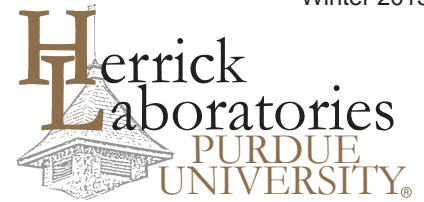


Herrick Newsletter



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Upcoming Events:

- July 10, 2016** Short Courses
- July 11-14, 2016** Compressor, Refrigeration & Air Conditioning and High Performance Buildings Conferences



New Ray W. Herrick Laboratories Building, opened November 2013

IAC Meeting - November 5 - 7, 2015



IAC Members, Guests, Faculty, Staff, and Students

Fall season in Indiana is always a beautiful time of year with the vibrant colored leaves. It's a time for cooler temperatures, football, bonfires, pumpkins, and mums.

Fall season also welcomes in the annual Industrial Advisory Committee (IAC) meetings at the Laboratories. This year, the Committee met Thursday, November 5 through Saturday, November 7. After the welcome and introductions by the IAC Chairman, Terry Manon, Patricia Davies followed with the State of the Laboratories Report and gave the recommendations from the 2014 IAC meetings. The Strategic Planning Committee members: Patricia Davies, Jeff Rhoads, Neera Jain, Dave Cappelleri, and Travis Horton gave an update on their planning activities. The IAC congratulated the Director, faculty, staff and students for their Strategic Planning efforts and progress. Jim Braun reported on the Center for High Performance Buildings (CHPB) members' meeting, which was held November 4 - 5 (more CHPB information on page 3). Anil Bajaj, Head of Mechanical Engineering followed with an update on the School of Mechanical Engineering.

Later in the afternoon, 5 new faculty members (four of which are new Herrick faculty) were introduced and gave presentations focusing on their areas of research. The new Herrick professors are: James Gibert, Brandon Boor, Andres Arrieta, and Fabio Semperlotti. Their bios and pictures start on page 4 of this newsletter.

Friday's highlight was the Student Poster Show, where the students presented their research to the Committee members. The students did well with their presentations and the IAC members commended them on another great show.

Three breakout sessions were held Friday afternoon focused on: Jobs, Interviewing & Interviews, led by IAC member Bob Parrin and the HL students; Brand Management, led by IAC member Steve Sorenson and Profs. Neera Jain and Jeff Rhoads; and Managing Technical Staff and Faculty Transitions, led by IAC member Jim Thompson and Prof. Travis Horton.

Patricia Davies and Stuart Bolton hosted a brunch before the homecoming football game on Saturday, which Purdue lost unfortunately.

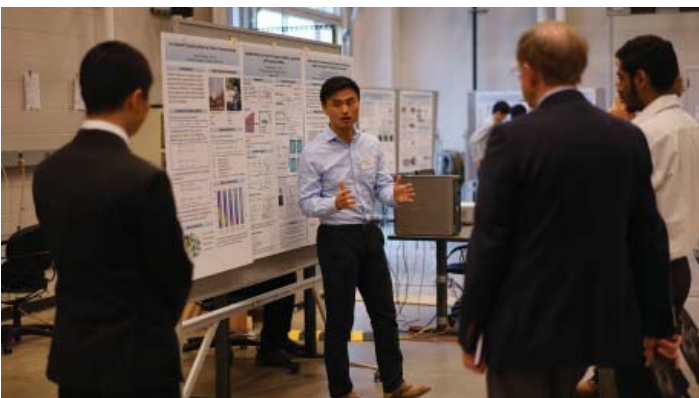
IAC Meeting - November 5 - 7, 2015 (continued)



Hyunjun Shin (left) explains his research project is to find lightweight acoustic materials which are used to reduce the noise inside of a vehicle.

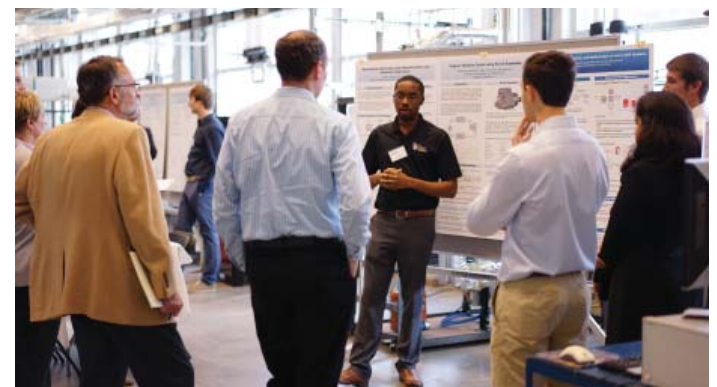


Liuxian Zhao (right) explains his research on use of impediographic techniques to perform damage detection in plate-like metal structures. This method provides high sensitivity and high resolution maps of the internal electrical conductivity distribution.

