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APPLY KNOWLEDGE.

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DEPARTMENT of ELECTRICAL & COMPUTER ENGINEERING A. JAMES CLARK SCHOOL of ENGINEERING www.ece.umd.edu

# CORPORATE PARTNERSHIP OFFERS TEAM INTERNSHIP FOR UNDERGRADUATES

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## message from the chair



RAMA CHELLAPPA

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#### ECE & INDUSTRY PARTNER TO PROPEL RESEARCH, STUDENT EXPERIENCE TO NEW HEIGHTS

In the past two years serving in the interim and as Chair of the Department of Electrical and Computer Engineering (ECE) within the A. James Clark School of Engineering, the faculty, staff, and I have committed to improving the quality of education and experience for our students. In my last letter, I shared my goals to RECOMMIT, RECONNECT and RESTORE, which included initiatives to hire new faculty, make infrastructure improvements and increase participation among industry, alumni and students.

This issue of Connections details a number of improvements within the ECE department which are aligned with our strategic goals. We welcome three new professors in the burgeoning field of Cybersecurity. Professors Dana Dachman-Soled, Tudor Dumitras, and Chalampos Papamanthou will be focusing their teaching and research on Big Data, system security, and cryptography. In the spring of 2014, we will add two new faculty members, Drs. Behtash Babadi and Piya Pal in Spring 2014 in the exciting area of sparse signal processing. Their research will be featured in the next issue of Connections.

We also welcome a number of new staff members in the department's academic offices and are making significant improvements to our infrastructure to accommodate our growing program. Our most notable infrastructure improvement is the Professor Jimmy H.C. Lin conference room that was made possible through a generous gift from his trust. You will also read about the exciting research some of our top professors are working on and the recognition they have received. For instance, Professor Min Wu has been selected as a 2013-2014 Distinguished Scholar Teacher and Professor Thomas Antonsen has been awarded a Chair of Electrophysics.

This issue also features a few of our Corporate Affiliates. These companies sponsor invaluable programs and research in ECE which foster collaborative efforts between the department and industry. Such programs include the Booz Allen Hamilton Colloquium series, the SAIC/Leidos summer internship program, Northrop Grumman and Texas Instruments fellowships and the annual ECE Career Fair. Close to fifty companies participated in the February 2013 fair.

At our 3rd annual Corporate Affiliates Day, this October, we invite our affiliate companies and other industry partners to view firsthand, our research in Cybersecurity and Big Data. During this day-long event, our guests will meet our new faculty members, learn about our latest research efforts, attend and participate in an interactive panel and join a networking reception. I hope to build upon relationships ECE has with companies and create new ones. Building these relationships benefits ECE and industry through increased opportunities for collaboration, personal engagement with students, and resources that support the department's growth and development.

I am proud to be Chair of the most vibrant department within the A. James Clark School of Engineering. ECE has an active alumni base, with many alumni who have become very successful in their professions. My goal is to continuously engage our alumni through Connections, a regular e-newsletter, and ECE-hosted events. In the coming years, I hope to seek the guidance of our alumni as our programs grow.

We are including a remit envelope within Connections for the first time because we know that alumni and industry support is vital to build the world-class department we envision. There are many opportunities to help support the department, and I hope that you consider making a gift to an area that has significance to you.

I look forward to leading our department's continued advance. If you would like to contact us about any of the priorities outlined, your personal giving or news shared, please send your thoughts to our Assistant Director of External Relations, Amanda Stein, at steina@ umd.edu.

Thank you for supporting our department.

Rama Chelloppa

MINTA MARTIN PROFESSOR OF ENGINEERING

### CLARK SCHOOL RANKS 16<sup>TH</sup> IN WORLD RESEARCH

The Clark School ranks at #16 among engineering schools ranked in the 2013 Academic Ranking of World Universities' annual list of engineering/technology and computer science schools by the Center for World-Class Universities. Among all U.S. public research university programs, UMD ranked 13th. The ranking is based on the number of highly cited researchers, the number of articles published in journals of Nature and Science, the number of articles indexed in the Science Citation Index -Expanded, the number of staff and alumni who have received Nobel Prizes and Field Medals, and per capita performance with respect to the size of an institution.

### RECORD NUMBER OF SUMMER INTERNS AT NIST

This summer, UMD broke its record for the number of students accepted into the National Institute of Standards and Technology Summer Undergraduate Research Fellowship program with 43 selected students. Thirteen were Electrical and Computer Engineering students. More than 600 student applications from 136 schools were received for the summer 2013 program. Of the approximately 190 students accepted into the program, 43 attend the University of Maryland–up from 30 last year–and 36 were students in the Clark School of Engineering.

### UMD JOINS RESEARCH COLLABORATIVE & BIG TEN

Since 1958, The Committee on Institutional Cooperation has identified transformative challenges in higher education and met them together with resolve and ingenuity. Member universities contribute expertise, resources, and intellectual capital to leverage their collective strengths for innovation and impact. Peers at all levels of the university enterprise work together to solve problems through collaboration. This partnership will benefit research efforts, faculty, and students alike.

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### **Clark School Announces Lockheed Martin Partnership**

The University of Maryland (UMD) and Lockheed Martin Corporation reached a new milestone in their Strategic Partnership last November, when UMD Vice President and Chief Research Officer Dr. Patrick O'Shea and Lockheed Martin Senior Vice President and Chief Technology Officer Dr. Ray O. Johnson signed a unique Master Research Agreement. The new agreement provides master terms and conditions that will govern individual research and development activities and enable a streamlined process for initiating collaborative projects.

It also supports an agenda of broader and closer research partnerships between the two institutions, fostered by the 2010 Strategic Relationship Memo of Understanding (MOU). The MOU provides a framework for current and future cooperation that leverages the resources, talent and ideas of both institutions to produce innovative solutions for global and national security challenges. The framework includes work in three key areas: Centers of Collaboration, Joint Pursuit of Business Opportunities, and Enhanced Research and Development.

The Strategic Partnership builds on more than 60 years of close collaboration between UMD and Lockheed Martin. Lockheed Martin supports cutting-edge research at the university in a number of areas, including energy storage, cultural modeling, computer vision, advanced materials and sensors, bioinformatics, healthcare, supply chain management and logistics. Lockheed Martin also supports student programs, university events and competitions, student facilities, classrooms and laboratories. Many Lockheed Martin senior executives have contributed to the vision for and prestige of the university by serving as members on university boards.

The Lockheed Martin Partnership Suite is on the second floor of the Jeong H. Kim Engineering Building (Room 2203). With a sitting area, two offices and a conference room for 10, it is an offshoot of the strategic relationship between Lockheed Martin and UMD. Lockheed Martin employees visiting campus are encouraged to use the suite to hold meetings and host recruitment events. Posters depicting the company's involvement with UMD over the past six decades decorate the space.

