



Nick Silva '12 (MEM) won the first place prize at the first ever Engineering Film Festival.

## Faculty Profile:

### Bill Regli



CS professor Bill Regli has made a breakthrough in application design for dynamic wireless systems. In his role as Executive Director of the college's Applied Communications and Information Networking (ACIN) Program, Dr. Regli has developed new techniques that will enable

software developers to design more reliable systems for network-centric environments. Dr. Regli says, "We can find techniques to create more stable and robust systems in the face of what the laws of physics, information theory and the limits of computing throw at us."

Dr. Regli's main area of research in support of ACIN is on agent-based command and control systems. His team has been working to help the United States Army and DoD take agent-based systems from the laboratory to deployment. An agent-based system is a system that is composed of independent software elements (i.e. "agents"), which are adaptive and autonomous. In many cases, the agents are grouped with intelligent processing algorithms and the agents are capable of automated learning. Agent technology is considered to be the next software paradigm for the development of intelligent and adaptive systems.

Dr. Regli's team has developed techniques that allow the agents to reason with information from the lower layers of a wireless network. This enables the development of new techniques for applications to handle common issues that arise in dynamic wireless networks: bandwidth limits, power and drop outs. While many researchers believe agent software is a way to save bandwidth and create adaptive applications, it often times breaks down on live dynamic wireless networks. To address these issues, Dr. Regli and his team have developed new algorithms for coordination, based on distributed constraint reasoning which are durable under network stress and outages.

While staying involved in ACIN, Dr. Regli remains busy with his research in artificial intelligence and engineering design. In addition, he has helped to start a company, Drakontas, which is tasked by the National Institute of Justice to assist with the transition of communications and command and control technologies to first responders and public protectors. Drakontas and Drexel will be involved in the deployment and testing of next generation software defined radios and situation awareness systems with operational users throughout the country.

## CoE Hosts First Engineering Film Festival

The smell of buttery popcorn and cotton candy wafted through the auditorium. Mountains of candy sat on a table outside, waiting to be devoured. The lights dimmed and the movie began as students, faculty and staff gathered together in the Mitchell Auditorium to take part in CoE's first Engineering Film Festival.

The Engineering Film Festival welcomed the Drexel community to view the top five film submissions from students in the competition including *Engineering at Drexel*, *Engineering the Day*, *The Freshman Engineering Song*, *Engineers Without Borders: The Miramar Project* and *Cyborg Poultry*. In addition, an expert panel of judges determined winners. Walking away with the first place prize, a \$1,500.00 Best Buy gift card, Nick Silva '12 (MEM) won for his film *The Freshman Engineering Song*. Silva's film was a satirical song about his first year at Drexel.

Nick said, "It was amazing when I heard my name called. I was surprised because I didn't expect to win. The other entries were really entertaining. In any case, it was a great way to end my first year at Drexel. It was surreal walking back from the film festival with that giant check in my hands!"

Prizes were also awarded to second place winner *Cyborg Poultry* and third place winner *Engineers Without Borders: The Miramar Project*. To view *Engineers Without Borders: The Miramar Project*, please visit [http://www.drexel.edu/coe/news/film\\_festival/film2.asp](http://www.drexel.edu/coe/news/film_festival/film2.asp).

## Students Named Academic All-Stars by Philadelphia Inquirer



2008 Academic All-Stars

Drexel rowers Michael Gartland '10 (MEM) and Alan Fody '08 (CAEE) were selected to the 2008 Philadelphia Inquirer Academic All-Area Team. Michael and Alan rowed in Drexel's varsity eight boat last season. The pair were among 10 rowers selected to the squad which was chosen by the Philadelphia Area Sports Information Directors Association.

Michael rowed in the junior varsity eight boat as a freshman before moving to the three seat in Drexel's varsity eight boat in his second season. Alan is a three-year varsity eight member who rowed out of the seven seat as a senior. The pair helped the Dragons capture the Kerr Cup and a fifth-place finish in the petite final at the Dad Vail Regatta.



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## Did You Know?

*Drexel University's Steinbright Career Development Center (SCDC) assists MSEM students in Sacramento with career resources to enhance professional development. Knowledgeable staff help explore career options, develop résumés, perfect interview skills and target job searches and much more.*



### Why did you choose Drexel University?

**EP:** I chose Drexel University because of its great reputation in engineering, as well as the unique co-op program. Knowing that I would have a year and a half of experience before I would graduate made my decision very easy.