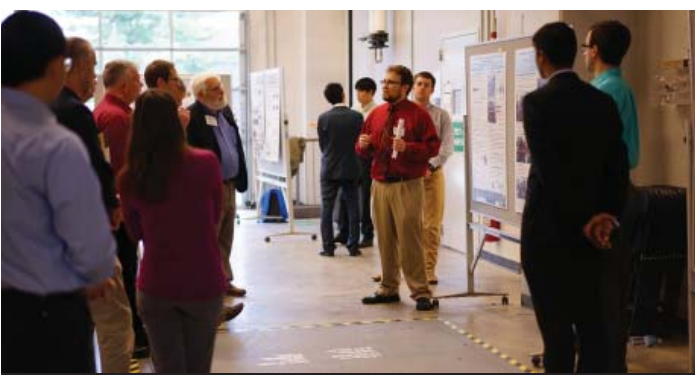


Chun Chen (left) presents his research on simulating how the virus particles from a cough by a sick person are transported to other people through air in indoor environments.

Nelson James (right) discusses how metal hybrids can be used to make more environmentally friendly heat pumps. In this work, the use of isothermal compression techniques is being investigated to improve the efficiency of metal hybrid heat pump systems.



Matt VanVoorhis (left) explains as regulations for greenhouse gas emissions, particulate matter levels, and fuel consumption continue to become more strict in both light duty and heavy duty applications, it is important to develop strategies for efficient and clean engine systems. By investigating hybrid technologies and variable valve actuation strategies in heavy duty vehicle applications, benefits can be found in fuel economy and emissions while keeping system costs manageable for consumers.



Launch of Purdue Center for High Performance Buildings (CHPB) - Prof. Jim Braun, Center Director

In preparation for the official launch of the Purdue Center for High Performance Buildings (CHPB) on January 1, the first CHPB members meeting was held on afternoon of Nov. 4th and morning of Nov. 5th at the Herrick Labs. The primary goals of this first meeting were to solidify the management processes and determine the research agenda for 2016. As of November 2015, the following fourteen (14) companies have joined the CHPB for 2016 and participated in research project selection:

1. Bristol Compressors International, Inc.
2. Duke Energy
3. Field Diagnostic Services, Inc.
4. Johnson Controls, Inc.
5. Kawneer Company, Inc.
6. Regal Beloit Corporation
7. UTC Carrier Corporation
8. Danfoss
9. Emerson Climate Technologies
10. Honeywell International Inc.
11. Jones Lang Lasalle (JLL)
12. Lennox International Inc.
13. Siemens AG
14. Whirlpool

Our philosophy in managing the CHPB is to intimately involve member companies in planning and executing research projects. Prior to project selection, faculty, students, and postdocs provided overviews of the project proposals and answered questions from member companies. In addition, there was a poster session covering all aspects of research activities related to buildings by faculty associated with the CHPB and a brainstorming session for generating future research directions for the CHPB. In a closed-door meeting, the following thirteen (13) CHPB research projects were selected by member companies for 2016.

2016 Research Projects

1. Development of Self-Tuned Indoor Environments
2. Investigation of Chemical Looping for High Efficiency Heat Pumping
3. Development of General Purpose Simulation Tools for Positive Displacement Compressors
4. Evaluating the Benefits across the U.S. of Variable-Speed Equipment for Packaged Rooftop Units (RTUs)
5. Optimizing Seasonal Cooling and Heating Performance of Unitary Heat Pumps using Variable Speed Compressors and Fans
6. A Sequential Approach for Achieving Separate Sensible and Latent Cooling
7. High Performance, Multi-Functional Building Envelopes Integrated with Lighting and Thermal Systems Operation

8. Assessment of Alternative Technologies for Sustainable Housing Developments
9. An Inverse Modeling Toolbox for Buildings
10. Further Development of Fast Fluid Dynamics for Indoor Air Quality and Thermal Comfort Study and Control
11. Development of a Simulation Model Predicting Efficiency Gains for Residential Appliances Utilizing Thermal Integration
12. National/Regional Assessments of Demand Response Potential in Small Commercial Buildings
13. Automation and Demonstration of an RTU Coordinator in Small/Medium-sized Commercial Buildings

These projects represent the broad cross-section of the interests within the CHPB company and faculty members. Faculty are participating in the CHPB from Departments of Mechanical, Civil/Architectural, and Electrical Engineering along with Psychological Sciences. The companies include manufacturers of HVAC components/equipment and building envelope systems, controls companies, a large utility, and a large commercial building facility management company. In addition to selecting the projects, companies formed project monitoring sub-committees (PMS) that will meet with the research teams on a regular basis in order to track progress and provide guidance.