The Lockheed Martin Corporation, a global security and aerospace company, is headquartered in Bethesda, Md. and employs about 120,000 people worldwide. The company is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

### **Fellowships Bolster Graduate Students' Research Efforts**

Electrical and Computer Engineering Ph.D. Student **James Edward** was selected as the **2013 Texas Instruments Scholar**. The inaugural Kulkarni Fellowship was presented to Biswadep Dey and Ravi Garg.

The TI Scholars program was made possible by a gift from Texas Instruments through the ECE Corporate Affiliates program. Each year, Texas Instruments chooses talented graduate students in electrical and computer engineering to support with a tuition grant, stipend, and benefits through the TI Scholars program. TI Scholars work on selected research topics related to communications and signal processing.

Edward completed his undergraduate degree in electrical engineering at the University of Maryland and began graduate work in 2009. He completed his M.S. degree last year and continues his studies with the help of this award. Edward is an advisee of Professor **Uzi Vishkin**.

Edward developed an interest in parallel computing as an undergraduate He worked with Dr. Vishkin to implement two advanced parallel graph algorithms, one of which has become the basis for a programming assignment in his course. He also developed a new parallel algorithm for Burrows-Wheeler data compression and worked with two graduate students to enhance the 64-core FPGA prototype of XMT, dubbed Paraleap in a naming contest held by the University of Maryland. Working as a Texas Instruments Scholar will allow Edward to apply his interests in parallel algorithms and architecture to study and potentially improve a real-world multicore processor.

**Biswadip Dey** and **Ravi Garg**, both Electrical and Computer Engineering Ph.D. students, were awarded the 2013 Kulkarni Foundation Summer Research Fellowship, which supports UMD doctoral students who are graduates of the Indian Institute of

#### Technology (IIT).

"It is a great pleasure to receive the Kulkarni Summer Research Fellowship in its inaugural year. This award is very significant at the present stage of my Ph.D. program as it provides a scope for uninterrupted research during the summer," Dey said.

Dey received his Masters of Technology from IIT, Bombay in 2008 and will graduate from UMD in 2014. He is currently a fourth-year Ph.D. student under Professor **P.S. Krishnaprasad**. His research focuses on reconstruction and analysis of pursuit and collective motion.

Garg received his Bachelors of Technology from IIT, Madras in 2008 and is currently in his fifth year of Ph.D. studies. His research interests include: signal processing, image and video processing, machine learning, computer vision and wireless communications. He is a research assistant under Professor **Min Wu**.

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A. JAMES CLARK SCHOOL of ENGINEERING BLENN L. MARTIN INSTITUTE OF TECHNOLOGY
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### **COVET** STORY

### Leidos, formerly SAIC, Sponsors Team Internship Program for the Second Year

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Despite organizational changes, Leidos and the Electrical and Computer Engineering department are committed to a partnership that emphasizes their priorities to develop well-rounded future engineers.

Leidos recognize the importance of promoting STEM education at the collegiate level. The Clark School of Engineering and Leidos' Surveillance and Preconnaissance Busineess Unit established a Team Internship Program (TIP), held for the first time during the summer of 2012. The goal of this collaboration is to invite talented students to work on internal research and development projects.

SAIC first established the program with UCSD's Jacobs School of Engineering in 2011. Due to its success and enthusiastic reception from the students, Leidos extended the program to UMD's Department of Electrical and Computer Engineering. Last September, interns gave presentations on their findings and results of their projects to university faculty, Leidos mentors, and SRBU leadership at intern summits in the Jeong Kim Engineering Building. Deputy General Manager Jim Cantor, an alumnus of the Electrical and Computer Engineering Department, helped expand TIP to the Clark School of Engineering.

Interns were placed in teams of two to four on projects identified by division and operation management and guided by Leidos mentors as they worked on solving technical problems of interest to

the business. ECE students William Ani and Tyler Baicar, both computer engineering majors, tackled "Automated Vulnerability Detection," while electrical engineering students Maia Werbos and Raymond Chow worked on "Tactical Lidar and 3-D Real World for Modeling and Simulation. Jason Arora, electrical engineering, worked with Computer Science student Daniel Kong on "Web Enabled Forensic Target Video Query." Finally, Parakh Jain, computer engineering, worked with students from Computer Science and the Smith School of Business on "Categorization Using Machine Learning Techniques on Formal

For Parakh Jain, the experience was especially rewarding. His advisor, Leora Morgenstern, nominated him for the Clark School of Engineering Outstanding Intern Award, which he won. Jain was the youngest intern in the program, having just finished his first year in ECE. "I truly enjoyed the workplace culture at Leidos. Being able to work on a team and brainstorm with my peers was stimulating, and it was reassuring to know due to the open door policy our mentors had, that we could go ask questions when attempting to solve a problem," he said. "My internship at Leidos

"I truly enjoyed the workplace culture at Leidos. Being able to work on a team and brainstorm with my peers was stimulating, and it was reassuring to know due to the open door policy our mentors had, that we could go ask questions when attempting to solve a problem."

Knowledge." Mentors included Noah Christian, Roger Davenport, Richard Griffey, Melissa Kim, Leora Morgenstern, Patrick Phillips, Darian Muresan, Viren Shah, Rob Taylor, Howard Walker, Qinfen Zheng, and John Ziegler. As the fall semester begins, the students are asked to present their work to both ECE faculty and their Leidos advisors. The presentations are held in the Jeong H. Kim Engineering Building.

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exposed me to the field of Artificial Intelligence. I am very interested in continuing to work in this area," Jain said. His team's project arose because of a conference at NIST. Their goal was to use a number of articles, filter through to identify a city name, then locate that city based on the content of the article—linking entities to a knowledge-base population. His team presented their paper at NIST's 2012 TAC conference.

Reflecting on the experience after

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the receipt of the Outstanding Intern Award, Jain said, "There is a thrill involved in industry. I gained skills I wouldn't have gotten through my academic studies. The program helped me to discover the path I would like to follow professionally."

This September, the most recent class of interns will present their projects to both Leidos and UMD advisors and professors. The projects include:

• "Lifetime Sea Loads Data Processing"

Charles Murphy & Colin Vale

- "Material Type Classification"
  Julius Verzosa & Kevin Zheng
- "Scalable Internet Graphing"
  James Fouke & Kyle Orlando
- "Vehicle Based 3D Collection"
  Sarah Cho & Tim Bohannon

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At Leidos, the program is supported by Chief Technology Officer Mike Zuniga, Greg Franco, Shannon Dalrymple, and Ericka Parker. Geospatial Programs Division Manager Derek Lewis doubled the number of interns on his division through TIP in 2012 and assigned the teams to work on software projects that provided real value to the program and customer. "I think interns are great," he said, "and are very beneficial to us in providing support to our customers."

ECE Chair Rama Chellappa also sees real-world value in leidos' intern experience. "It was gratifying to see how well our students adjusted and responded to real-world problems and environments," he said. "We are off to a great start, and I look forward to making this program bigger and better."