### Why did you choose your current major?

**EP:** The summer before my senior year I was working on my portfolio in preparation to go to fashion school. When I realized that my days of learning math and physics would be over, I decided to make a major change. I switched gears and started looking into electrical engineering. Now that I am learning the basics of how to be an engineer, I am even more interested in the subject. So far my experience at Drexel has shown me that I made the right decision.

### What type of research are you working on?

**EP:** I work with Ph.D candidate David Delaine to develop a renewable source of energy. We are looking to extract the energy from a solar radiometer and convert it into electricity. My main

task is to perform various methods of fabrication, including photolithography to create the elements within the radiometer and maximize its efficiency.

### What are your future plans?

**EP:** I am currently enrolled in the SuperNOVA (BS/Ph.D) program under Dr. Adam Fontecchio. I will begin my graduate studies in electrical engineering after finishing my undergraduate degree. This summer I will begin my own research project in Dr. Fontecchio's lab and continue that project into the fall and winter for my first co-op.

### What have you enjoyed most about your experience at Drexel?

**EP:** I have enjoyed events throughout campus, the lectures in the Mitchell auditorium, late night study sessions, SEPTA, being in the city and suite style housing. Most of all, I have enjoyed all the amazing opportunities that I was presented upon arriving here and the willingness of the University to help students achieve their goals. Those experiences have helped me figure out what I want to do with my future and gave me great motivation to succeed in my classes.

## Study Abroad Programs

It's never too early to start thinking about study abroad opportunities! For more information, check out the study abroad website: <https://drexel.studioabroad.com/>

Or contact Vanessa Vardon, 215-895-6601, [vanessa.r.vardon@drexel.edu](mailto:vanessa.r.vardon@drexel.edu).



**Published by**  
 Office of the Dean  
 College of Engineering  
 Drexel University  
 3141 Chestnut Street  
 Philadelphia, PA 19104  
 215-895-2210  
[www.drexel.edu/coe](http://www.drexel.edu/coe)

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# DRAGONotes

## Look Inside...

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Delivers Lecture



MSE Team Wins Senior  
Design Competition



CoE Hosts First  
Engineering Film Festival



## A Message from the Dean

We are thrilled to expand westward and have additional students join the Drexel community with the launch of the Sacramento campus and the MSEM program. The California initiative will help us keep pace with the changing needs of science management and provide our students with the opportunity to gain invaluable leadership skills. We also engage teachers and students from across the globe through our summer programs in Philadelphia. Our initiatives exemplify our commitment to engineering education across the world.

CoE is a place of excitement, vitality and progress.

Please see some examples of our unprecedented growth in this issue of the Dragonotes!

— Dean Selçuk Güçeri



## College of Engineering Expands to California

As a leader in higher-education innovation, Drexel University's Philadelphia based institution is opening a graduate center in Sacramento, California in January 2009. A master's program in Engineering Management will be one of the five master's programs that will launch; all with the intention to address the needs of working adults. The Engineering Management program is designed to bring engineers to the level of capable critical-thinking managers.

The Master's of Science in Engineering Management (MSEM) integrates the study of major management disciplines within the context of engineering or technical operations. Dr. Selçuk Güçeri, Dean of Drexel University's CoE said, "I am thrilled to have the opportunity to bring this program to the west coast. Leadership is an invaluable skill in engineering."

"We are excited to bridge the miles between our cities with a common vision toward expanding higher education opportunities in California," said Drexel University President Constantine Papadakis. "We have been drawn by the exciting future of Greater Sacramento, the passion of its community, business and education leaders and the opportunities available to serve this innovative region."

Other programs that will be offered include an MBA in Business Administration, an MS in Higher Education, an MS in Information Sciences and an MS in Library and Information and Science. The center plans to add four additional programs in September 2009. For more information on the launch of the graduate center in Sacramento, please visit, <http://sacramento.drexel.edu/>.



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- 1 Mario the Dragon displays Drexel pride with an excited member of the crowd at the news conference in Sacramento.
- 2 Kyriakos Tsakopoulos, Drexel Trustee, and Renee Amooore, President of the Amooore Group, take part in the news conference in Sacramento, CA.
- 3 Mario the Dragon cheers on Drexel's initiative in Sacramento.



# DRAGONotes

## CoE Summer Programs

CoE hosts over 10 different summer programs that encourage high school students, teachers and undergraduate students to develop a better understanding in engineering and current research. Funded by the National Science Foundation (NSF) and the Pennsylvania Department of Education, these programs provide participants with an excellent opportunity to engage in an engineering education. CoE's summer programs include the following:



**Drexel Research Experience in Advanced Materials (DREAM)** is a Research Experience for Undergraduates (REU) hosted by MSE spanning 10-weeks. DREAM supports 10 to 15 undergraduates to work with Drexel faculty members in nanomaterials, biomaterials and the design and processing of advanced materials.



