob Wolf Outstanding Senior Award, established in memory of Rob Wolf, ’97 was awarded to: Marissa DeBiasio. The award was sponsored by the endowed Rob Wolf Scholarship Fund. The award provides a $5,000 scholarship to a senior in the College of Engineering.

Top Academic Awards were presented to: freshmen Jacqueline Barabas, Patrick Beal, Kevin Beeler, David Tobin, Ryan Wilber, Zachary Zantik, Thomas Kranab, Bryan Kolpik, Aaron Beeks, and Nicholas Honig; sophomores Christopher McClung, juniors Matthew Brait, Elizabeth Bazer, and Matthew Long; and senior Eric Rollak.

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Among other safety alterations, the design of their bobber forces the hook to prevent the fishing hook from snagging unintended objects during travel. The “Fishing Made Safer” team focused on how individual operator. This allows for easy storage and navigation of the hook to retract into the bobber when it’s out of water or during casting. The beauty of the Buckeye Beekeeping’s HiveTracker device is that it’s portable and allows data to be saved to a SD card so that a single beehive can be used by a better monitor and handle hives which often weigh as much as 400 lbs. Lilly notes that, with the uptake in "maker movement" momentum, there are plenty of students who are eager to define and solve real-world problems.

A new ME capstone course, which has met with a lot of student interest and enthusiasm, debuted this past academic year. The two semester course, taught by Assoc. Professor Blayne Lilly, mixes one semester of the fundamentals of product design engineering with a second (spring) semester of hands-on design that challenges senior ME students to complete the fabrication and testing of the product they prototyped earlier in the course. The first semester of the two-semester course will also be offered as a technical elective to students who wish to enroll in different year-long capstone courses such as design competitions (think EcoCar or the BuckeyeBullet) or assistive devices for persons with disabilities, to further enrich their understanding of the design process.

Recent feedback from alumni and industry indicated that a stronger curriculum. As in other capstone courses, students worked in groups of three or four to better grasp the principles of teamwork and to accomplish the many tasks and iterations required to create, design, build, and test their designs.

A sampling of product concepts ranged from re-inventing fishing gear for small children to a device that measures the weight of a beehive to retractable wheels for rolling luggage. The "Zīkkaas" team’s reimagining of reliable luggage combines a magnetic clutch with a rack and pinion that retracts and extends a large wheel (seen on the cover) according to the natural behavior of the honeybee. Above, "Buckeye Beekeeping" is pictured with the retractable wheel suitcase fabricated by the "Zīkkaas" team. Below, Kori Kienaro is pictured with the fishing gear that she and her capstone teammates devised to improve the safety of handling fishing tackle.

Smart Materials & Smart Students

Students in Asst. Professor Sandra Metzler’s Assistive Devices Capstone Design course were among the eight Devices Capstone Design course were among the eight students who worked in groups of three or four to better grasp the principles of teamwork and to accomplish the many tasks and iterations required to create, design, build, and test their designs.

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Q: What's been the most surprising change in engineering since you entered the profession?
A: Maybe not the most surprising, but certainly the most dramatic is the "digital age." We still used slide rules when I was a student (wow, that dates me). I had one computer course using boxes full of cards. The capabilities of today's students and the technologies they use is mind-boggling.

Q: Your favorite way to display your Buckeye pride?
A: Staying in touch with the College of Engineering and participating in activities and programs that, hopefully, will have an impact on its growth and success in the future. (Ritchie was part of the Alumni Fundraising Committee for Scott Lab and is a current member of the MAE Alumni Fundraising subcommittee.)

Q: Any other Buckeye grads in the family?
A: My wife, Helen (Moore) Ritchie, has a degree in Medical Technology from OSU and, in fact, taught in the Hematology Lab for a while. Our second son, Brian, received his bachelor's degree in aerospace engineering at OSU followed by MS and PhD degrees at Georgia Tech.