By next year, we hope to expand the CHPB company membership to twenty-five (25) and plan on having a workshop for interested companies at the end of April, 2016. A broad cross section of expertise, interests and testbeds associated with the CHPB will allow us to tackle complex research projects that involve the integration of advanced technologies within building systems. This is a truly unique feature of the CHPB compared to other existing centers focused on building-related research.

If you would like to learn more, then contact Jim Braun (jbraun@purdue.edu). You can also visit the website (<https://engineering.purdue.edu/CHPB>) to get the latest information on the current activities and future workshops. We are excited about the launch of the CHPB and think this will significantly expand our research related to buildings.



Meet the New Herrick Laboratories' Faculty Members



Dr. Fabio Semperlotti

Dr. Fabio Semperlotti, an Assistant Professor in the School of Mechanical Engineering, joined the Herrick Laboratories in Fall 2015. Prior to joining Purdue, he was an Assistant Professor in the Aerospace and Mechanical Engineering department at the University of Notre Dame where he was the founder and director of the Structural Health Monitoring and Dynamics Laboratory.

Dr. Semperlotti holds a M.S. in Aerospace Engineering (2000) and a M.S. in Astronautic Engineering (2002) from the University of Rome "La Sapienza", and a Ph.D. in Aerospace Engineering from the Pennsylvania State University (2009). Before completing his doctoral work, he served as a structural engineer in the European aerospace industry and in the French Space Agency performing structural design and analysis of satellite

platforms and space launch systems, such as VEGA and ARIANE 5.

Dr. Semperlotti's research program builds upon the fundamental disciplines of dynamics and continuum mechanics and focuses on theoretical, numerical, and experimental activities connected to the development of smart structures and materials for a variety of mechanical and aerospace engineering applications. Current research activities include, but are not limited to, the development of ultrasonic-based and tomographic Structural Health Monitoring technologies for the non-destructive assessment of mechanical systems, the design and development of acoustic meta-materials and meta-structures for the passive control of vibrations and noise, and the development of computational tools for the solution of partial differential equations based on wavelet analysis and fractional calculus.

In 2015, Dr. Semperlotti was the recipient of the National Science Foundation CAREER award for his research on multi-physics tomography with application to non-destructive evaluation, and of the Air Force Office of Scientific Research (AFOSR) Young Investigator Program (YIP) award for his research on acoustic metamaterials.



Dr. Brandon Boor

Dr. Brandon E. Boor joined Purdue University and Herrick Laboratories in Fall 2015 as an Assistant Professor of Civil Engineering. He received his Ph.D. from the Department of Civil, Architectural, and Environmental Engineering at The University of Texas (UT) at Austin (2015). He also holds a M.S.E. in Environmental and Water Resources

Engineering from UT Austin (2010) and a B.S. in Mechanical Engineering from York College of Pennsylvania (2009).

While at UT Austin, Dr. Boor participated in the interdisciplinary National Science Foundation (NSF) IGERT program in Indoor Environmental Science and Engineering.

He has previously worked with research groups at the University of Helsinki, Finnish Institute of Occupational Health, and VTT Technical Research Centre in Finland, as well as the National Institute of Standards and Technology in Maryland.

He has received various fellowships, including a NSF Graduate Research Fellowship, U.S. Environmental Protection Agency STAR Fellowship, ASHRAE Grant-In-Aid, and a Fulbright doctoral grant to Finland.

Dr. Boor's research focuses on characterizing the dynamics of airborne particles (aerosols) in buildings and human exposure to indoor and urban air pollutants. His experimental facilities at Herrick include state-of-the-art aerosol instrumentation to study nanoparticles from 1 nanometer in size, real-time monitoring of bioaerosols (bacteria, fungi, pollen), and in-situ characterization of transport- and health-relevant aerosol properties (morphology, charge, density, volatility, phase).