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IPS PROGRAM STUDENTS GATHER WITH LEIDOS STAFF AT UMI

### SAIC AND LEIDOS: THE CREATION OF TWO WORLD-CLASS COMPANIES

In August 2012, McLean-based scientific, engineering and technology applications company Science Applications International Corporation (SAIC) announced plans to separate into two independent, publicly traded companies. The \$7B solutions company, focused on national security, health and engineering markets, will be named 'Leidos' — a coined word, clipped from 'kaleidoscope,' signifying how the company will bring together solutions from different angles, yielding innovative and effective solutions. The \$4B technical services and enterprise IT business will continue the SAIC name.

Through its 43-year history, SAIC grew into an entrepreneurial company that ranges across a broad landscape of capabilities, customers, employee talent, technical proficiency and scientific endeavor. This journey has brought SAIC to the next logical step in the execution of its strategy. Seen as a natural evolution of how the company grew organically over time, the split enables each company to serve larger addressable markets, focus on core competencies with more intensity, compete more successfully, and innovate in how customers are served.



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# spotlighton <sup>™</sup>FFILIATES

### Popular Colloquium Series Marks 5th Anniversary of Sponsorship by Booz Allen Hamilton

This fall marks the fifth anniversary of sponsorship for the University of Maryland's Booz Allen Hamilton Distinguished Colloquium Series in Electrical and Computer Engineering (ECE). The colloquium series will feature eight speakers, covering a wide range of subjects, from the cortical encoding of sounds at a cocktail party to solar energy cost parity and high reliability power electronics.

This series features distinguished speakers from across the nation and around the globe, and also provides a venue in which ECE faculty at the University of Maryland can showcase their research to a broad audience of their colleagues and students, as well as friends of the university.

This semester includes a lecture co-hosted by the Intelligent Automation Inc. Colloquia Series within the Institute for Systems Research and the culmination of a university award. ECE's own, Professor Min Wu will present her Distinguished Scholar-Teacher lecture on November 15, 2013.

The series takes place on Friday afternoons, most often meeting in the Kim Engineering Building, room 1110 at 3:00 p.m. The following offers a brief overview of each of the eight speakers and their talks:

### **PROF. JONATHAN SIMON**



Professor Simon teaches and does research at the University of Maryland where he is an assistant professor. His talk, "Cortical Encoding of Auditory Objects at

the Cocktail Party" will take place on September 6, 2013. He investigates how auditory objects are individually represented in auditory cortex, using magnetoencephalography (MEG) to record the neural responses of human listeners. In a series of experiments, subjects selectively listen to one of two competing streams, in a variety of auditory scenes. Simon's results indicate that concurrent auditory objects, even if spectrally overlapping and not resolvable at the auditory periphery, are indeed neurally encoded individually as objects in auditory cortex.

#### **DR. BRIAN KELLER**



Dr. Keller is a Principal at Booz Allen Hamilton. He will speak on September 13, 2013 about "Innovating with Analytics." The combination

of data collection, new technologies, and open source software have set a foundation for innovation across industries that is changing products consumed, healthcare received, and services provided to us. These innovations result from viewing data as a resource or raw material input into a repeatable analytic process that creates data products. To be discussed: the foundation of data, technology, and software, how to create data products, and the resulting impact in the context of several consulting engagements.

### PROF. PAUL FRANZON



Professor Franzon is a member of the ECE department at North Carolina State University. His talk, "3DIC: Short and Long Range Opportunities" will take place on September 27, 2013

3DIC technology refers to stacking and interconnecting chips and substrates ("interposers") with Through Silicon Vias (TSVs). 3DIC offers tremendous potential for relieving the off-chip bandwidth bottleneck, especially for memory, and in certain circumstances provides for system cost reduction. Long-term promise includes reduction of power per unit of computation beyond those offered just by memory interfaces, and unique opportunities exposed by heterogeneous integration.

#### PROF. NAOMI HALAS



Professor Halas is the Stanley C. Moore Professor in Electrical and Computer Engineering, Professor of Biomedical Engineering, Professor of Chemistry,

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Professor of Physics and Astronomy, and founding director of the Laboratory for Nanophotonics at Rice University.

She will speak on "Frontiers of Plasmonics: New Materials, Interactions, and Applications at the colloquium on October 4, 2013. Her talk will cover the field of plasmonicsoptics at the nanoscale, which is rapidly expanding into new regions of the electromagnetic spectrum, as well as utilizing new materials and structures.

### DR. FENG ZHAO

Dr. Zhao is a Principal at



Mircrosoft Research. On October 11, 2013, he will address the topic, "Planet-Scale Sensing: From Lab to the Real World." The lofty vision of the

wireless sensor network research, when

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it started more than a decade ago, was to blanket the planet with tiny, self-organizing smart dust. Now, with the advent of the increasingly more capable sensors on widely available platforms, the age of planet-scale sensor networks has finally arrived. The ability to crowd-source the sensing and action with users in the loop presents new opportunities and raises issues of privacy and security.

#### PROF. PRASAD ENJETI

Professor Enjeti is a professor in the Electrical Engineering department at



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Texas A&M University. On October 25, 2013, he will address the topic, "Advance Power Electronic Converters for

Renewable Energy Systems."

Professor Enjeti will discuss the most emerging renewable energy sources such as: wind, photovoltaic, fuel cells and wave-energy systems and the role of power electronics as the centerpiece of an enabling technology. Emphasis will be on cost and performance, discussing the most feasible cost-effective power electronic systems and future trends in wide band gap power semiconductor device applications.

### PROF. MIN WU

Professor Min Wu has a joint appointment with ECE and UMIACs



at the University of Maryland. Her colloquium is part of a larger celebration– the University's acknowledgement of her Distinguished

Scholar-Teacher award. She will address the topic, "A Backstage Tour

of Information Forensics." She will discuss the information forensic and provenance questions which arise from proliferation of social media capable devices and multimedia sharing. This talk will provide a backstage tour on some of the technology advances on information forensics, including research done at the University of Maryland that explores a variety of invisible traces.

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### PROF. PHILIP KREIN

Professor Krein is on the ECE faculty at University of Illinois,



Urbana-Champaign. On November 15, 2013, he will address the topic, "The Solar Energy Cost Parity Inflection and High Reliability Power Electronics."

Photovoltaic solar energy systems are now crossing grid parity, the level at which electricity produced by PV systems begins to compete with conventional electricity grid energy. Costs for small systems have declined over the past five years. Krein will define several types of grid parity, offer a basis for comparison, and provide case studies that establish present costs and historic cost trends.

He will also discuss the value of highly reliable power electronics as an essential enabler. Emerging long-life power electronics designs make PV power cheaper than grid power in many parts of the country today.

The Booz Allen Hamiliton Distinguished Colloquium series takes place througout the academic semester. The department of Electrical and Computer Engineering hosts this excellent opportunity for our students, faculty and the public because of a long-standing partnership. For more: *www.ece.umd.edu/events/colloquium.* 

# spotlighton FFILIATES



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# **faculty**NEWS

# Awards and Honors for ECE Faculty

### ABSHIRE ELECTED TO IEEE CIRCUITS & SYSTEMS SOCIETY BOARD

Associate Professor **Pamela Abshire** (ECE/ ISR) has been elected to the Board of Governors for the IEEE Circuits and Systems Society. She also serves as the society's representative to the IEEE Sensors Council and is the chair of Women in Circuits and Systems. At the IEEE Sensors Conference in Taipei, Abshire is organizing an event where colleagues can quickly get to know each others' research interests, which she called "research speed dating."