**Engineering Cities** is an REU program hosted by CAEE that takes place over a 10-week period. Undergraduate students study urban engineering and conduct research while working with faculty on some of the most pressing engineering problems facing the rapidly growing urban world.

**GK-12** pairs educational teams of CoE graduate fellows and teachers from middle schools in the School District of Philadelphia to collaborate in identifying and designing engineering and technology based classroom materials. During the four-week summer program, the teams develop curricula that will be implemented throughout the upcoming academic year in middle school classrooms.



**Math and Science Partnership (MSP)** is a partnership between Drexel and the School District of Philadelphia that takes place over a two-week period. Fifth and sixth grade science teachers work with CoE faculty and staff to prepare for the content of the district's science curriculum.



**Research Experience for Teachers in Areas on Innovation and Novel (RETAIN)** is a program that educates Delaware Valley middle and high school math and science teachers in the emerging areas of biotechnology, information technology and nano-technology. Participants develop lesson plans based on their RET experience to integrate engineering into their classes.



**Research Experience for Teachers in NANO (RET-Nano)** provides experiential engineering education to K-12 teachers in the Delaware Valley region through laboratory discovery. The RET-Nano program is a partnership between Drexel and the University of Pennsylvania where teachers learn about the cutting-edge field of nanotechnology through research.

**SENSORS: From Design to Implementation** is a 10-week REU program on sensors from science to application where undergraduates gain experience in hands-on sensor research through work with faculty mentors, field trips, research and ethics workshops.

**CoE Summer Mentorship Program** is a dynamic three-week research experience that provides high school students with a unique opportunity to work in a Drexel laboratory on an individualized research project.

**Summer Music Technology Program (SMT)** is an innovative, one-week learning experience that provides twenty high school sophomores and juniors with a unique opportunity to learn about music production technology and digital audio from Drexel faculty and students.

For more information on CoE summer programs, please visit, [www.drexel.edu/coe](http://www.drexel.edu/coe).

## Dean's Distinguished Lecture: CEO of Merck Discusses Importance of Global Partnerships

To make a difference in a world with medical needs, Chairman, President and CEO of Merck & Co., Inc., Richard Clark, stressed the importance of public-private partnerships at the Annual Dean's Distinguished Lecture. The audience filled the Mitchell Auditorium to learn the value of public-private partnerships that battle issues such as HIV, AIDS and river blindness.

Mr. Clark discussed how Merck is trying to defeat health issues worldwide. For nearly 20 years, Merck has been at the forefront of the effort to respond to the HIV/AIDS pandemic and river blindness. One of the most significant initiatives undertaken by Merck to help improve access to medicines in developing countries is the Merck MECTIZAN® Donation Program. The MECTIZAN® Donation Program is the single largest longest-standing public-private partnership of its kind and is widely regarded as one of the most successful health collaborations in the world. MECTIZAN® halts progression toward river blindness and relieves the itching that accompanies the disease.

Mr. Clark said, "Merck has made a commitment to the river blindness project until the disease has been eradicated." After Mr. Clark discussed further examples of Merck's initiatives to address health issues, he said, "Public-Private partnerships are needed to make a difference. We need to do it worldwide."

The CoE Dean's Distinguished Lecture hosts individuals who have made an impact in the fields of science and engineering.

For more information on the lecture, please visit, [www.drexel.edu/coe/news](http://www.drexel.edu/coe/news). For more information on Merck and Co., Inc, please visit [www.merck.com](http://www.merck.com).

- 3 Richard Clark, Chairman, President and CEO of Merck & Co., Inc. lectures on the importance of global partnerships at the Annual Dean's Distinguished Lecture.



- 1 Selçuk Güçeri, Dean of Drexel University's CoE, welcomes Richard Clark. Mr. Clark is Chairman, President and Chief Executive Officer of Merck & Co., Inc.
- 2 Students demonstrate their discoveries in plasma medicine with Richard Clark, Chairman, President and Chief Executive Officer of Merck & Co., Inc., and Dr. Selçuk Güçeri, Dean of Drexel University's CoE.

## Dr. Nihat Bilgutay 1952-2008

After serving Drexel for more than 25 years, Dr. Nihat Bilgutay, a member of CoE faculty, died July 1, 2008. Colleagues and friends knew Dr. Bilgutay as hard-working, dedicated and perceptive, fostering an atmosphere of cooperation that resulted in great achievements.