Meet the New Herrick Laboratories' Faculty Members (continued)



Dr. Andres Arrieta

Dr. Andres F. Arrieta joined Purdue University and Herrick Laboratories in Fall 2015 as an Assistant Professor of the Mechanical Engineering School. He leads the Smart Materials & Adaptive Structures Lab (SMASL). Prior to joining Purdue, he held the Compliant Systems Group Team Leader position of the Composite Materials and Adaptive Structures Laboratory (CMAS)

at ETH Zurich, Switzerland since May 2012. Before this, he was a Marie Curie Fellow and Research Associate at the Dynamics and Oscillations Group of the Technical University Darmstadt in Germany between 2010 and 2012. He received his Mechanical Engineering degree in 2006 from Universidad de los Andes, Bogota, Colombia; Ph.D. in 2010 from the Mechanical Engineering Department of the University of Bristol, United Kingdom; and received the

prestigious ETH Postdoctoral Fellowship in 2012 from ETH Zurich, Switzerland.

His research focuses on integrating smart material systems with shape adaptable structures to generate engineering systems with novel functionalities. In particular, his research studies fundamental mechanisms for achieving inherent dynamic adaptation of commonly fixed mechanical properties, such as geometry, stiffness, dynamic moduli and wave propagation symmetry. To achieve this, structural nonlinear phenomena, such as buckling and multi-stability, are utilised to generate time-varying mechanical properties. These ideas are applied to light-weight morphing wing structures, energy harvesting systems, time-varying metamaterials and programmable matter.

Dr. Arrieta was awarded Visiting Scholar position at ETH Zurich (2015), the prestigious ETH Postdoctoral Fellowship (2012); Marie Curie Early Stage Researcher Fellowship (2010); Visiting Scholar position at the University of Bristol (2010), and the ORS Ph.D. Scholarship Award (2007).

He is a member of ASME and SPIE professional societies.



Dr. James Gibert

Dr. James Gibert, an Assistant Professor of Mechanical Engineering, joined Purdue University and Herrick Laboratories in Fall 2015. Prior to joining Purdue, he was an assistant professor in the Department of Mechanical and Aeronautical Engineering at Clarkson University. Before joining Clarkson University, he was a consultant for MOOG CSA, a Visiting

Professor in the Department of Civil Engineering at Clemson University and a Postdoctoral Research Associate in the Department of Mechanical Engineering at Clemson University. He received his B.S., M.S., and Ph.D. degrees from Clemson University in 2002, 2004, 2009, respectively.

Dr. Gibert is a recipient of the Highly Commended Emerald Engineering Outstanding Doctoral Award (2012), the Outstanding Paper Emerald Literati Network Awards for Excellence for his paper "Effect of Height to Width Ratio on the Dynamics of Ultrasonic Consolidation" (2011), the South East Alliance for Graduate Education and the Professoriate Fellow from National Science Foundation (2008), Department of Mechanical Engineering Endowed Teaching Fellowship (2005) at Clemson University, and a National Science Foundation Graduate Fellowship (2004).

Dr. Gibert's research interests include vibrations and nonlinear dynamics; smart material systems; non-pneumatic tires; optimization of mechanical systems; and additive manufacturing.

He is a member of ASME, NSBE, and The Tire Society.

Nick Czapla's Summer Internship in South Africa

Nick is a Master's student working with Prof. Eckhard Groll



Nick Czapla

In May 2015 I put my efforts in researching methods to improve the energy efficiency of residential heating and cooling systems on hold for the summer. The motivation for this was to pursue a unique internship opportunity with Mercedes-Benz at a production facility right on the coast of the Indian Ocean in East London, South Africa. This once-in-a-lifetime opportunity promised

to bring both technical and cultural enrichment to my career as a globally-minded engineer. Upon stepping off the plane after the 15 hour flight to Johannesburg, I was shown a world much different than daily life in West Lafayette, Indiana.

The seemingly chaotic African way of life, the myriad of unknown languages, as well as the lingering impact of the Apartheid resulted in a culture shock that took many weeks to overcome. Working at such an international company like Mercedes-Benz facilitated the process of adjusting to life in South Africa though. I joined a diverse team of both German and South African engineers to identify and implement methods for increasing the annual production volume of the Mercedes-Benz C-Class from 100,000 units to 120,000 units per year.