### ANTONSEN BECOMES CHAIRED PROFESSOR; WINS MURI

Professor Thomas Antonsen (ECE/Physics/ IREAP) was recently appointed to the ECE Professorship in Electrophysics. Antonsen's research in electrophysics focuses on the theory of magnetically confined plasmas, the theory and design of free-electron lasers and other sources of coherent radiation, nonlinear dynamics and the theory of the interaction of intense laser pulses with plasmas. Antonsen was also selected for a 2013 Multidisciplinary University Research Initiative (MURI) award for his research titled, "Collaborative Research on Novel High Power Sources for and Physics of Ionospheric Modification." Antonsen led the research team, which included his colleagues John Rodgers, K. Dennis Papadopoulos and Gennady Milikh.

### CHELLAPPA WINS KING-SUN FU PRIZE

Minta Martin Professor of Engineering **Rama Chellappa** (ECE/CS/UMIACS/ CFAR) has been awarded the 2012 King-Sun Fu Prize. The award was presented at the 21st International Conference on Pattern Recognition (ICPR) held in Tsukuba, Japan. This International Association for Pattern Recognition (IAPR) prize honors the memory of Professor King-Sun Fu, an instrumental founder of IAPR. This biennial prize is bestowed upon a living person in recognition of an outstanding technical contribution to the field of pattern recognition.

### DAGENAIS & TEAM WIN \$1M FROM KECK FOUNDATION

Professor **Mario Dagenais** is the Project Co-Leader for a \$1M grant from the W.M. Keck Foundation to support new advances in astronomical instrumentation



for ground and space telescopes. The only project of this type in the U.S., the "Keck Photonic Spectrometer" is the world's first fully integrated photonic spectrograph.

This multi-faceted collaboration involves the University's College of Computer, Mathematics, and Natural Sciences and the A. James Clark School of Engineering, Maryland NanoCenter, the NASA Goddard Space Flight Center and the Joint Space Science Institute, and the University of Sydney Institute of Photonics and Optics. The interdisciplinary team of seven, which has worked together for 20 years and received worldwide acclaim, includes: Project Leader Dr. Sylvain Veilleux; Dr. Stuart Vogel; Dr. Andy Harris; Dr. Joss Bland-Hawthorn; Dr. Neil Gehrels; and Dr. John Mather, 2006 Nobel Laureate in Physics.

### ECE FACULTY EARN PROMOTIONS

Professor **Thomas Murphy** was promoted to Full Professor. This appointment was approved by President **Wallace Loh**, effective July 1, 2013.

### EPHREMIDES RECEIVES 2012 AHSN AWARD

Cynthia Kim Eminent Professor of Information Technology **Anthony Ephremides** received the 2012 Ad Hoc and Sensor Networks (AHSN) Technical Recognition Award for his pioneering contributions to the field. The award is bestowed by the IEEE Communication Society and is presented at the annual conference, IEEE GLOBECOM.

Ephremides' research interests include all aspects of Communications Systems (Information Theory, Communication Theory, Multi-User Systems, Communication Networks and Satellite Systems) with focus on Energy Efficiency and Cross-Layer Approaches to Design.

### KHALIGH AWARDED GRANT FOR NEW NSF REU

Assistant Professor **Alireza Khaligh** (ECE/ ISR) is the principal investigator for a new National Science Foundation Research Experiences for Undergraduates (REU) site, "Research Experiences in Transportation Electrification."

The three-year, \$355K program brings talented undergraduates to the University of Maryland to gain basic research and laboratory experience in transportation electrification-related engineering projects focused on sustainable transportation systems, particularly in power electronics, energy storage (battery, ultracapacitor and fuel cell), optimization and mathematical modeling of grid-integrated vehicles, and sustainable transportation. The program hosted 11 students this past summer.

### LIU NAMED CHAIR PROFESSOR BY NATIONAL CHAIO TUNG UNIVERSITY; WINS INVENTION OF YEAR

Dr. **K.J. Ray Liu** Christine Yurie Kim Eminent Professor of Information Technology and Associate Chair of Graduate Studies, received the honor of Chair Professor bestowed by National Chaio Tung University (NCTU) in Hsinchu, Taiwan. It was conferred by the Dean of Electrical and Computer Engineering, Hsin-Hong Chen.

NCTU was the first university in



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Taiwan to offer an electrical engineering, computer engineering and computer science program. The univesity is the highest ranked in Taiwain's engineering field and ranks 49th worldwide in electrical and computer engineering.

Professor Liu, and his students Feng Han, Yu-Han Yang, BeiBei Wang and Yongle Wu, also won at 26th Annual Invention of the Year Awards in the Information Science Category for their research "Time-Reversal Division Multiple Access for Wireless Broadband Communications."

Winners were selected by an independent panel of judges consisting of representatives from on and off campus, who voted for the Invention of the Year in three different categories: Information, Life, and Physical Sciences.

### WU NAMED DISTINGUISHED SCHOLAR-TEACHER OF UNIVERSITY

Professor Min Wu (ECE/ISR) was selected as a 2013-2014 Distinguished Scholar-Teacher by the University of Maryland. Wu joins numerous colleagues in receiving the waward, including: Professors Carol Espy-Wilson, Patrick O'Shea, K.J. Ray Liu, Howard Milchberg, Michael Fu, Rama Chellappa, Steven Marcus, Isaak Mayergoyz, William Destler and Christopher Davis.

The Distinguised Scholar-Teacher program recognizes faculty members who have demonstrated outstanding scholarly achievements and equally outstanding accomplishments as teachers. Professor Wu make a public presentation in November on a topic of scholarly interest.

### MAYERGOYZ PUBLISHES SIXTH **BOOK IN SERIES**

Dr. Isaak Mayergoyz (ECE/UMIACS) published a book titled, "Plasmon Resonances in Nanoparticles" as volume six of the World Scientific Series in Nanoscience and Nanotechnology. The book provides an introduction to plasmon resonances in nanoparticles and their novel applications.

### **Ott Wins APS Lilienfeld Prize; Receives Chaired Physics Professorship**

Distinguished University Professor Ed Ott (ECE, Physics, IREAP) has been selected to receive the 2014 Julius Edgar Lilienfeld Prize.

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Awarded annually by the American Physical Society, the Lilienfeld prize recognizes "outstanding contributions to physics by a single individual who also has exceptional skills in lecturing to diverse

audiences." Ott is a pioneer of research in nonlinear dynamics and chaos.

