What an exciting year for us, as we continue our Centennial Celebration! Our celebration included a School of Engineering Gala during the Engineers’ week. During the Gala, one of our own alumni, Mr. John McHale was inducted into the School of Engineering’s inaugural Hall of Fame. Mr. McHale is a serial entrepreneur in the field of Computer Networking, an area of enormous importance in this digital age. It was nice to see Mr. McHale and his family in attendance for the Gala and the SoE Hall of Fame induction ceremony. He has been an outstanding supporter of UD. We also had other reasons to celebrate! Professor Partha Banerjee was inducted as a Fellow of the Institute of Physics, Great Britain. Professor Banerjee is also going to be recognized in April as one of the outstanding engineers and scientists in the Dayton area, by the Affiliate Societies Council of Dayton. Our department has a special recognition function on March 23, 2012, for Professor Banerjee’s awards. As I mentioned in my previous letter, this year is a key year for us as we plan to review our graduate curriculum and revitalize our graduate courses. Our department’s Industrial Advisory Committee (IAC) loved our curricular changes. This year, we are also focusing on our undergraduate curricular issues including the new Common Academic Program (CAP) which will be replacing the general education at UD starting from Fall 2013. We are using this as an opportunity to make curricular changes in our programs. The IAC is also providing guidance to our department’s strategic planning for the next decade. We are identifying key areas that we will need to strengthen to be among the best ECE programs in the Midwest. We are grateful for the excellent support and guidance of our IAC members. With their guidance and support, I have no doubt we will be among the best in the Midwest. It was wonderful to see several of our alumni during the Centennial Gala and throughout this special year. I was mentioning to one of our alumni that if he comes next time I will buy his lunch! I do want to make one request regarding your donations. Please do remember to assign your donations to Electrical and Computer Engineering. Otherwise, it goes into a general UD fund, and our department will not benefit from it. We are still working on a special fund for supporting women in ECE, for additional scholarships to cover their text books through-out their undergraduate education in our department. We welcome your support regarding this new initiative.

Dr. Partha Banerjee Elected Fellow of Institute of Physics

Dr. Partha Banerjee, Professor of Electrical and Computer Engineering, was recently elected to Fellowship of the Institute of Physics “in recognition of (his) personal contribution to the advancement of physics as a discipline and a profession”. The Institute of Physics is a leading international scientific society that originated in England in 1920 to advance physics research, application and education. It merged with the Physical Society (of London) in 1960. Sir Peter Knight, who was President of the Optical Society of America in 2003, is the current president. Fellowships (FInstPs) are granted to those who make "an outstanding contribution to the profession”. Some notable FInstPs include Sir John Pendry (Professor, Imperial College) who revolutionized the concept of metamaterials, Akhlesh Lakhtakia (Professor, Penn State) who works on chiral materials, and Dr. Stephen Chu (energy secretary, USA and Nobel laureate) who has worked on cooling of electrons with laser light.

Dr. Banerjee is the only faculty at UD to be bestowed with this honor. Dr. Banerjee’s research interests include metamaterials, digital holography, nonlinear optics, and acousto-optics. He is also Fellow of OSA and SPIE, and has authored 5 textbooks and over 100 refereed journal publications.
Taking surveillance research to the next level, the University of Dayton Vision Lab is making automatic security robots. The new Vision Lab robot, named the Robust Artificial Intelligence-based Defense Electro-Robot (RAIDER), combines many of the Vision Lab’s biometric algorithmic to create a machine that “remembers”. Using the face recognition technology, the RAIDER will be able to roam the Kettering Labs hallways recognizing people it has previously seen and becoming familiar with faces of new students. In addition to face recognition, the RAIDER will also be equipped with action recognition technology to distinguish ordinary hallway actions (walking, standing, talking, etc.) from alarming actions (punching, kicking, running, etc.). Will this robot be controlled by someone? No. As the RAIDER travels down the corridors off-line algorithms will use 3D reconstruction computer vision algorithms to automatically navigate through the hallways. "The RAIDER is a self-thinking, self-deciding security patrol robot. It recognizes people it has already met, recognizes everyday actions and decides where it wants to go next,” describes Yakov Diskin, a PhD Student at the Vision Lab. To learn more about the RAIDER and other exciting research going on at the Vision Lab, visit www.visionlab.udayton.edu.

"The Vision Lab’s Robust Artificial Intelligence-based Defense Electro-Robot (RAIDER) is leading the way with autonomous navigation and interior surveillance."