Life-size 2015 Mercedes-Benz C-Class constructed out of 3 million beads and nearly 7 miles of wire. Wire and beads are a traditional form of art in South Africa

While not at work, I used every opportunity to integrate myself into the South African lifestyle by learning rudimentary phrases of Nelson Mandela's native language, Xhosa, and attending the weekly braai (South African barbeque) with friends. Leasing a Mercedes-Benz for the summer allowed me to take every opportunity to explore the beauty of Southern Africa. My trips ranged from driving along the breath-taking coastal roads of Cape Town to 10-hours of pony-trekking through the mountains of The Kingdom of Lesotho followed by being completely surrounded by families of elephants, rhinos, zebras and giraffes.

My time in South Africa also provided the opportunity to scratch many items on my bucket list including skydiving from 10,000 feet over the Indian Ocean, leaping off the world's highest bridge for bungee jumping as well as cage diving with great white sharks.



View from Chapman's Peak in Cape Town

My summer adventure in South Africa not only left me with many unforgettable friends and experiences, but also demonstrated the necessity of my research in energy efficiency at Herrick Laboratories. I personally endured the energy problems of a developing country and now have a better understanding of where I want to focus my future career as an engineer. Upon completing my Master's in May 2016, I plan to continue traveling the world by pursuing internships in both India and Brazil. I would like to thank all the Herrick faculty and staff for making it possible for me to achieve my goals.



10 hours of pony-trekking in the mountains of Lesotho

Actual footage from diving with great white sharks can be found here:

<https://www.youtube.com/watch?v=bLGQPvRIA78>

Patricia Davies, Director Update

I recall last year (even colder than this year) being worried about interviewing candidates in the cold months of January through March and hoping that their trips wouldn't be interrupted by snow storms (the previous year we had a lot of snow and there were a few days when the Purdue was closed because of cold and snow). The people being interviewed were hardier than we feared and five new faculty started their research at Herrick in 2015. Although there is still office space and we hope to hire a few more faculty, it will not be too long in the future when we see that space filled up as the new faculty's graduate student teams grow. We still use the original building for acoustics research and also some of the vibrations, thermal sciences and electromechanical systems research. It is hard to imagine how we managed with one building before 2013.

This year we have been focusing on updating the Strategic Plan, working with two Industrial Advisory Committee Members, Terry Manon and Jack Grace. We started by doing a strengths, weakness, opportunities and threats analysis with the faculty, students and staff and then extracting from that a prioritized list of items to work on in five different areas. That led to a retreat in May 2015 at the old Ross Hills Park and several meetings since working on the first version of the plan. Four of the younger faculty: Jeff Rhoads, Neera Jain, David Cappelleri and Travis Horton have been working with me organizing this and are leading the efforts under the five areas we have decided to work on.

I recall Bob Bernhard (3rd Director of the Labs) working with the graduate students on the mission and vision statements many years ago, and wondered how it could take so long to write something so short. As part of this updating we considered how we might change the wording, which is still relevant but perhaps does not encompass all we are and all

we wish to accomplish. Taking all the input from the retreat on the two statements and trying to update them to capture the thoughts of the Herrick community has given me a great appreciation of Bob and our former graduate students' efforts. Writing something so short that captures all we want to say is indeed very difficult--this work continues!

Over the last year, I have also been working in a group of five of the Mechanical Engineering faculty, looking at ways to increase diversity in our undergraduate student body. Currently, we are focusing in increasing the number of African American students - only 12 of our undergraduates out of 1300 students in ME are African American and when we look at percentages of populations in Indiana, the University and the College of Engineering, it is clear that we have a lot of work to do in showing how great mechanical engineering is to African American high school and 1st year engineering students. Fortunately, there are resources and programs with which we can engage. Project Lead the Way, Purdue/Science Bound and the Center for Leadership Development are three good examples of organizations working to encourage young people, to enter STEM disciplines and to develop the skills necessary to succeed in their education and the workforce. We and other Mechanical Engineering faculty are working with Purdue's Minorities in Engineering program and engaging with our diversity action and outreach groups on campus. We are looking at both recruitment and also the student experiences to help us understand how we can do better, and thus develop and implement effective plans.

If you are interested in helping to mentor students, or able to help in other ways, please contact me (daviesp@purdue.edu). Subject: Diversity and Inclusion in ME).

Howard Collicott, Ph.D. (1961) Dies



Word was recently received from alumnus Dick Lowery, who is a Professor at Oklahoma State University, that a former member and alum of Herrick Labs, Howard Collicott, Ph.D. (1961), passed away December 2014. Howard graduated with a Bachelors, 1951, Purdue University, Mechanical Engineering, then entered the Air Force aiding in the tests of early jet-powered bombers. Howard worked for Boeing in Seattle, WA while earning his

Masters. He left Boeing to return back to Purdue earning his Ph.D., 1961, Mechanical Engineering as one of the first students at Herrick Labs under the guidance of Bill Fontaine.

