Innovation Challenge Awards More Than $55,000 in Prize Money

This spring, FACTbase, a team of students, alumni, and faculty entrepreneurs marketing a new technology that will save the oil industry and climate scientists time and money, won the grand prize of $25,000 at the seventh annual UMass Innovation Challenge. Plate Technologies, which delivers precision instrumentation for rapid success of biological-cell-culture-based experiments, won $14,000 at the event, while Sweet Seat, pitching a premium bicycle seat that delivers comfort through design, took home $8,000. Not to be outdone, Sneakers for Success, a non-profit organization which uses the so-called “sneaker culture” of urban lifestyle to motivate underprivileged youth toward academic success, won three prizes totaling $8,250.

Since 2005, the UMass Innovation Challenge has provided more than $467,000 in awards to 40 different student-led teams made from cross-campus collaborations that integrate Management, Engineering and Science.

The Innovation Challenge is designed to help current students and young alumni who have innovative business ideas to develop business plans and move products closer to market. “Like every good entrepreneurial effort, each year we strive for a stronger Innovation Challenge. This year has been one of exciting growth,” said Michael Malone, the Ronnie and Eugene Isenberg Distinguished Professor and Vice Chancellor for Research and Engagement. “It is especially gratifying to see this great campus-wide participation from many disciplines carry through to this evening’s outstanding student teams; it is their passion, expertise, and appetite for innovation that was the foundation of an exceptional final competition.”

The Innovation Challenge is supported entirely with private funds donated by Eugene M. and Ronnie Isenberg and the following sponsors: Wolf Greenfield; Saint-Gobain; SciDose; Cantor Colburn LLP; CISCO; Raytheon; Vistagy; Stephen Dunne ’89; Provenance Venture Partners; Michael Tunstill ’82, and Karen Lauter Utgoff Consulting.

There are countless opportunities to invest in our students and the education of future engineers. Has your company considered putting its logo on our supermileage vehicle, supporting the senior design lab, or providing a student with a scholarship? Position your company within the College by contacting our Development Office at 413-545-0282 or emailing Paula Sakey at PSakey@ecs.umass.edu.
Chemical engineering undergraduates Kathryn Geldart and Sarena Horava have both received one of the country’s most highly sought-after fellowships, the National Science Foundation’s Graduate Research Fellowship, worth more than $40,000 annually for three years. The fellowship is based on overall undergraduate record, including academics, research experience, internships, awards, publications, college activities, and a research proposal. Recipients are extremely well-qualified and have received multiple awards during their college careers.

Geldart has done research on production of the anti-cancer compound Taxol® in plant cell cultures in the lab of UMass Chemical Engineering Professor Susan Roberts, and on the pyrolysis of rice straw during a summer project at the University of Colorado. She was also a Protein Purification Intern at Shire Pharmaceuticals in Cambridge, Massachusetts.

Horava has also done research with Professor Roberts on biomaterial design for tissue engineering, in addition to summer research at the University of California Berkeley on re-engineering bacterial compartments for pharmaceutical and biofuel production, and at the University of Pennsylvania on bioengineering research related to intervertebral disc degeneration and restoration. Horava also has journal publications in Acta Biomaterialia and the E Cells & Materials Journal.

“These two young women are exceptional students and scholars and represent the future generation of leaders in the field of bioengineering,” says Professor Roberts. “Their intellect, hard work, creativity, and collegiality made it a pleasure to serve as their research advisor, and I am confident that this prestigious fellowship will be the first of many awards to come in their graduate careers and beyond!”

Two Outstanding MIE Projects Share First Place

Mechanical and Industrial Engineering’s crowning course, MIE 415: Senior Design Project awarded two first place winners this spring. Winners were chosen after 14 student teams of seniors demonstrated the prototypes of their useful, inventive, and brilliant designs for all to see. The course, taught by MIE Professor Sundar Krishnamurty, is considered “the culminating experience” of the education in the MIE department and demands that students use the knowledge and skills they have acquired to design a utilitarian product, build a prototype, summarize the project with a poster, and make a presentation to judges.

One first-place project designed a new clutch that allows higher reap- ing capacity in John Deere combine harvesting tractors. The “Innovative Clutch Design,” created by the team of Andrew Erwin, Keith MacWilliam, Frank May, and Rishi Singh, was sponsored by Altra Industrial Motion, a multinational producer of mechanical power transmission products. The concept combines a disk clutch with a centrifugal clutch. When powered, the disk clutch will engage and, through the use of a latch mechanism, the centrifugal clutch will engage at a desired RPM. Sharing first place was the “Autonomous Lead Paint Entrapment and Filtration System,” developed by students Brian Griffin, Carlo Domaoan, Richard Lau, and Todd Robbins. This system increases the efficiency and safety of exterior lead paint removal by using an automatic water pump, impermeable plastic sheeting, and filtration design having the effect of cutting the time, labor, and monetary cost of lead removal.
ECE Places Two Teams in the National Cornell Cup Competition

The Electrical and Computer Engineering Department placed two teams of student innovators in the final field of 24 in the nationwide Cornell Cup competition this spring at Walt Disney World. Cornell Cup USA, presented by Intel, is a college-level competition created so student teams can design and invent the newest innovative applications of embedded technology.