Mr. John McHale (ELE, '78) Inducted into the Inaugural SoE Hall of Fame

McHale is chairman of Breaking Point, which builds and tests equipment to help networking companies build faster and bigger networks. He is also the chairman and CEO of Tracking Point, a defense technology company developing precision-guided firearms. In 2008, the UD National Alumni Association named McHale Distinguished Alumnus for his achievements in the fields of business, innovation, and technology advancement. McHale has supported the Minority Engineering Program, provided for the development of a curriculum that emphasizes qualities and skills of leadership, communication, and team building that prepare our graduates to bring immediate value to the workplace. McHale credits his success to UD. “I have done what my professors taught me at UD– always look for the opportunities. I’ve taken mine, and given back to be sure other students have the same opportunity.” When asked if UD is a special place McHale replied, “you bet it is. I really see the hand of God in all of this.” Mr. McHale was also instrumental in setting up the Bernard M. Schmidt Chair in Engineering Leadership.

In Memoriam

In early morning of November 6th, 2011, a tragic car accident took two University of Dayton students’ young lives away, Hanqing Wu and Zhongyi Xu. Hanqing and Zhongyi are both from China and first year engineering students. On the way back to campus, their car crashed into a tree on the side of Mad River Road. Hanqing Wu was a first year Electrical Engineering major from Suzhou, China. The faculty and students were all shocked. The school announced the tragedy to the parents of both students immediately, and provided support to the students’ families. UD had memorial services for all faculty and student members to say goodbye to these two young students. More than 500 of our faculty and students attended the memorial event and expressed their support to the families of the students. Many of our students went to the sad place where the accident happened to create a memorial for their friends. Following the tragedy the international students’ office communicated and helped students to cope with the tragedy and support each other. The student body is closer and stronger after this tragedy. Family members are grateful for the help from the school. The two students will not be forgotten by our UD friends.

Submitted by Zhenghang Gu
Robert Barnes, a junior Electrical Engineering major, has been fascinated with flight since he was seven years old. After watching *Superman,* he thought that given a cape he too could fly. He then proceeded to make his own cape and jumped off the tool shed converting potential energy into kinetic energy. This taught him one of the most meaningful lessons in his life, to do things instead of just reading about them. According to Barnes, “theory is great, but someone has to take the pencil away from the paper and build something.” He also enjoys fast things, and building rockets allowed him to use the knowledge that he had acquired and also build something that would travel at high velocity. The first rocket ever built by Barnes was a basic cardboard tube rocket kit with an Estes D12 motor, simple yet it still had good acceleration. This did not satisfy his need for speed and he then built his first ‘real’ rocket. This rocket was all fiberglass, 4 ft. tall and required the permission of FAA to fly it. He then built an 8ft. tall orange rocket thinking it would be his last. However, after certifying Level 1 and Level 2 with the National Association of Rocketry, he started thinking about even bigger rockets. The yellow rocket featured in the picture is 12 ft. tall and will fly approximately two miles high. It will have a maximum thrust of 3,500 lbs, a max velocity of Mach 1, and will take about one year to complete. Barnes love for rockets has been passed on to his eight year old daughter, who enjoyed her first small rocket and now her high quality fiberglass rocket. The rocket featured at the right, was painted in her two favorite colors, red and pink. She is looking forward to the first flight of her new rocket. Barnes is “very thankful to be attending the University of Dayton. I like the scientific research and I like the fact that the staff and students want to help others and do something”.

**Rocket Man**

*by Robert Barnes*

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**Patrice Lalor Excels on the Court and in the Classroom**

The life of a college athlete is filled with practices, workouts, games, attending classes, doing homework, and volunteering in the community. Patrice Lalor, senior Electrical and Computer Engineering major, is a key component to the Flyers women’s basketball team’s success over the past four years. She currently has an impressive 3.67 GPA and is a two time Arthur Ashe Jr. Scholar Athlete. Lalor is presently the co–captain of the lady Flyers, and was named Pre–season Atlantic 10 Third Team All Conference this year. She has been leading in career assists every year with 464, enough for third place and only 32 assists away from second place. Her career assist to turnover ratio is 1.61, and the best in UD’s record books. Off the court, Lalor serves as a mentor to high school students, and frequently volunteers with the women’s basketball team.

The lady Flyers recently won the A-10 championship for the first time in program history. The team also secured a spot in its third consecutive NCAA tournament. The players showed off their trophy at halftime of the men’s first round A-10 tournament game against George Washington.

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**ECE 203 Student Project**

submitted by Russ Hardie

Students in ECE203 MATLAB Programming, taught by Dr. Russell Hardie in Fall 2011, worked on a green screen video processing project to help develop their programming skills. A green sheet was used as a makeshift backdrop in class. Students used the webcam on their laptops to acquire live video of themselves in front of a green screen. A custom MATLAB program was written by the students to segment themselves from the green screen in the live video. Next, their program blended their live image into a selected background in real-time.

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Rob with his young daughter, Caitie, and their rockets ready to take flight! To see onboard video of two of his rockets, visit: [http://www.youtube.com/watch?v=LYZyg3WFyxc](http://www.youtube.com/watch?v=LYZyg3WFyxc)
Awards/Honors/Promotions

Dr. John Malas, Adjunct Professor, was awarded the 2012 “Dr. Samuel Burka Award” by the AFRL.