He worked for two decades at the Bendix Space Systems Division upon a variety of thermal control problems within the aerospace, defense, nuclear power and automotive products, most notably the Apollo Command Module; EASEP and ALSEP instruments deployed on the Moon by Apollo 11 & 12 astronauts. Eventually, Howard returned to the Seattle area retiring from Boeing. Howard was a licensed amateur radio operator, even building his own equipment during the 1950's, enjoyed bowling and sailing as well as a life-long baseball fan. He volunteered for the Boy Scouts of America and McChord Air Museum at Joint Base Lewis-McChord near Tacoma, Washington. Howard loved traveling to visiting his family and grandchildren. He is survived by his daughter, Susan of Seattle along with sons, Duane of Ann Arbor, MI and Professor Steven Collicott of Purdue University, West Lafayette, IN and 4 grandchildren.

Alumni Reflections - Daniel Finfer, worked at Herrick Labs as an Undergrad 1999-2002

When I arrived in West Lafayette for undergraduate study in Mechanical Engineering during the fall of 1998, I was quickly drawn towards the acoustical sciences. My first real experience of working at Herrick came during the summer of 1999, when I was recruited for the Institute of Safe Durable and Quiet Highways (SQDH). This job was glamorous, as it enabled me to stand along the highway in Portage, IN, and measure the noise from trucks whilst counting the number of passing vehicles. During this time, I had tremendous fun getting to know the graduate staff (particularly the candy and donut czars), and watching with awe on occasions when the Franchek mafia would gather in front of his office for cigars under the Indiana sunshine.

In the fall of 1999, Prof. Luc Mongeau invited me to help with sponsored work on the topic of undesirable muffler noise. It was during this project that I earned the ire of anybody within 500 yards of the East Wing, as the test apparatus made a dreadful whistle that could be clearly heard from just about anywhere in the Labs. Please forgive me for the many noisy disturbances I created if you happen to be one of those individuals who was preparing for qualifiers during that time.

Over the next few years, I continued to be involved with a variety of other projects at Herrick. Given the high quality of the team and the excellent experimental facilities, I always felt privileged to be allowed through the door at HERL. Certainly I owe thanks to many individuals for providing me with help and opportunities for growth while at Herrick. Not least, I owe thanks to Gil Gordon for deftly repairing a capacitor on one of Luc's new USB acquisition systems which I had attempted to destroy, Sanghoon Suh for allowing me to drag him into a ASA concert hall design competition, and Aaron Hastings for teaching me how to sleep under a desk.

Following my BSME, Prof. Bolton and Prof. Davies encouraged me to consider ISVR in England as a follow-on option. I came to the UK in Autumn of 2003, and have remained in Europe since that time. Following a M.Sc. and Ph.D. in underwater acoustics, I married a wonderful English woman, and began a postdoc in biomedical ultrasound at Imperial College London.

In 2009, I moved on from academia to Silixa, a manufacturer of distributed acoustic sensing (DAS) technology. DAS makes it possible to sense the acoustic field along extended lengths of fibre optic cable with a spatial resolution of about 1m. As a result of the diverse range of applications for this new technology, I have had the opportunity to engage deeply with many interesting areas of acoustics, including

borehole propagation, pipe vibrations, and fluid-structure interactions. Recently, the Silixa DAS technology was recognized with an Innovation award from the Institute of Physics which was awarded at the Houses of Parliament in London.

Throughout my acoustics career to date, I have continued to draw on the inventiveness which I learned whilst at Herrick. Whether acquiring contrast agent data at a European hospital, testing sonar in the English Channel, leading seismic acquisition work in the North Sea, or staying up late to finish a publication, I have remained aware of the strong technical foundation provided by my experience at Purdue, and continue to be grateful for having had the privilege of being affiliated with Herrick Labs.



Daniel Finfer lives in North West London with his wife, Yudit, and their three children: Ethan on Yudit's lap, daughter Avital and son Natie. The children all behave as excellent sources of semi-coherent noise between 20 Hz and 20 kHz.



From left to right: Arran Gillies (Lead Development Engineer, Silixa), Daniel Finfer (Head of Applications Development, Silixa), Mahmoud Farhadiroushan (CEO, Silixa), Tom Parker (CTO, Silixa), Roy Sambles (President, IOP)

People News



Professor J. Stuart Bolton was recently awarded the 2015 Ruth and Joel Spira award by the School of Mechanical Engineering. This award is given annual to “a faculty member in the School of Mechanical Engineering who has inspired students and fostered excellence in commercial or defense product realization.”