The Lilienfeld prize is one of a small number of APS prizes that is not specifically restricted to a sub-discipline or specialty of physics-it is open to competition from the entire physics community. Prof. Ott will be joining a very distinguished group of past winners, including Stephen Hawking and Nobel laureates Claude Cohen-Tannoudji and  $\bullet$   $\bullet$   $\bullet$   $\bullet$ 

MILCHBERG NAMED OSA FELLOW Professor Howard Milchberg was named a 2012 fellow of the Optical Society of America. The OSA Fellow Members Committee and Board of Directors determined Milchberg's honor, recognizing his efforts in advancing the field of optics. The Optical Society of America is a global enterprise dedicated to promoting technical, scientific, and educational knowledge in optics and photonics. OSA consists of more than 17,000 members, with more than half residing outside of the U.S. The organization publishes journals and sponsors scientific exhibits and student programs.

### SPRANGLE AWARDED MAXWELL PRIZE

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The American Physical Society (APS) awarded Dr. Phillip Sprangle (ECE/

Frank Wilczek.

The award consists of \$10,000 and a certificate with the citation that will read: "For pioneering contributions in nonlinear dynamics and chaos theory that have been uniquely influential for physicists and scientists in many fields, and for communicating the beauty and unifying power of these concepts to remarkably diverse audiences."

Ott will also hold the Yuen Sang and Yu Yuen Kit So Endowed Professorship in non-linear dynamics established by his former advisee, Paul So, who received his doctorate in Physics at UMD in 1995. So is an associate professor at George Mason University and an accomplished artist. Upon Ott's retirement, his name will be added to the endowment to recognize his excellence and mentorship in non-linear dynamics.

IREAP/Physics) with the 2013 James Clerk Maxwell Prize in Plasma Physics. This award, sponsored by General Atomics, recognizes outstanding contributions to the field of plasma physics. Sprangle pioneered contributions to the physics of high intensity laser interactions with plasmas, and to the development of plasma accelerators, free-electron lasers, gyrotrons and high current electron accelerators. His research spans decades and multiple areas including the atmospheric propagation of high-energy lasers, ultrashort pulse laser-matter interaction and propagation, nonlinear optics, free electron lasers, nonlinear plasma physics and laser driven accelerators. Sprangle retains a joint appointment at the Naval Research Laboratory, as a Senior Scientist for Directed Energy Physics.

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# spotlighton - LUMNI

### Department Recognizes 2012-2013 Distinguished Alumni

In May, the Electrical and Computer Engineering Department within the Clark School of Engineering honored four alumni for their leadership and meritorious contributions to the field of engineering at the 2nd annual Distinguished Alumni award presentation ceremony. Faculty, staff and recipients gathered in the Jeong Kim Engineering Building to honor the second class of awardees. Faculty members were invited to nominate former advisees or other ECE alumni to receive this distinction in the fall. The nominees were unanimously approved by the department council and invited to return to campus for a celebration in their honor.

This year's recipients of the ECE Distinguished Alumni Award were Professor Lawrence Carin (B.S., '85; M.S., '86; Ph.D., '89), Professor Chaitali Chakrabarti (M.S., '87; Ph.D., '90), Doctor Rajiv Laroia (M.S., '89; Ph.D., '92), and Professor Nikos Sidiropoulos (M.S., '90; Ph.D., '92).

### **PROF. LAWRENCE CARIN**

Lawrence Carin currently serves as Department Chair of Electrical and Computer Engineering at Duke University's Pratt School of Engineering. He began his career in academia as an Assistant Professor in the Electrical Engineering Department at Polytechnic University (Brooklyn) in 1989, where he was later promoted to Associate Professor. In 1995, he joined Duke University and became the William H. Younger Distinguished Professor.

Carin is the co-founder of Signal Innovations Group, Inc. (SIG), where he serves as the Director of Technology. He has published more than 250 peer-reviewed papers, is a member of Tau Beta Pi and Eta Kappa Nu honor societies, and is an IEEE fellow. Professor Carin's Distinguished Alumni Award was presented by Dr. Rama Chellappa.



FROM LEFT TO RIGHT: NIKOS SIDIROPOULOS, LAWRENCE CARIN, RAMA

#### PROF. CHAITALI CHAKRABARTI

Professor Chaitali Chakrabarti is a professor of Electrical Engineering at Arizona State University, where she has been a faculty member since 1990.

Her research in VLSI architectures for signal processing and communications, algorthimarchitecture co-design, and low power embedded system design has had major impact on the circuits and systems, signal processing and computer architecture communities. Her major contributions have been in the design of mobile computing devices.

She has more than 200 research publications and received Best Paper awards at SAMOS'07, MICRO'08, SiPS'10 and HPCA'13.

Chakrabarti is an IEEE fellow and currently serves as an Assistant Editor of the IEEE Transactions on VLSI Systems and the Journal of VLSI Signal Processing Systems. Professor Chakrabarti's award was presented by her advisor Professor Joseph Ja Ja. **DR. RAJIV LAROIA** 

Doctor Rajiv Laroia currently serves as CTO for Qualcomm's Orthogonal Frequency Division Multiple Access Division. He holds 29 patents, and his innovations have helped to nearly double the speed of data transmission over voiceband telephone channels.

Some of Laroia's most significant inventions were new precoding and constellation shaping methods for voiceband telephone line modems. In 2006, he was inducted into the Clark School of Engineering for advances in telephone and mobile wireless communications.

Another one of his inventions, which helps to extend IP-based

Internet functions to mobile devices, led to the start-up of

Flarion Technologies. Larioa was the founder and CTO of the company until it was purchased by Qualcomm, where he currently works.

### **PROF. NIKOS SIDIROPOULOS**

Professor Nikos Sidiropoulos is a professor of Electrical Engineering at the University of Minnesota. Before graduating from the University of Maryland, he received his Diploma in Electrical Engineering from the Aristotelian University of Thessaloniki, Greece.

Sidiropoulos is known for his interdisciplinary approach to research, in which he has collaborated with chemistry, psychology, computer science and food science researchers. He has more than 150 research publications and holds three patents. He is also an active member of IEEE, having served as the Chair of the IEEE Signal Processing for Communications and Networking Technical Committee (2007-2008) and Associate Editor for various IEEE publications. Sidiropoulos earned the NSF Early Career award in 1998, and multiple IEEE Best Paper awards between 2001 and 2011. C

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**Kim Earns NSF Graduate Fellowship** 

Eric Kim (B.S. EE, '13) was awarded a National Science Foundation

(NSF) Graduate Research Fellowship for his research in cooperative robotics and control systems. The Graduate Research Fellowship



Program 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 U.S. institutions.

Kim, a double major in EE and physics, performed research in the ECE department under Professor Nuno Martins since his junior year. Kim worked with Martins, who heads the Distributed Decision Theory Group and the CPS & Cooperative Autonomy Laboratory, and Ph.D student Eduardo Arvelo to discover how robot teams work better together than one individual robot does alone. In a second project supported by Martins, Kim sought to enforce safety constrains for robots with non-deterministic dynamics. The team strove to answer questions like, "What strategies can be implemented to avoid crashing?"

