

# COLLEGE OF ENGINEERING

## DEPARTMENT OF ELECTRICAL ENGINEERING



ELECTRONIC NEWSLETTER / MAY-JUNE 2011 / WWW.EE.PSU.EDU



Congratulations to our graduates! The electrical engineering department graduated 94 seniors this spring. Ten were in the Schreyer Honors College and 35 had a GPA of 3.5 or higher.



### ELECTRICAL ENGINEERING STUDENTS PART OF UNIQUE TEAM

During spring break in March, a group of Penn State students traveled to Honduras to assist the impoverished community of Roatan Island. Dubbed the ReNew Crew, the group's efforts were organized by Penn State's Center for Sustainability in conjunction with the National Electrical Contractors Association.

The crew consisted of electrical engineering students **Steven Hughes, Bryan McLaughlin, Dan Rothrock, Rick Pelliciaro, Ryan Purcell, and Cory McNamara** as well as students in architectural engineering and energy business and finance.

The project focused on the installation of a ground mount 2.5 kW grid-tied solar photovoltaic system at a community well in Constellation Bight. The primary objective of the installation was to offset a significant portion of the overhead operation cost of the well.



Part of ReNew Crew team with the built inverter/meter power board

Front row from left: Edy Zelaya (local contractor), Ryan Purcell, Cory McNamara; Top row from left: Steven Hughes, Rick Pelliciaro, Dan Rothrock

The project was a very rewarding experience for the students. Steven Hughes, electrical engineering senior, comments, "At Penn State, a prime goal of the engineering department is to create a world class engineer thinking about the larger picture of global needs. I am sure the other EE students would support me saying that this project was one of the pinnacles of their education at Penn State."

This isn't the first time Roatan Island has been visited by a ReNew Crew. In 2009, a group of students installed a photovoltaic solar system on the Sandy Bay Alternative School. The Center for Sustainability is planning on taking another ReNew Crew to Honduras in 2012. Hughes stated, "To every student that has not done any programs like the ReNew Crew, I would definitely suggest you become involved now."



2011 ReNew Crew

The student-led team designed and installed the solar electric system in conjunction with Vegas Electric, a Roatan electrical contractor. Students helped to design and build every component of the photovoltaic system including the panel structure and the inverter and metering systems required by the local utility. Students' tasks ranged from wiring to digging alongside local electricians. In addition to the construction of the solar panel system, the group also developed a program for educating the local students and community members about how the panel system works and how it will improve the community. The



Completed Solar Panel System



## ALUMNI SPOTLIGHT



**Samer Taha** received a Ph.D. degree in electrical engineering from Penn State in 2001. He was a research assistant working with **Mohsen Kavehrad**, W. L. Weiss Chair Professor of Electrical Engineering in his lab, the Center for Information and Communication Technology Research. His research focused on QoS issues in next generation wireless networks.

After graduation, Taha joined Intel Corporation in the R&D department where he was involved in architecting solutions for advanced telecommunications R&D initiatives including wireless mesh, high-throughput WiFi, cross-layer optimization over wireless systems, and QoS enhancements for mobile WiMAX. He was also involved in the WiMAX industry enabling program that included driving the WiMAX certification specifications at the WiMAX forum, joint research collaboration with other WiMAX vendors, and supporting WiMAX trials with leading operators.

In January 2006, he joined the startup team of du, Emirates integrated telecommunications company, ([www.du.ae](http://www.du.ae)) in Dubai, United Arab Emirates (UAE) to establish the broadband wireless department and lead du's broadband wireless strategy. He designed and managed the implementation of the company's public WiFi network, pre-WiMAX network, and three WiMAX trial networks. In addition, he designed the nationwide WiMAX network and architected its broadband wireless strategy.