The Spira Award in Purdue ME has been in existence for more than 25 years. In previous years the Award recognized: excellence in the classroom, significant contributions to curriculum development, and/or significant service to the School. In 2006, a College of Engineering Curriculum Reform Task Force worked on transformations of the educational experience we offer for the next generation of engineers. Dr. Joel Spira was a member of that Task Force. In addition, he worked with the School in 2006 to adjust the criteria for the Award in that context.

Joel Spira passed away earlier this year at the age of 86 (see the article in the 2015 summer newsletter). He was the founder of Lutron Electronics, a leader in the lighting-control business.



Professor Jeff Rhoads received the B.F.S. Schaefer Outstanding Young Faculty Scholar Award for 2015-2017. This College of Engineering award was established to recognize and assist in the development of outstanding faculty who have been in the Associate

Professor rank for five years or less.

Jeff was also one of the recipients of the ASEE Mechanics Division Best Presentation Award at the 2015 ASEE Annual Conference for the paper titled: The Purdue Mechanics Freeform Classroom: A New Approach to Engineering Mechanics Education.

Where are they now?

Yoonshik Shin (PhD 2010) has recently left his job at Bosch North America in Boston where he was working on automotive cooling systems to join Honeywell Aerospace in Phoenix as an acoustic design engineer. At Honeywell, Yoonshik will be working with former Herrick grad Dan Brown (MSME 1995). Good luck to Yoonshik in his new job!

Student Honors & Awards



Daniel McArthur

Daniel McArthur was awarded a 2015 National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) Fellowship. The Program recognizes and supports outstanding graduate students in NSF-supported science,

technology, engineering, and mathematics disciplines who are pursuing research-based Master's and doctoral degrees at accredited United States institutions. For more information on the NSF Graduate Research Fellowship Program, visit the website <http://www.nsfgrfp.org>.

Staff Awards



Frank Lee

Kwok (Frank) Lee recently was awarded one of the ME Staff Recognition Awards.

The nomination entry by Brandon Woodland, a former student, states that: Frank is always kind and friendly. He listens to the needs and executes them as specified. Frank is proactive. He takes pride in his work. If he thinks he can meet the objective

another way, he frequently designs his own creative solutions. He pays attention to detail. Frank is a good teacher and encourages success among the students. He doesn't only care about his work on a project, it is clear that he also cares about the students.

Graduations

Azizi, Yousof (PhD 2015). Development of a Multi-Body Nonlinear Model for a Seat-Occupant System. Yousof is employed by Bridgestone, Akron, OH.

Bansal, Kunal (MSME 2015). Modeling and Evaluation of Scroll Expanders for a Liquid-Flooded Ericsson Power Cycle. Kunal's employment is not known at this time.

Bhattiprolu, Udbhau (PhD 2015). Modeling and Measurement of the Response of a Beam Interacting with a Polyurethane Foam Foundation. Udbhau took a position with Cummins Inc. in Columbus, IN.

Cao, Jiajun (MSME 2015). Analysis and Simulation of Nonlinearities in Noise Attenuation Model for a Diesel Engine. Jiajun is working for Cummins Inc. in Columbus, IN.

People News (continued)

Chen, Chun (PhD 2015). Modeling Person-to-Person Contaminant Transport in Enclosed Environments. Chun is currently a Post Doc at the Labs.

Halbe, Mayura (MSME 2015). Analysis and Algorithm Development for Diesel Engine Systems Utilizing Variable Valve Actuation to Enable Premixed Charge Compression Ignition and Cylinder Deactivation. Mayura is working for Cummins Inc. in Columbus, IN.

Hiremath, Jagdish (MSME 2015). Development of UREA-SCR Dosing Control Strategies for a Diesel Electric Hybrid Car. Jagdish took a position with Cummins Inc. in Columbus, IN.

Hung, Yu-Wei (MSME 2015). Development of Research Facilities for Chilled Beam Testing. Yu-Wei works for Semco, LLC in Columbia, MO.

Kim, Donghun (PhD 2015). Development and Applications of Models and Algorithms for Model-Predictive Control in Buildings. Donghun is currently a Post Doc at the Labs.

Krishna, Abhinav (PhD 2015). Analysis of a Rotating Spool Expander for Organic Rankine Cycle Applications. Abhinav is working for Eaton Corp. in Detroit, MI.