Dr. Partha Banerjee elected Fellow of Institute of Physics, England.

Dr. Tarek Taha has been awarded tenure effective 2012-13 academic year.

Dr. Qiwen Zhan has been promoted to the rank of Full Professor effective 2012-13 academic year.

Dr. Partha Banerjee has been selected to receive the 2012 Outstanding Professional Achievement (in research) award by the Affiliate Societies Council of Dayton.

May 2012 Departmental Outstanding Student Awards

Alan M. Smith — Thomas R. Armstrong ’38, Award of Excellence for Outstanding Electrical Engineering Achievement

Evan W. Krieger — Brother Louis H. Rose, S.M. ’33, Award of Excellence to the Outstanding Junior in Electrical & Computer Engineering

John Wedig — Anthony Horvath and Elmer Steger, ’22, Award of Excellence to the Outstanding Senior in Electrical & Computer Engineering

Patrice S. Lalor and Sara McManus Helton — Mary C. Millett Endowment Award, Award for the Outstanding Senior in Electrical and Computer Engineering

ECE Graduates—December 2011

MS Degrees Awarded

Fares S. Almehmadi
Bradley T. Ashmore
Jie Bai
Sravani Bandaru
Yue Bao
Zhiye Chen
Megan M. Connor
Andrew C. Daniel
Harshavardhan R. Ega
Marc P. Hoffman
Julian Daniel John
Sudheer Kadiyala
Shashank Kambam
Sushma Kondapalli

Sravanthi Mannuru
Kuan-Chang Pan
Narendar Pilli
Vinay Teja Reddy Poolla
Vasant Kumar Poonamalli
Sharat C. Pomicherla
Revanth Tambisetty
Mahesh Kumar Thakur
Shu Wang
Alexander M. Watson
Mersha W. Woldesilassie
Yi Xu
David L. Zeppettella

BS/BE Graduates

Corey M. Boltz
Justin W. Bushong
Christopher J. Bushmeyer
Kasandra C. Maxwell
Jospeh J. McKeeen
Micheal J. Rooths
Kenneth L. Stapp
Jarren P. Summers


A. Jennings, R. Ordonez, A. Mitra, “Memory-Based Motion Optimization for Unbounded Resolution,” IASTED International Conference on Computational Intelligence and Bioinformatics, Pittsburgh, PA, Nov. 2011

“A memristor device model,” Yakopcic, Chris (University of Dayton.), Taha, Tarek M.; Subramanyam, Guru; Pino, Robinson E.; Rogers, Stanley Source: IEEE Device Letters, v 32, n 10, p 1436-1438, October 2011

“Novel multi-capacitor architecture for BST thin film varactors” Subramanyam, Guru (Department of Electrical and Computer Engineering, University of Dayton, Dayton, OH 45469, United States); Patterson, Mark; Leedy, Kevin; Neidhard, Robert; Varanasi, Chakrapani; Steinhauser, Gregg Source: Integrated Ferroelectrics, v 125, n 1, p 11-19, 2011

“Closed-form expression for the net ground plane inductance of coplanar stripline PCBs” Li, Huadong (EandSI, Caterpillar Inc., Peoria, IL 61629, United States); Subramanyam, Guru; Rogers, Stanley Source: IEEE Transactions on Electromagnetic Compatibility, v 53, n 2, p 531-533, May 2011


“Miniaturized and reconfigurable CPW square-ring slot antenna using thin film varactor technology” Jiang, Hui (Department of Electrical and Computer Engineering, University of Dayton, Dayton, OH 45469, United States); Cerny, Charles Source: IEEE MTT-S International Microwave Symposium Digest, 2011, 2011 IEEE MTT-S International Microwave Symposium, IMS 2011

“Memristor-based unit cell for a detector readout circuit” Yakopcic, Chris (University of Dayton), Taha, Tarek M.; Subramanyam, Guru; Rogers, Stanley Source: Proceedings of SPIE - The International Society for Optical Engineering, v 8165, 2011, Unconventional Imaging, Wavefront Sensing, and Adaptive Coded Aperture Imaging and Non-Imaging Sensor Systems
“Analysis of a Memristor Based 1T1M Crossbar Architecture”; Yakopcic, Chris (University of Dayton); Taha, Tarek M.; Subramanyam, Guru; Pino, Robinson E.; Rogers, Stanley Source: Proceedings of the International Joint Conference on Neural Networks, p 3243-3247, 2011, International Joint Conference on Neural Networks, IJCNN 2011.


C. Yakopcic, T. M. Taha, G. Subramanyam, R. E. Pino, and S. Rogers, “Analysis of a Memristor based 1T1M Crossbar Architecture,” IEEE International Joint Conference on Neural Networks (IJCNN), August 2011 (Invited paper).