Q: Any important mentors or role models along the way?
A: Many folks helped me along the way but the Aerogroup general manager that hired me directly from OSU as his chief engineer was special. Harry Bancroft, a mechanical engineer from Michigan State, provided me many opportunities and sound guidance to grow in my career. We still stay in touch.

Q: Why become an engineer?
A: I was exposed to Engineering functions as a junior applications engineer at Aerogroup shortly out of high school and before attending college. I've very much enjoyed the technologies and disciplines so I decided to get an ME degree to expand my career opportunities. For better or worse, I've always had a reputation for seeking out problems to solve and find that I still do in my volunteer activities. Engineering has always provided good challenges.

Q: Best life lesson?
A: Hard work and perseverance compensate for other personal shortcomings. Loyalty and honesty prevent a lot of problems and are generally reciprocated at work, with friends, and with family. Sharing what success seems to be returned "in spades."

Q: Hobbies?
A: Yeah, a bunch...hiking, biking, gardening and landscaping, history (easy to do around here), volunteering, Salvation Army, Big Brothers, Boys and Girls Club, church global missions, OSU, watching sports.

Q: What aspects of your training as an engineer have you found especially useful?
A: The technical training is important but the most important lesson is how to analyze and deal with any problem or challenge you may face. I've found this discipline to be invaluable in dealing not only with engineering issues but those in management, personnel, sales, volunteer activities and even in personal relationships.

Q: Any advice for current students?
A: Two things: study hard but also participate in some extracurricular activities to broaden your perspectives. Second, learn to read, write and speak effectively. Often, you will find communication skills to be as — or even more — important than technical capabilities in your career.

Q: Any other activities you're especially proud of?
A: Over 15+ years, I played a very significant mentoring role in turning our local Salvation Army Thrift Store from a money-losing operation to the number one performing store in our region of Virginia. It now provides profits of more than $300,000 annually that support the local Emergency Shelter and Social Service programs.

Q: Proudest accomplishment(s)?
A: As an alumnus, you've been an active volunteer in service to the Department of Mechanical and Aerospace Engineering. Why?
A: I like the thought of supporting organizations — doing things which positively impact the lives/careers of people not only for the short term but for decades, doing non-political things that change the world we live in for the better. I fully expect OSU Engineering to be "in business" a hundred years from now!
Willard, a retired orthopedic surgeon, resides in Beavercreek, Ohio. He was awarded the 2012 Excellence Award by the Miami Valley Alumni Chapter. The Publication of the text is scheduled to coincide with his retirement from the Medical School at Cincinnati. He is currently completing the 2nd year of his Master of Public Health degree.

Alumni News and Notes

Richard Lisse, B ME ’40, is retired and living in Jacksonville, FL.

Jack A. Collins, B ME ’52, MS ME ’53, PhD ’63, is living in Cape Coral, FL. He is the President and CEO of Matot, Inc. based in Bellwood, IL.

Gail Ode, S ME ’56 and LCL ‘75, USFAS-Retired, is living in the Pecan Ridge Retirement Community in Pleasanton, Texas. She received an MS EE from the University of Texas at Austin in 1984.

Brian Biller, BS ME ’11, who works as an associate with Technical Sales in the Cryogenics Department of Worthington Industries, was recently named cryogenics engineer in September 2013. He resides in Grove City, OH.

Deepak Salur, MS AEE ’12, is an engineer with the Department of Energy working on the LEAP-UAF engine project. He resides in Deer Park, TX.

Reem Balata, BS ME ’12, is working in the Quality Assurance Department at Southwest Research Institute for the Kuwait National Petroleum Company, Alhradhah, Bahrain.

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Barclb Polin, BS AEE ’13 is a jet engine test engineer for GE Aviation. He tested Testbeds Test Operations in southern Utah. Over the past year, he ran tests for more than 5 different engine programs and is currently coordinating engine tests for GE Aviation’s new LEAP engine program.