In October 2007, Taha joined Waseela for Integrated Telecommunications Company as the CEO. Waseela ([www.waseela-net.com](http://www.waseela-net.com)) is a regional system integrator specializing in advanced wireless technologies based in Amman – Jordan. As CEO, Taha expanded the operations of the company to Saudi Arabia (KSA) and UAE. In a three-year period, Taha established Waseela as a leading system integrator and managed services provider specializing in advanced broadband wireless solutions in the Middle East region. The revenue of the company in 2010 exceeded \$10 million. Major achievements include providing end-to-end managed engineering services for the operation of a Mobily's WiMAX network in KSA which is one of the largest mobile WiMAX deployments in the world, operating Dubai's metro wireless solution which received a global award from Cisco for being one of the most advanced seamless broadband mobility solutions as it combined mobile-WiMAX and WiFi solutions to provide seamless connectivity above the ground and underground for the metro passengers, establishing mobile-WiMAX and 3G optimization projects for several operators in the Middle East region, and providing turnkey network services to operators mainly in Jordan and Iraq in addition to various advanced engineering services to global vendors in the field of broadband wireless deployments.

Waseela has also succeeded in securing important strategic partnerships. It is currently the exclusive regional partner of Accuver, the leading international supplier of advanced 3G and 4G optimization and benchmarking tools; the exclusive regional distributor of RedLine Communications, the leading supplier of OFDM-based broadband wireless solutions; and the regional partner of Dragon Wave, the leading supplier of native-IP based microwave solutions. In addition, Waseela has become one of the officially recommended service provider partners of Samsung, Motorola, Nokia Siemens, Huawei, Cisco, and Ericsson.

Waseela currently employs more than 220 employees and is continuing to grow and expand its operations in the Middle East region. Recently, Taha initiated Waseela's first R&D efforts in the

field of real-time location services based on wireless technologies with the ambition of introducing the first practical products in the middle of 2012 targeting the sectors of the health industry, shopping malls and logistics facilities.

In addition to his position as the CEO of Waseela, Taha currently provides consultation services to several telecom operators and suppliers in the Middle East region. Taha has four patents and five patent applications pending approval by the U.S. patent office.

---

## STUDENT SPOTLIGHT

**Clinton Scarborough**, originally from Darlington, MD, is a graduate student in electrical engineering. From an early age, Scarborough enjoyed helping his father with chores such as replacing house wiring and repairing motors or electronics. In high school he enjoyed dissecting and reassembling computers.



In earning his bachelor's degree in electrical engineering at Grove City College, Scarborough became interested in the areas of electromagnetics, communication systems, and control systems. He chose Penn State for graduate school based partly on his experience with the department's Research Experience for Undergraduates (REU) program in which he participated during the summer after his junior year. Scarborough said that the experience—besides giving him some familiarity with the program and the people—gave him a chance “to see what research was like and to realize that I enjoyed it.”

His research in the REU program consisted of attempting to characterize electrically tunable high-permittivity thin films. “In that work, I began to use electromagnetic simulation software and lab equipment for radio frequency experiments,” explained Scarborough, “Those experiences were a great preparation for the electromagnetics work I'm doing now.”

Scarborough hopes to complete his master's degree this summer and continue studies for his doctorate. He is a research assistant for **Doug Werner**, professor of electrical engineering, in the Computational Electromagnetics and Antennas Research Lab. “Electromagnetics work has always fascinated me,” said Scarborough, “I've particularly enjoyed seeing a couple of the projects I've worked on grow from theory and ideas until they have blossomed into working prototype devices.”

Scarborough has been involved in the student chapter of IEEE, the IEEE Microwave Theory and Techniques Society, and the IEEE Antennas and Propagation Society. He recently received the A. J. Ferraro Graduate Research Award.

This summer is going to be a busy one for Scarborough. In addition to completing his master's degree, he and his fiancée, Theresa, are looking forward to getting married. Once he completes his Ph.D., Scarborough plans to begin work in industry, possibly even pursue an engineering business of his own, and eventually would like to return to the Darlington area in Maryland.

When he's not in the lab, Scarborough enjoys reading, racquetball, softball, cooking, gardening, photography, and church activities. He also enjoys spending time with his family. His brother, Lloyd, is a graduate student in mechanical engineering at Penn State.