Kung, Yi-Shu (PhD 2015). An Integrated System of Vapor-Compression Chiller and Absorption Heat Pump: Experiment, Modeling, and Energy and Economic Evaluation. Yi-Shu's employment is not known at this time.

Schneemann, Jason (MSME 2015). Sustainable Water Systems at the ReNEWW (Retrofitted Net-Zero Energy, Water and Waste) House. Jason is employed by Whirlpool in St. Joseph, MI.

Shi, Zhu (MSME 2015). Numerical Simulation and Characterization of Jet Flows in Indoor Environments. Zhu is working for Cummins Inc. in Columbus, IN.

Tong, Bao (PhD 2015). Prediction and Reduction of Aircraft Noise in Outdoor Environments. Bao took a position with the Federal Aviation Association (FAA) in Washington, DC.

Tripathi, Astitva (PhD 2015). On Computational Synthesis and Dynamic Analysis of Nonlinear Resonant Systems with Internal Resonances. Astitva is working for Caelynx Inc. in Ann Arbor, MI.

Vasudevan, Jebaraj (MSME 2015). Training and Evaluation of Virtual Sensors for Rooftop Units. Jebaraj is working for Goodman Mfg. in Houston, TX.

Wagner, Caleb (MSME 2015). Sound Quality of Rotorcraft. Caleb works for the Wright-Patterson Air Force Base in OH.

Wang, Haojie (MSME 2015). Modeling on Single-Sided Wind Driven Natural Ventilation. Haojie is working for KJWW Engineering Consultants in Naperville, IL.

Wang, Yuntian (Lucius) (MSME 2015). Increasing the High Load Limit of Effective Premixed Charge Compression Ignition Via Intake Valve Closure Modulation and Late Injection. Lucius is working for Cummins Inc. in Columbus, IN.

Woodland, Brandon (PhD 2015). Methods of Increasing Net Work Output of Organic Rankine Cycles for Low-Grade Waste Heat Recovery with a Detailed Analysis Using a Zeotropic Working Fluid Mixture and Scroll Expander. Brandon took a position with Ford Motor Company in Dearborn, MI.

Births



Hongdan Tao (PhD 2013) and her husband Sheng Yuan welcomed their second daughter, Elizabeth, on October 16. She weighed 7 lbs. 3 oz. and was 20" long at birth. Elizabeth was also welcomed home by big sister, Vivian, age 2.



Karla (Stricker) Fuhs (Ph.D. 2012) and her husband welcomed a baby girl on July 26. Sasha Rose weighed 7 lbs. 4 oz and was 21" long at birth. As you can see, big brother Aiden (who turned 2 in July) loves his baby sister.

Congratulations!

2016 Purdue Conferences - July 11 - 14, 2016

Mark your calendars for the 2016 Purdue Conferences hosted by Herrick Laboratories! The 23rd International Compressor Engineering Conference, 16th International Refrigeration & Air Conditioning and 4th International High Performance Buildings conferences will take place simultaneously July 11-14, 2016 in Stewart Center at Purdue University. In 2014 we welcomed over 750 guests from 30 different countries to our 4 day conference, where over 390 papers were presented.

This summer, the organizing committee announced the 2016 deadlines, and opened the abstract submissions. To learn more about the conferences, visit: engineering.purdue.edu/HerrickConf. If you wish to submit an abstract for review, please visit – www.conftool.com/2016Purdue. The deadline schedule is:

If your company is interested in pursuing an event sponsorship with the conferences or if you have any questions regarding the 2016 Purdue Conferences, please contact:

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Abstract Submission Deadline: December 18, 2015

Abstract Acceptance Notification: January 29, 2016

Manuscript Submission Deadline: April 1, 2016

Manuscript Acceptance Notification: April 29, 2016

Final Paper Upload: May 20, 2016



2016 Purdue Conferences

Compressor Engineering
 Refrigeration and Air Conditioning
 High Performance Buildings



2014 Conference attendees enjoying the barbeque



Students presenting their research to the attendees in the Willis Carrier Laboratory in the new Herrick building

Address Service Requested

News about You and Address Changes

We are always interested in hearing your news, like weddings, births, and job promotions, and we want to be kept up-to-date on current addresses. Please send notes to Donna Cackley or to the e-mail address below. Don't hesitate to let us know of other alums that have moved or changed jobs. Photos are always welcomed and encouraged.

To read the electronic version of this newsletter, please go to the website: <https://engineering.purdue.edu/Herrick/Publications/Newsletter/index.html>. If you prefer to receive the newsletter electronically, please let us know.

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