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Grant Consortium scholarship for graduate level study earlier this year.

Andrew Samuels, BS ME ’10, received a JD from the University of Miami School of Law and is an associate at Baker & Hostetler LLP firm in Cleveland, OH.

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Faculty News

Carlos Castro

Ro. S. Jettee

Shaurya Prakash

Datta Gaitonde

Walter Lempert

Gregory Receives 2014-2015 Fulbright Scholar Grant

Associate Professor James Gregory has been selected as a 2014-2015 Fulbright Scholar. The award will help cover expenses associated with a research endeavor that Gregory is planning for the first part of 2015 while on sabbatical in Israel. “I’ll be working in Professor David Greenblatt’s lab at the Technion in Haifa, Israel from January 1 to April 30, 2015. Professor Greenblatt and I will be studying the aerodynamics of vertical-axis wind turbines, and methods to control the flow to make the turbines more efficient,” Gregory commented.

The abstract associated with Gregory’s Fulbright Scholar funding states, “Development of cost-effective wind energy sources is a critical challenge facing the Middle East region and the world. However, the reliability and efficiency of wind turbines are limited by problems induced by unsteady aerodynamics – namely, dynamic stall. The proposed work will study dynamic stall in conditions relevant to wind turbines with higher fidelity that previously possible. The scholar [Gregory] brings expertise with advanced measurement techniques, while the host institution [Technion] has a one-of-a-kind facility for modeling dynamic stall. The combination of these will result in a much deeper understanding of dynamic stall, leading to control schemes for enhanced wind turbine performance.” The Technion is ranked among the world’s top 10 universities.

Gaitonde and Bons Named ASME Fellows

Professors Datta Gaitonde and Jeffrey Bons have been elected Fellows of the American Society of Mechanical Engineers. The citation included with the nomination for Bons’ ascension to Fellow grade reads: “ Jeffrey Bons is an internationally recognized researcher and engineer in the areas of roughness in gas turbine engines with regard to its characterization, the evolution of particulate deposition, and its influence on heat transfer and aerodynamics. He has also conducted seminal research in low pressure turbine separated and controlled flow, the influence of high turbulence on film cooling, and the acquisition of flow and heat transfer data in rotating turbine passages. Six of his papers have won best paper awards in ASME’s Gas Turbine Heat Transfer Committee and one in ASME’s Heat Transfer Committee. Bons has won a number of other awards in teaching and research and he has maintained a high level of professional involvement in ASME.”

Datta Gaitonde was noted as “a world leader in the field of advanced computational methods and their application to turbulent flows. Over the course of 25 years, first as a researcher and team leader at the Air Force’s Wright Aeronautical Laboratory, and now as John Glenn professor at The Ohio State University, his pioneering research has provided unique insight into jet noise, shock/turbulent boundary layer interactions and flow control with advanced plasma-based techniques. His methods are being used worldwide by industry and academia for direct and large-eddy simulations. His vision has benefited numerous national review panels and advisory boards.”

Lempert Named APS Fellow

Professor Walter Lempert has been elected a Fellow of the American Physical Society (APS) for his innovative and insightful contributions to the development and application of optical diagnostic methods for the study of nonequilibrium molecular and turbulent flows. Lempert’s nomination was put forward by the APS Division of Plasma Physics.

Faculty Retirement News

Professor Rajendra Singh and Associate Professor George Staab have retired after serving the university for 35 years each. Singh is recognized by his peers as an eminent educator, a researcher in machine dynamics and noise and vibration control. Staab was a frequent instructor of “Design and Analysis of Machine Elements and Kinematics” course and its predecessor in the quarter system. Both Singh and Staab have been accorded the title “Emeritus” in retirement.

Security Enhancements Completed at Ohio State’s Nuclear Reactor Lab

Interior of the new reception room at Ohio State’s Nuclear Reactor Lab.