During Kim's senior year, Martins invited him to participate in an Undergraduate Research Fellowship (URF) with fellow ECE senior Nitay Ravin. Their research culminated into a final presentation entitled, "Control Strategies for Cooperative Robots."

All of Kim's undergraduate research, in addition to significant academic

acheivements, garnered his NSF award.

Kim will continue his studies at the University of California, Berkley focusing on the interface between controls and computer science. He hopes to participate in research that increases understanding of the decision-making processes for autonomous systems. Kim also wants to explore controls laws for components in networked systems and generating controllers from high-level specifications. Kim is considering a career in industry or academia.

### DAILY AWARDED 2012-13 Con-E GREEN FELLOWSHIP

ECE Alumnus David Daily (BSEE '12). who is completing his Masters in Systems Engineering under Dr. John Baras, was selected to receive the Con-E Green Fellowship. The Council for the Environment will award a 10K Green Fellowship for the Environment to be shared by two currently supported University of Maryland graduate students whose research is relevant to the environment in a broad sense. This award intends to encourage broader thinking about environmental problems both here and abroad. Daily is working with Scott Tjaden (ENST) on: Improving Efficiencies: Integrated Green Roof and Photovoltaic Research. Their project aims to compare the energy production from a combined green roof with photovoltaic panels thereby integrating natural systems with the built environment to solve environmental problems while achieving economic, ecological and social sustainability

### Shi Honored as Outstanding Student Abroad by Chinese Govt.

ECE Alumnus **Bing Shi** received the 2012 Chinese Government Award for Outstanding Students Abroad. She

joins an esteemed group of ECE alumni to receive the award, and was chosen from more than 500 students. Each recipient was awarded \$6,000.

The purpose of the award program

is to encourage students to study abroad and engage in new educational experiences across the globe. Since its inception in 2003, more than 3,300 academic awards have been presented to outstanding doctoral students.

Bing Shi, who graduated in May, was advised by **Ankur Srivastava**, associate professor in ECE and the Institute for Systems Research. During Shi's career in ECE, she received awards

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such as the Clark School of Engineering Distinguished Graduate Fellowship, and the University of Maryland



BING SHI, Outstanding Student Abroa

Graduate Summer Research Fellowship. Shi and her advisor also received a 2012 Best Paper Award at ISVLSI. 11

In her acceptance speech, Shi said, "No matter how far we go, our hearts are forever

linked with the motherland." Shi also spoke of her successes in the U.S. and implied that it was during her Ph.D. studies that she truly discovered her research interests. Her focus has been three-dimensional integrated circuits. "The success of this technology will bring a significant improvement to chip performance," Shi said. She recently joined Oracle in Santa Clara, Calif.

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## faculty&staffnews

### **Three Cybersecurity Professors Join ECE Faculty**

Computer Engineering in conjunction with UMIACS and MC2, welcomes

three professors with expertise in cybersecurity and Big Data. Drs. Dana Dachman-Soled, **Tudor Dumitras** and Charalampos Papamanthou join ECE as assistant professors.

Dr. Dana Dachman-

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Soled received her B.A. in Math and and her Ph.D. in Computer Science from Columbia University under the supervision of Professor Tal Malkin. At Columbia, Dachman-Soled received the FF SEAS Presidential Fellowship. She then participated in post-doctoral work with Dr. Intelligence Network Environment Yael Tauman Kalai at Microsoft Research, focusing on constructing cryptographic schemes secure against leakage and tampering, as well as questions relating to delegation and black box complexity.

As the fall semester begins, Electrical and Her current research endeavors are concentrated in cryptography and security, although she also has interest



DACHMAN-SOLED, DUMITRAS, & PAPAMANTHOU

in computational learning theory and Computer Science from Yeshiva University property testing of Boolean functions. She will teach Cryptography Against Physical Attacks this semester.

> Prior to joining UMD, Dr. Tudor Dumitras worked at Symantec Research Labs where he built the Worldwide (WINE), a platform for experimenting with Big Data techniques. As a professor in the department, Dumitras' research will focus on Big Data approaches to problems in system security and dependability.

### NEW INTERIM GRADUATE STUDIES CHAIR

Associate Professor Ankur Srivastava will serve the electrical and computer engineering department as the Interim Chair of Graduate Studies and Research. He holds a joint appointment with the University of

Maryland Institute of Systems Research (ISR). His primary research interest lies in the field of high performance, low power electronic systems and applications such as computer vision, data and storage centers and sensor networks. Srivastava received a B.

Tech. degree in Electrical Engineering from IIT Delhi in 1998, a M.S. degree in 2000

from Northwestern University, and his Ph.D. in Computer Science from UCLA in 2002. He has been a part of the technical program committee of several conferences such as CCAD, DAC, ISPD, ICCD, GLSVLSI. He

is also the associate editor of IEEE Transactions on VLSI and INTEGRATION: VLSI Journal. He has served on several NSF panels and is also the reviewer of several conferences and journals such as ICCAD, DAC, ISPD,



IEEE Transactions on CAD and IEEE Transactions on VLSI. His research and teaching endeavors have received several awards including the Outstanding PhD Dissertation Award from the CS Department of UCLA, Best Paper Award from ISPD 2007, George Corcoran Memorial Teaching Award from the ECE Department of University of

Maryland, Best Paper Nomination in ICCAD 2003, ACM-SIGDA Outstanding Dissertation Nomination in 2003. His contributions have also been featured in articles appearing in trade magazines such as EE-Times.

Dr. Dumitras completed his M.S. in Electrical and Computer Engineering at Carnegie Mellon University. He continued there to complete his Ph.D. under Professor Priva Narasimhan.

Dumitras received an Honorable Mention in the NSA competition for the Best Scientific Cybersecurity Paper of 2013; the 2011 A.G. Jordan Award from the ECE department at Carnegie Mellon University; the 2009 John Vlissides Award from ACM SIGPLAN; and the Best Paper Award at ASP-DAC '03.

Professor Dumitras is teaching Cybersecurity Data Science and recruiting Ph.D. students to join his research group.

Dr. Charalampos (Babis) Papamanthou joins ECE from the University of California, Berkeley, where he was a post-doctoral researcher working on applied cryptography and computer security, and especially on technologies, systems and theory for secure and private cloud computing. While working at the University of Maryland in ECE, UMIACS, and the Maryland Cybersecurity Center (MC2), Papamanthou's research will continue to explore problems in computer security and applied cryptography.

He obtained his Ph.D. and M.Sc. in Computer Science from Brown University in 2011 and 2007 respectively. While at Brown, he received the Kanellakis and van Dam fellowships and interned at Intel Research (2008) and Microsoft Research (2010). Before graduate school, he studied in Greece at the University of Crete (MSc.) and at the University of Macedonia (B.S.). He has published in venues and journals spanning theoretical and applied cryptography, systems and database security, graph algorithms and visualization and operations research.

Professor Papamanthou is currently seeking Ph.D. students to join his research group and will be teaching Computer Security this fall.