Students Adib Khozouee, Christopher Brennan, Edmar Gonçalves, and Ejiroghene Urhiafe, under the leadership of ECE faculty advisors Csaba Andras Moritz and Roderic A. Grupen, designed and built an “Automated Aero-Painting System,” a quadrocopter equipped with a spray paint canister to paint a figure autonomously on a vertical surface. “What’s exciting and unique about this project is that not only does it make an approach to unmanned aerial vehicle automation, but also proposes a completely new application,” the team notes in its project description. “The challenge is to design an autonomous system that involves real-time actuator control and constant feedback evaluation during flight.”

The other team earning a spot created an “Augmented Reality Head-Up Display,” a wearable augmented-reality system, displayed on the lenses of goggles and capable of creating an immersive 3-D environment. Advised by ECE faculty Tilman Wolf, the student team of To Chong, Ryan Offir, James Kestyn, and Matt Ferrante stated their goal was “to step up [from] the infantile stage of Augmented Reality to build a portable system that is capable of capturing live sensing data of the users and then use this information in real time application.”

Northeastern Steel Bridge Competition Held at UMass Amherst

The Civil and Environmental Engineering Department hosted 13 schools for the 2012 Northeast Regional Steel Bridge Competition, sponsored in part by the American Society of Civil Engineers. Each school designed a 23 foot-long, four-foot-tall steel bridge intended to hold 2,500 pounds. UMass Amherst came in sixth overall in the competition, which was based on a converted cost of the bridge including lightness, stiffness, and aggregate deflection.

The competition is a comprehensive, student-driven project carried out from conception and design through fabrication, erection, and testing, culminating in a bridge that meets client specifications and optimizes performance and economy. The competition addresses real-world engineering issues such as spatial constraints, material properties, strength, serviceability, fabrication and erection processes, safety, aesthetics, and cost. Success requires effective teamwork and project management.

Team captains, senior Tomer Soran and junior Zachary Bemis were proud of their bridge and their team and pleased with how the competition came together. The team was sponsored by the Boston Society of Civil Engineers Section and Renaud Brothers of Vermont.

Gomez Named Outstanding Transportation Student

Radhameris Gomez, a doctoral transportation engineering student in the Civil and Environmental Engineering Department, was named Outstanding Student of the Year by the New England University Transportation Center. Ms. Gomez had previously received fellowships from the Eno Transportation Foundation, the National Science Foundation Alliances for Graduate Education and the Professoriate, a Thomas E. Desjardins Memorial Scholarship from the Institute of Transportation Engineers, and a Best Research Presentation Award from the Volpe National Transportation Systems Center.

Her academic excellence, numerous awards, and participation in professional organizations all contributed to her selection. Since joining UMass Amherst, Ms. Gomez has focused on transportation safety and human factors, including pedestrian safety, injury outcomes from crashes, and driving simulator use in evaluating traffic signals and signs.
Letter from the Director

Life is about connections. The longer I’m in the career services business, the more I believe this. I am in the fortunate position of connecting students and faculty with corporate recruiters and alumni to develop mutually beneficial relationships. The online age has expanded this ability by leaps and bounds. Social networking sites like LinkedIn and the UMass Alumni Association’s Career Connections have helped us reconnect with classmates and colleagues and forge new relationships around shared interests or to solve technical problems.

Students in the College of Engineering are connecting with industry representatives and other engineers through career fairs, information sessions, networking events, design competitions and at regional and national conferences. Samuel Del Pilar, team leader for one of our Innovation Challenge teams commented, “The entire Innovation Challenge allowed me to meet great mentors who I see myself working with beyond my time at UMass in building the Sneakers for Success organization”.

Last weekend, I attended a wedding in Burlington, VT where I had the opportunity to reconnect with twelve UMass Chemical Engineers from the class of 2007. These alumni have successful careers at places such as IBM, General Electric, UOP, United Technologies, Tighe and Bond, and Dow. They have stayed connected to each other and are now reaching back to the College to connect with current students. As you read through this edition of Corporate Connections, I hope you will be inspired to connect with our students here in the College of Engineering by participating in our Fall 2012 recruiting events including our Engineering and Technology Career Fair on September 27th.

Recruiting Opportunities in UMass College of Engineering

• Engineering Career Fair: Sept. 27
• Corporate Information Sessions
• “Meet & Greet” with Target Groups
• Tabling in Engineering
• Networking Events
• Host a Workshop