Lowe Named Outstanding Mechanical Engineering Alumni

The design and construction of numerous voluntary security enhancements for The Ohio State University Nuclear Reactor Lab have been completed. The upgrades were funded at more than $950,000 as part of a global Threat Reduction Initiative (GTRI), which is managed by the Pacific Northwest National Laboratory. These voluntary upgrades have improved the security of the facility beyond its previous state, which was already sufficient per regulations. Among the many upgrades was an addition to the Nuclear Reactor Lab (NRL) that includes a foyer, reception area and restrooms. Professor Tom Blue, who is the director of the Nuclear Reactor Lab, stated, “This addition will allow the NRL to admit guests in a more orderly and secure manner.”

Alumni News

ME Alumni Named Dean of College of Engineering and Applied Science at the University of Cincinnati

Following a national search, the University of Cincinnati (UC) named Dr. Telik C. Lim (PhD ME ’89) Dean of the College of Engineering and Applied Science, effective March 10, 2014. Lim, previously served as the interim dean for UC’s College of Engineering.

In an announcement to UC Administrators, Dr. Beverly Davenport, Senior Vice President for Academic Affairs and Provost at UC, noted that Dean Lim’s goals for the College include increasing enrollment of undergraduate students to 4,000 and graduate students to 1,000, and increasing the college’s reputation. While serving as interim dean, he launched the Cincinnati/Chongqing Joint Cooperative Institute, an agreement between the two universities that aims to establish a joint research program in Mechanical and Electrical Engineering at Chongqing, China. Davenport also stated that UC plans to hire 50 new tenure-track faculty within the College across the next five years.

Wes Hines Named ASEE Glenn Murphy Award Recipient

Dr. Wes Hines (PhD ‘94 ME and MBA ’92) was named the Glenn Murphy Award winner for 2014 by the American Society for Engineering Education. Hines is currently the head of the Department of Nuclear Engineering at the University of Tennessee, Knoxville. The award, named for one of the pioneering leaders in nuclear engineering, recognizes the recipient as one of ASEE’s top honors. “I am very honored and humbled to receive the Glenn Murphy award,” said Hines. “It is great to be recognized for dedication to teaching excellence and to be associated with someone like him.”

The awards are presented annually to an ASEE faculty member serving in a full-time role in either the U.S. or Canada.

Adam Christian Participates in Department Video

Adam Christian (BS ME ’00 and MS ME ’03) participated in a video produced by the Department of Mechanical and Aerospace Engineering for the 2014 American Physical Society conference, held earlier this year. Christian is now an ICE (intake, combustion, emissions) researcher at the Boeing Company, speaks in the video about how his graduate education was tailor-made for his job at Ford and how he continues to use many of the physics models that were developed as part of his master’s thesis. Clearly still a fan of his alma mater, he strongly recommends that students consider continuing on for a graduate degree or coming to Ohio State from another university to obtain a graduate degree in mechanical and aerospace engineering. Christian, who was advised by Professor Ahmet Selamet, an expert in combustion, emissions, and technology; and to develop innovative solutions to societal challenges) is available to view online at go.osu.edu/MAEvideo.

Other alumni who spoke on video were: Assistant Professor Carlos Castro (BS and MS ME ’03); Bob Lowe (MS ME ’03) and Sarah Watspan (BS ME ’03; MS ME ’05). Bob Lowe and Sarah Watspan both graduated from The Ohio State University in 2013. As part of a larger project, the department is currently planning a capital campaign to fund new areas of research.

The video, which also speaks to the department’s mission (to educate the future leaders in mechanical, aerospace, and nuclear engineering) and to their role in advancing the university’s core competencies in science, engineering, and technology, and to develop innovative solutions to societal challenges) is available to view online at go.osu.edu/MAEvideo.