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## alumnin≡ws

### **ACCOMPLISHMENTS, AWARDS & HONORS FOR ALUMNI**

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### TRAPPE HONORED BY RUTGERS

Wade Trappe (Ph.D. '02, M.S. '99), Professor of Electrical and Computer Engineering and Associate Director of WINLAB, received the 2013 Outstanding Engineering Faculty Award in recognition of his contributions to Rutgers' School of Engineering. Dr. Trappe was advised by Professor K. J. Ray Liu and has also become a nationally reputed authority in the field of wireless network security. He has pioneered authentication techniques employing forgeresistant signatures derived from a user's wireless channel in order to combat spoofing; using multiple staggered authentication keys to preclude denial-of-service attacks in secure wireless multicasting; wireless signaling and routing protocols that provide contextual privacy for wireless sensors; and techniques for diagnosing and mitigating radiointerference-based denial-of-service attacks.

### ALUMNUS DUAN WINS NSF CAREER AWARD

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Alumna Lingze Duan (MSEE, '98; Ph.D., EE, '09) was awarded a 5-year \$400,000 grant to investigate "Semiconductor Detectors for Direct Probing of the Absolute Phase of Light. Duan is an associate professor in the Physics Department at the University of Alabama Huntsville where he established the the Precision Ultrafast Light Sciences (PULS) group in 2007. His research is in emtosecond frequency combs, atmospheric optics, fiber optics, fundamental thermal noises in one-dimensional systems, and optical probing of intergalactic plasma. He was advised by Professors Mario Dagenais and Julius Goldhar.

#### ALUMNUS JAFARKANI WINS IEEE SUMNER AWARD

Alumnus **Hamid Jafarkhan**i (Ph.D., EE, '97) is a co-recipient of the IEEE Eric E. Sumner Award "for contributions to block signaling for multiple antennas." The prestigious award is presented to an individual or team of not more than three for outstanding contributions to communications technology. Jafarkhani shares the award with Vahid Tarokh (Harvard University) and Siavash Alamouti (Vodafone, Great Britain). He is the Conexant-Broadcom Endowed Chair and Chancellor's Professor at the University of California Irvineand directs the Center for Pervasive Communications and Computing. His current work, for which he won the Sumner Award, is on the theoretical and practical challenges of designing communication systems and networks that use multiple antennas.

### ALUMNUS XIAOBO TAN IMPROVES ROBOTIC FISH

ECE/ISR Alumnus Xiaobo Tan (Ph.D., EE, '02), an associate professor at Michigan State University, continues to develop his robotic fish. Tan and his team recently made a number of improvements on the fish, including enhancing its ability to glide for long distances. It now can glide through the water practically indefinitely, using little to no energy, while gathering valuable data that can aid in assessing the level of pollution in lakes and rivers. The fish is equipped with an array of sensors that not only allow it to travel autonomously, but also measure water temperature, quality and the presence of various contaminants. He was advised by Professors John Baras and P.S. Krishnaprasad.

### ALUMNA ROSE FAGHIH FEATURED IN IEEE VIDEO

ECE alumnus Rose Faghih (B.S., EE, '08), who graduated Summa Cum Laude and is now a Ph.D. candidate at MIT, was featured in an IEEE TV video. The video covers activities Faghih participated in at the University of Maryland, including honors societies and undergraduate research. Faghih worked with Professors Antonsen, Ott and Girvan at the Institute for Research Electronics and Applied Physics (IREAP) on her research, which she started through the Training and Research Experiences in Nonlinear Dynamics (TRENDS) program. Her current research interests include control estimation, system identification and compressed sensing with applications in neuroscience.

#### **FACULTY POSITIONS & PROMOTIONS**

ALVARO CARDENAS Advisee of Dr. Baras PHD, EE '03 ASSISTANT PROFESSOR UNIVERSITY OF TEXAS AT DALLAS

LINGZHE DUAN Advisee of Drs. Dagenais & Goldhar MSEE, '98; PHD, EE, '02 ASSISTANT PROFESSOR UNIVERSITY OF ALABAMA HUNTSVILLE

DOMENIC FORTE Advisee of Dr. Srivastava PHD, EE, '13 ASSISTANT PROFESSOR UNIVERSITY OF CONNECTICUT

ZHU HAN Advisee of Dr. Liu MSEE, '99; PHD, EE '03 ASSOCIATE PROFESSOR WITH TENURE UNIVERSITY OF HOUSTON

ARYA MAZUMDAR Advised by Dr. Barg PHD EE, '11 ASSISTANT PROFESSOR UNIVERSITY OF MINNESOTA

AMIT ROY-CHOWDHURY Advisee of Dr. Chellappa PHD, EE '03 ASSISTANT PROFESSOR UNIVERSITY OF CALIFORNIA-RIVERSIDE

SERBAN SABAU Advisee of Dr. Martins PHD, EE '11 ASSISTANT PROFESSOR STEVENS INSTITUTE OF TECHNOLOGY

GARY SPIVEY Advisee of Drs. Bhattacharyya & Nakajima MSEE, '97; PHD, EE '02 FULL PROFESSOR WITH TENURE GEORGE FOX UNIVERSITY

MATTHEW STAMM Advisee of Dr. Liu PHD, EE, '12 ASSISTANT PROFESSOR DREXEL UNIVERSITY

WADE TRAPPE Advisee of Dr. Liu MSEE, '99; PHD, EE '02 FULL PROFESSOR WITH TENURE RUTGERS UNIVERSITY

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### studentnews

### ECE CAREER FAIR PACKS KIM ENGINEERING BUILDING

The 9th annual ECE Career Fair attracted 49 employers and more than 700 ECE, Telecommunications and Computer Science students on February 8, 2013 in the Jeong H. Kim Engineering Building. For the first time, the career fair booths were stationed on the first and second floors of the Kim Building to accommodate the number of employers interested in hiring ECE students.

The career fair included the following employers:

- ASCO Power Technologies
- Aerospace Corporation
- Availink (US), Inc.
- Bloomberg
- Booz Allen Hamilton
- Cognizant Technologies
- Eden's Group
- Einstein Technologies
- Epic

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- Ericsson
- General Dynamics Advanced
  Information Systems
- Global Computer Enterprises
- Global Prior Art
- Goldman Sachs
- Hughes Network Systems
- International Software Systems, Inc.
- i SW Corporation
- Johns Hopkins University Applied Physics Lab
- Key Tech
- KEYW
- L-3 Communications
- LGS Innovations
- M.C. Dean
- Microsoft
- MIT Lincoln Laboratory
- MicroStrategy
- MITRE Corporation
- Motorola Solutions
- National Instruments
- National Security Agency
- Naval Research Lab
- NEXIUS Solutions, Inc.
- Northrop Grumman
- NUBISio, Inc.
- Parsons
- Qualcomm
- Raytheon BBN Technologies



Recruiters & students discuss future opportunities.

- SAIC
- Solers, Inc.
- Sterne Kessler Goldstein Fox
- Tata Consultancy Services
- TeleworX
- Tenable Network Security
- Texas Instruments
- The SI Organization
- ViaSat, Inc.
- 3Phoenix

The participating employers offered opportunities for internships and co-ops, as well as full-time positions. The department invited all ECE, Telecommunications, and Computer Science undergraduate, graduate and post-doctoral students to attend.