## DEPARTMENT UPDATES

### Congratulations to our advanced-degree graduates:

#### M.S.

Homsup, Nathawut  
Kadetotad, Sneha  
Liu, Yifeng  
Mothali, Chandrasekar  
Mujumdar, Salil  
Raja, Anand N  
Ramaswamy, Bharath  
Ray, Sucharita  
Turpin, Jeremiah P  
Yu, Yaxing

#### Ph.D.

Bayraktar, Zikri  
Li, Haifeng  
Liou, Justin D  
Radhakrishnan, Chandrasekar  
Vallett, Aaron L  
Xu, Qian  
Zugger, Michael E

### Congratulations to our Newest Faculty Promotions



Tim Wheeler, fixed term  
assistant professor



Suman Datta,  
Monkowski Professor

### Student Marshal

**Drew Schmitt** was the student marshal for the Department of Electrical Engineering at the spring commencement on May 13. He chose **Jeffrey Schiano**, associate professor of electrical engineering, as his faculty escort.

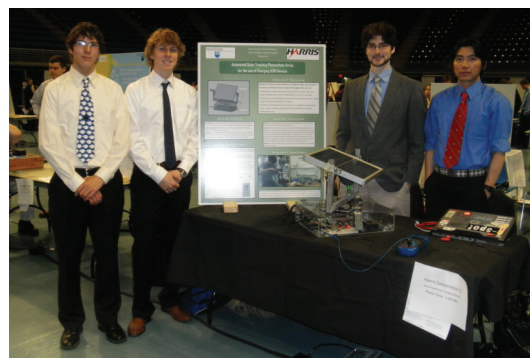


College of Engineering student marshals are selected for their outstanding academic achievement and contributions to engineering student life.

Schmitt is a Schreyer Honors Scholar, an Evan Pugh Scholar Award recipient, James M. Barnak Scholar Award recipient, Lockheed Martin Scholar of the Year, and Kruest Scholar Award recipient. He is president of Eta Kappa Nu and secretary of the Penn State Robotics Club. Following graduation, Schmitt will attend Stanford University to pursue a master's of science degree.

### Students Win First Place

Harris3, a team that developed an automated solar charging station, received one of three first place Lockheed Martin Design Award for Best Project at the 2011 design showcase – a competition of 92 senior capstone design projects. Its team was comprised of electrical engineering seniors **Steven Hughes**, **Hung Lam**, **Daniel Rothrock**, **Peter Tornegard** and mechanical engineering senior **Kevin Wenner**. It was sponsored by David Brugger, and it was advised by **Tim Wheeler**, research assistant.



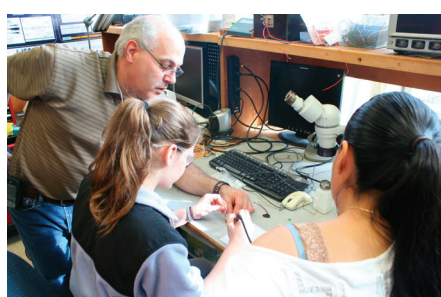
### Meet our Newest Staff Members



Kris DiFranco has joined the department as a proposal and grant generalist. Previously, she worked as the administrative support coordinator in the meteorology department. Originally from the Philadelphia area, she and her fiancé, John, recently bought a house in State College, which they share with their two Tonkinese cats, Renji and Wicket. In her spare time, she is an artist.



Donna O'Shea is our new systems administrator. She comes to us from the Larson Transportation Institute where she had been an information technology specialist since 2005. Originally from Johnstown, O'Shea moved to Centre County in 2000. She has one daughter attending Penn State and another daughter who is an alumnus and is getting married on June 4. O'Shea and her younger daughter live in Pleasant Gap with her 13 year old cat.



The electrical engineering department's Student Space Program Lab (SSPL) participated in Penn State's Take Your Son or Daughter to Work Day in April. The middle and high school students were able to explore possible career opportunities throughout campus. SSPL had 22 participants during the half-day program.



### Outstanding Engineering Alumni Award

Dale Hoffman was honored in April with the 2011 outstanding engineering alumni award from the College of Engineering.