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The College of Engineering annually honors faculty members for outstanding teaching and research. The 2014 awardees, recognized on April 24 in the Blackwell ballroom, included seven individuals from the Department of Mechanical and Aerospace Engineering. Those receiving awards were:

Professor Marcelo Dapino
Harrison Faculty Award for Excellence in Engineering Education
Dapino was recognized for his creative research and education at the intersection of advanced technology that addresses real-world problems, as well as for his outstanding mentorship of students.

Ohio Eminent Scholar and Professor Joseph Heremans
The Clara M. and Peter L. Scott Faculty Award for Excellence in Engineering Education
Heremans is world-renowned for his thermal engineering expertise, and he is the Honda R&D Americas Designated Chair in Advanced Technology.

Daniel C. Dapino
Lumley Engineering Research Award
Dapino is also the Honda R&D Americas Designated Chair in Advanced Technology that addresses real-world problems, as well as for his outstanding mentorship of students.

Joseph Heremans
Ohio Eminent Scholar and Professor
Heremans is world-renowned for his thermal engineering research.

Lei Cao
Associate Professor
Cao is the Honda R&D Americas Designated Chair in Advanced Technology that addresses real-world problems, as well as for his outstanding mentorship of students.

Harrison Faculty Award for Excellence in Engineering Education
Mazumder was selected in recognition of his passion for teaching, as well as his unparalleled dedication to teaching and learning.

The annual Alumni Recognition Program was held by the College of Engineering. Among the alumni to be recognized during the 2014 Homecoming Weekend will be:

Three Alumni to Receive College of Engineering Awards in October
Three alumni of the Department of Mechanical and Aerospace Engineering will be celebrated for their personal achievements at this fall’s 17th annual Excellence in Engineering & Architecture Awards, hosted by the College of Engineering. Among the alumni to be recognized during the 2014 Homecoming Weekend will be:

Bob Lee, BS ‘78 ME, has been named the 2014 recipient of the Benjamin G. Lamme Meritorious Achievement Medal. Lee has steadily produced an impressive record of career accomplishments at Chrysler Group LLC. He began his employment with Chrysler in 1978 as an engineer-in-training in the Chrysler Institute of Engineering program. Today, he holds several key roles at Chrysler, including VP - Engine and Electrified Propulsion, Chrysler Chief Engineer and Head of Global Powertrain Coordination, Fast-Chrysler. His achievements represent the time-tested technical and business leadership standards he has embodied, including leading engineering teams at manufacturing facilities responsible for the acclaimed, award-winning and iconic 5.7L HEMI® V-8 engine in 2003 and the Pentastar V-6 engine in 2010.

Elizabeth (Martin) Tinkham, BS ‘84 AAE, and Cody Phipps, BS ‘84 ME, will each receive the college’s Distinguished Alumnus Award. Tinkham is a Senior Managing Director and Client Account Lead for Accenture’s Microsoft Account responsible for all aspects of Accenture’s work for and with Microsoft. She is a prominent advocate for the promotion and retention of women and minorities. Phipps is President and CEO of United Stationers, a Fortune 500 wholesale distributor of business products to over 25,000 retailers with 2013 net sales of over $5 billion. He has been an active champion of several charitable causes. Tinkham, Phipps and Lee are members of Ohio State’s Alumni Association.

FACEBOOK facebook.com/OhioStateMAE
YOUTUBE youtube.com/OhioStateMAE
TWITTER @osuengineering
After more than four decades in education, you retired in 2010, what is the best thing about retirement?
A: I enjoy not having a “locked” schedule of classes.
Q: Any other non-engineering pursuits or pastimes?
A: My wife and I enjoy travel and spending time with our sons’ families – two out of state.

Q: What distinguishes a degree in engineering from Ohio State?
A: We build a solid foundation in the engineering fundamentals, coupled with a strong upper-level knowledge and skills, and combine both of those with a “real world” and solid work ethic.

Q: Ballpark estimate for the number of students you have taught at Ohio State?
A: About 36 years of teaching and never taking a sabbatical, I said the number approaches 4,000 students.