Dr. Bilgutay came to Drexel in 1982 as a Drexel Fellow and was made full professor in 1992. He served the University in many capacities including Vernon L. Newhouse Professor of Electrical and Computer Engineering, Associate Dean for Graduate Programs and research (1990-1995), leader of the Gateway Engineering Education Coalition and, most notably, head of the Department of Electrical and Computer Engineering (1995-2006). In the two years after he stepped down as department head of ECE, he continued to devote great energy to Drexel even as he battled debilitating illness. He served CoE most recently as associate dean for assessment and evaluation. Dr. Bilgutay will be remembered fondly and will be dearly missed by the Drexel community.

## Solar Lighting Project Wins First Place at Senior Design Competition

After competing with 121 senior design teams for a spot in the Annual Senior Design Competition, sponsored by the Environmental Tectonics Corporation, the Composite Solar Lighting Project walked away with the first place award of \$2,000.

The project representing MSE was one of the final eight senior design teams that presented at the competition. Their award-winning project titled *Composite Solar Lighting – A Fiber-Optic*



2008 Senior Design Competition Winners

*LED Daylighting Solution* is part of the Drexel Smart House initiative. The team designed and built an LED lighting fixture to simulate daylight in rooms without windows. Team members included Jameson Detweiler '08 (MSE), Thaddeus Konicki '08 (ECE), James McCann '08 (ECE) and Luke McCrone '08 (ECE). For more information on the Senior Design Competition, please visit [www.drexel.edu/coe/news](http://www.drexel.edu/coe/news).



## Engineering a Greener Future

In an effort to improve the environment, Drexel's engineers have been thinking green. The Drexel community is working toward sustainable engineering and renewable energy sources. In order to encourage others to join the effort in a greener future, Drexel faculty and students share their latest research discoveries. For more information on the Drexel green initiative, please visit <http://drexel.edu/green/default.asp>.

- 1 The DragonWagon team prepares their environmentally-friendly vehicle for a competition.
- 2 Spectators watch the DragonWagon in action in Drexel's main building.

### Eco-friendly Transportation: Drexel Engineers Go Green with the DragonWagon

At speeds of 35 mph and with only one horsepower, CoE's students are changing the traditional method of urban and suburban transportation with their environmentally friendly human-electric hybrid vehicle, the DragonWagon. The DragonWagon is a vehicle with pedals and a motor that can also run on solar or fuel-cell technology that aims to create low-cost, zero-emissions alternatives to the automobile for use in urban and suburban environments. The vehicle, which has two seats and three wheels, utilizes both the power of the human passengers and a high-efficiency electric motor.



The DragonWagon was designed and built in four months for a senior design project by students Ray Canzanese '08 (ECE), Jessie Kaestle '08 (MEM), Kyungdo Kim '08 (MEM), John Palermo '08 (MEM), Joe Porcelli '08 (ECE) and Michael Wigdahl '08 (MEM). With the guidance of adviser Dr. Bradley Layton (MEM), the students were able to create a vehicle that accelerates from zero-35 mph in under fifteen seconds, maintains a top speed of at least 35 mph and enables braking and a turning radius comparable to that of a traditional automobile. For more information on the DragonWagon, please visit <http://dragonwagon.wikidot.com/>.

### Drexel Team Creates Award-Winning Biodiesel Fuel System

Drexel Engineers have received an award for a system that turns trap grease into biodiesel fuel from the Environmental Protection Agency's "People, Prosperity, and the Planet" competition. The award the 15-member team won gave them additional funding up to \$75,000 to continue working on the project.



The award-winning biodiesel fuel system team will receive funding up to \$75,000 to continue working on the project

Cory Melick, '10 (CBE), a member of the team, explained the future goals for the project include attempting to use the project commercially and design a pilot plant with a company. The team is considering a patent for the project according to adviser Dr. Richard Cairncross (CBE). Dr. Cairncross said, "Compared to other designs, Drexel's design is more energy effective and the system is robust enough to be used with other feed stocks as well."

During the school year, groups of seniors majoring in mechanical engineering and chemical engineering helped with the model. The mechanical engineers built the project's reactor and the chemical engineers performed an economic analysis to see if the project would be profitable.

## Upcoming Events

### Welcome Back Reception

October 3, 2008  
4-7 p.m.

*Bossone Research Enterprise Center Lobby*  
Join the CoE in welcoming new and returning faculty, staff and students while celebrating the start of a new academic year.

### Open Houses

October 18  
November 9  
*Daskalakis Athletic Center*

For more information about upcoming CoE events, please visit <http://drexel.edu/coe/events.asp>.