Hoffman earned his bachelor's degree in electrical engineering from Penn State in 1972. He began his civil service career with the Department of Navy at the Naval Surface Warfare Center, Dahlgren Division, in 1973 working on black box engineering projects, such as anechoic chamber instrumentation, guided munitions, and wind tunnel instrumentation. In 1977, he accepted a position with the Aegis Program in the Aegis Technical Representative Command located at Lockheed Martin Maritime Systems and Sensors as a system engineer responsible for developing and testing with RCA engineers the initial track management, identification and training functions, integrating IFF MK 12, SPS-49 Air Search and SPS-55 Surface Search Radar System into the Aegis Weapon and Combat Systems. In 1998, he became the system acquisition division head overseeing the government acceptance of four complete Aegis Weapon Systems. In 1999, he was selected as the deputy and technical director of AEGIS TECHREP. He was deputy for three commanding officers and technical director providing technical development oversight on more than \$500 million in U.S., foreign national and ballistic missile contracts for Aegis Weapon and Combat Systems and managing 32 government civilians, 50 U.S. Navy sailors and 130 BAE and Northrop Grumman support contractors located in a both LM MS2 in Moorestown, NJ, and at Raytheon Systems in Andover, MA. Hoffman retired from his government career and moved to State College in August 2008.



### Graduate School Award Winners

Congratulations to the following students who received these awards during the annual electrical engineering department graduate spring social.

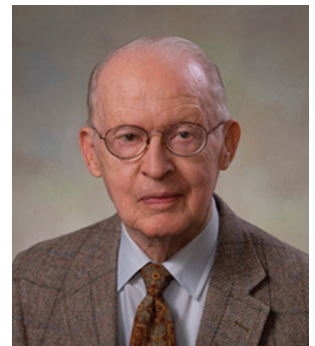
Melvin P. Bloom Memorial Outstanding Doctoral Research Award in Electrical Engineering – **Qian Xu** and **Yuan Zhuang**

Nirmal K. Bose Dissertation Excellence Award – **Haifeng Li** and **Chandrasekhar Radhakrishnan**

A. J. Ferraro Graduate Research Award – **Clinton Scarborough** and **Haifeng Li**

### Professor Emeritus Receives Honorary Alumni Award

John Brown, professor emeritus of electrical engineering, will be posthumously awarded a Penn State Honorary Alumni Award on June 3. Originally from Ellenville, NY, Brown received his bachelor's degree in mathematics from Ohio University.



Brown received his Ph.D. in applied mathematics from Brown University and joined the Penn State Ordnance Research Laboratory (now known as the Applied Research Laboratory) in 1951. His principal research interests were in the areas of statistical communication theory and underwater acoustics. Brown was a Fellow of the Electrical and Electronics Engineers being recognized for his contributions to statistical communications and underwater acoustics. However, his original doctoral dissertation concerned itself with transient heat transfer through laminar boundary layers. This single work became a seminal reference for jet engine designers using modern lightweight materials. Additionally, his research on sampling of heterodyned baseband electronic signals became the embodiment of understanding for the design of all modern day digital radios (telephones) and multimedia electronics including HDTV.

Brown retired in 1987, after more than 36 years of teaching and research at the Applied Research Laboratory and the Department of Electrical Engineering. Brown died Feb. 20. He was 85.

Brown was an avid supporter of the University throughout his career and in his retirement. Brown and his wife, Marlynn "Lynn" Sidehamer, created a \$50,000 endowment in their names to support programming for the Center for the Performing Arts. In 2010, the Center named Brown and Sidehamer recipients of its Distinguished Service Award.

### Bose Library Dedication

The Bose Memorial Library was dedicated on April 22 in 204 Electrical Engineering West. Nirmal Bose, HRB-Systems Professor of Electrical Engineering, died on Nov. 22, 2009, at the age of 69, while visiting the University of Wuppertal in Germany during a sabbatical leave. Bose's wife, Chandra Bose, donated his extensive library to the Department of Electrical Engineering. The library is housed in the Christopher Raspanti Memorial Digital Signal Processing Laboratory.



*Pictured from left, Menna Bose, Chandra Bose, Enakshi Bose, and Ken Jenkins.*

### Contact Information:

Department of Electrical Engineering, 121 Electrical Engineering East, University Park, PA 16802, Phone: 814-865-7667, FAX: 814-865-7065

Web: [www.ee.psu.edu](http://www.ee.psu.edu)

Please submit news items to: Cathy McClellan at [cls118@psu.edu](mailto:cls118@psu.edu)

This publication is available in alternative media on request.

Penn State is committed to the affirmative action, equal opportunity, and the diversity of its workforce.

U.Ed. ENG 11-49