Q: Who had a lasting impact on your career?
A: Prof. Michael J. Moran, but for him I would not have chosen to be a professor of mechanical engineering. His command in the classroom, passion for teaching, and personal ethics made me want to be a professor.

Q: What aspect of mechanical design do you find most fascinating?
A: Engineered products designed with a great deal of flexibility. I’ve had technical internships at GE in which I was conducting finite element analysis on airplane engines and experience leading the creative aspects of product development for a new product launch.

Q: What’s the thread connecting your career advancement?
A: The thread connecting my career has always been the need to solve that unstated need. After a few years, I then transferred into P&G’s prestigious Marketing Division as an assistant brand manager (ABM) on the Gillette Mach3 brand. I sought this transition because I wanted to understand how marketing strategies are being implemented. The analytical skills you learn in engineering transfer across all fields and functions.

Q: What’s the most valuable attribute for an educator to acquire?
A: Compassion and communication with the students.

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Q: What’s the most valuable attribute for an educator to acquire?
A Message From the Chair: Professor Ahmet Selamet

To excel in their careers, engineers must understand and satisfy the needs of many audiences, including end-users of their products or services, their employers, their industry, and society at large. At its core, engineering demands accuracy, precision, adherence to codes and ethics, and a demonstrated appreciation for professionalism.

To that point, this issue of Exchange is filled with the accomplishments of many of our outstanding alumni, students and faculty. The impact of their collective contributions is indicative of how Ohio State engineers inspire each other and their peers at other organizations to dream, to act, and to achieve. I am delighted and impressed by the number of individuals whose talent and hard work reflect honorably on this university. Day in and day out, we are earning the respect of engineers across the nation and around the globe. Each year, our interdisciplinary collaboration expands as we work with faculty in other colleges here at Ohio State and at other research universities. As the Chair of the Department of Mechanical and Aerospace Engineering, it is a joy to present awards to some of the most dedicated among us – to shine a light on their leadership and ingenuity. And in accord with the distinguished conduct of our alumni, we have great expectations, too, for each new generation passing through the halls of Scott Lab.

Marvelously, each fall term the quality of our freshman engineering student ranks higher than the last. Composite ACT scores have increased from 26.8 to 29.5 during the period 2002-2013, and math ACT scores from 28.1 to 30.5 over the same period. This places the quality of the engineering freshman entering Ohio State third in the Big 10 – behind only Northwestern University and the University of Illinois at Urbana-Champaign. And while we are driven to compete with other top-tier engineering institutions, we recognize, most importantly, that our graduates must leave prepared to compete in industry or academia to further advance (and perhaps one day lead) the organizations they join.

Hence, another marker of our success is measured in terms of our graduates’ involvement in new areas of discovery and how they are able to think broadly and productively about practical solutions to societal challenges. The realization of this expectation serves to reinforce our position as a land grant institution and shows our commitment to the various communities to which we belong.

Conjuring a great deal of “Buckeye Pride” are those impressive individuals who earned a prestigious departmental alumni award (pages 6-7) or College of Engineering alumni award (page 16). I’d also like to call your attention to the article about one of our most renowned alumnus, Benjamin Lamme, who received international acclaim during his brilliant career (page 17). Since first presented in 1931, twenty-nine alumni associated with our department have been named recipients of the Lamme Medal, including this year’s esteemed recipient Bob Lee, Class of ’78. We celebrate the achievements of all of these remarkable engineers.

And while 40 years separate the commencement ceremonies of two other award winners, it does not separate their enthusiasm for volunteerism: I hope you’ll spare a few minutes to read how Rex Ritchie, Class of ’68, and David Pan, Class of ’08, have endeavored to serve the greater good. (Interviews with Rex and David appear on pages 10 and 19, respectively.) Their acts of generosity have contributed much to several wider communities.

Finally, it’s a pleasure to acknowledge the students and faculty who also earned significant awards and whom we hold in high regard for their exceptional dedication to excellence.