Lunch was provided by local restaurant, Big Play, co-owned by ECE alumnus, Andre Hopson (EE, '04).

#### KALLURI SELECTED AS ECEGSA PRESIDENT

Abhijit Kiran Valluri, a third year ECE PhD student, was named the new president of ECEGSA (Electrical and **Computer Engineering Graduate Student** Association) for 2013-14 academic year. Abhijit is advised by Prof. Richard J La in the field of Communications and Networking. He received his Bachelor's in Technology (B.Tech) degree at the Indian Institute of Technology, Madras majoring in Electrical Engineering. He served on the board of ECEGSA in 2012-13 as the webmaster, overhauling the web design to its current style. He is also currently serving as a member of the Graduate Assistant Advisory Committee (GAAC) since November, 2012. He was a teaching assistant for the ECE department during Fall 2011 and Spring 2012, and has been working with Prof. La as a research assistant since. He is currently working on Blind Equalization in MIMO OFDM systems, such as LTE/LTE-A.

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#### ECE STUDENTS WIN ACCLAIM AT HACKATHONS New ECE Student Group Forms to Compete in Hackathons

The University of Maryland student group, Terrapin Hackers has taken the hackathon world by storm lately.

A win by three ECE sophomores, Joshua Drubin, Zachary Lawrence, and Andres Toro at MHacks, a major competition at Michigan State has inspired great confidence in this team of students. Their team coded for three days to develop a trashcan which sorts recyclables based on the frequency of the sound made when tossed into the can.

This success and others fueled the team's desire to maintain a strong standing in Major League Hacking (MLH).

During a six-week season of hackathons this fall, the standings were tight going into the final hackathon. It seemed as if Carnegie Mellon had taken first place following HackMIT and that four schools would be left to vie for second and third place. Maryland was one of those four and was in tight contention with Columbia, MIT, and Rutgers.

Shariq Hashme, the president of Terrapin Hackers is a junior in the Electrical and Computer Engineering Department who double majors in Computer Science. He is very proud of the Terrapin Hackers efforts in the first season of the MLH. Hashme said, "Since Maryland beat schools with well-established hacking communities like MIT, Columbia, and Rutgers, in the first semester of participation in the MLH, our success shows the quality of the students at our school."

The team also competed at the University of Pennsylvania's PennApps, New York University's HackNY, and Massachusetts Institute of Technology's HackMIT. Terrapin Hackers topped 110 schools in the United States and around the globe this season, securing the University of Maryland a spot on MLH's list of "best schools for hackers."

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## alumninews

### Your education in ELECTRICAL & COMPUTER ENGINEERING led to success. Be a foundation for future engineers.

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Michael Barr, President of Netrino and Chief Technical Officer of The Barr Group, attributes his success in part to his undergraduate education in electrical engineering, **"It was in my undergraduate years in the EE department that I found my professional calling to the field of embedded software design.** All I have learned since those days has built upon the broad subject knowledge of science, engineering, and math as well as the intellectual rigor and discipline I developed through my coursework. In a nutshell, **it was at the University of Maryland that I learned how to learn. And rising to the level of that challenge showed me that I could learn almost anything if I was willing to work hard."** Today, Barr continues his relationships with the Electrical and Computer Engineering Department by fostering opportunities for the next generation of engineers.

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Barr later returned to ECE to complete his Master's degree and then again as an adjunct lecturer. These teaching experiences transformed one aspect of my career, by helping me learn to teach others well. After a recent visit to ECE Barr said, "I was very pleased to see that a tremendous amount of work has been done to improve the undergraduate learning experience since my days in ECE. I am particularly impressed with the increased number of hands-on design/lab courses and pleased to see that students are engaging with the theory right from their first year."

Barr supports ECE through a 3-year grant for an Undergraduate Teaching Fellowship. He chose to give in this way because of his unique personal history as the department's first undergraduate TA for Professor Steven Tretter's DSP Communications Lab in the spring of 1994. By supporting the next generation of undergraduate teaching fellows, he aims to help other ECE students experience teaching, while

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#### DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

To learn how you can make a charitable contribution today and have a measurable impact on the future of the Electrical & Computer Engineering Department, or to explore other options, contact Amanda Stein, assistant director of external relations.

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simultaneously improving their communication skills.

"I have had the good fortune of being successful in my engineering career and as a business owner. Of course, much of any success lies in steady hard work and seizing on the opportunities in front of you. However, the critical foundation for my success was certainly laid by my parents' emphasis on education and their financial support for my undergraduate tuition. My wife and I each hold three degrees from the University of Maryland system. We believe strongly in the power of education to open doors and create new chapters in our lives. As a celebration of our successes we have created a charitable foundation focused on transforming others' lives through education. As far as we are concerned there is no better investment in a person or a society than an investment in education."





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### CYBERSECURITY HONORS PROGRAM LAUNCHED

The Advanced Cybersecurity Experience for Students (ACES) will engage a highly talented, diverse group of students--majors in computer science, engineering, business, public policy and the social sciences--in an intensive living-learning environment that focuses on the multifaceted aspects of cybersecurity and develops team-building skills.

The program, directed by ECE Affiliate Professor Michel Cukier (ME), launched at the University of Maryland on September 25, 2013. President Wallace Loh and Northrop Grumman CEO, Chairman, and President Wes Bush, spoke. Bush said, "Not only does the ACES program represent an innovative approach to education, it addresses the shortage of cyber professionals that are in high demand by industry and government."

Of the 57 students participating in ACES' inaugural year, 26 are engineering students (12 computer and five electrical), 22 are computer science students, and the remaining students range from mathematics to business.

Students will take on an advanced, cross-disciplinary curriculum developed through industry consultation, and will interact directly with industry and government cybersecurity mentors.

Program participants will have the option of interning with Northrop Grumman and preparing for security it for an additional two years. The University of Maryland will match that amount. The ACES Program will serve as an inaugural Regional



clearance. ACES will produce skilled, experienced cybersecurity leaders highly sought by corporate and government organizations. The Northrop Grumman Corporation will provide a grant of \$1.1 million to launch the program, and support Workforce Project of The Business-Higher Education Forum (BHEF), of which University System of Maryland Chancellor William E. ("Brit") Kirwan is Chair, and Wes Bush is Vice Chair. ⊂

**CONNECTIONS** is published for alumni and friends of the Department of Electrical and Computer Engineering at the A. James Clark School of Engineering, University of Maryland.

Your alumni news and comments are welcome. Please send them to: Carrie Hilmer, ECE Department, 2455 A.V. Williams Building, College Park, MD, 20742 or chilmer@ umd.edu. Visit our web site at: **www.ece.umd.edu** 

Department Chair: Dr. Rama Chellappa Editor: Carrie Hilmer Photography: J. Consoli, C.Hilmer, J. Molina, A. Santos

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