InCYde MECHANICAL ENGINEERING
IOWA STATE UNIVERSITY
Department of Mechanical Engineering

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Team LunaCY wins top prize at national competition

Not only did Iowa State's Team LunaCY succeed in building a better robot and making a good showing at this year's NASA Lunabotics Mining Competition, it also brought home three awards and the first place title.

The Lunabotics Club won the Joe Kosmo Award for Excellence, first place in on-site mining and third place in outreach, beating out 49 other teams from around the world. (Full story)

Below are videos from the team.

- "Harlem Shake" video
- Video of HERMES competition run
- NASA EDGE videos of the entire competition

Visit the team on Facebook for more.

Hayes named 2013 ASME Fellow

Hayes

Caroline Hayes, chair of the mechanical engineering department and Lynn Gleason Professor of Interdisciplinary Engineering, recently became an ASME Fellow. The American Society of Mechanical Engineers recognizes members who have had 10 or more years of practice in the field and an active membership with ASME. (Full story)

Changing the way engineering feels: A project to improve the accessibility of STEM fields for the visually impaired

Cris Schwartz, associate professor of mechanical engineering,is using his National Science Foundation CAREER Award to find ways to make STEM fields more accessible to those with visual impairments. (Full story)

Miller receives 2013 Zaffarano Prize for superior performance in publishable research

Joseph Miller, a recent Ph.D. graduate in mechanical engineering, was awarded the 2013 Zaffarano

Infinite possibilities for discovery of new way to manipulate fluid stream flow, from industrial processing to control of biomolecular interactions

Ganapathysubramanian

Two Iowa State researchers teamed up with researchers from UCLA and Princeton University to create an innovative way to engineer the flow of fluid streams, which is important in biological processing, controlling chemical reactions and creating structured materials. **Baskar Ganapathysubramanian**, assistant professor of mechanical engineering, and Yu Xie, research graduate assistant in mechanical engineering, recently published an article called "Engineering Fluid Flow Using Sequenced Microstructures" in the journal *Nature Communications*. (Full story)

Realizing the dreams of Art Bergles with the help of nanotechnologies

Scientists gathered April 23-24, 2013, at the MIT Endicott mansion to reflect on nanotechnologies for phase change heat transfer. From left to right: Art Bergles (former Department Chair at Iowa State U, who participated remotely because of severe health problems), Daniel Attinger (Iowa State U), Amy Betz (Assistant Prof at Kansas State U and former PhD student in Attinger's lab), Van P. Carey (UC Berkeley), CJ Kim (UC Los Angeles. MS Iowa State U with Bergles, 1985), Chris Frankiewicz (current postdoc in Attinger's lab) and David Quéré (École Polytechnique and École centrale of Paris)

Daniel Attinger, associate professor of mechanical engineering, was invited to give a panel presentation on surface sciences at the International Workshop on Micro and Nanostructures for Phase Change Heat Transfer. The workshop was co-organized in Boston by Evelyn Wang from the Massachusetts Institute of Technology (MIT) and Yoav Peles from the Rensselaer Polytechnic Institute. The audience was a group of 60 international scientists, research program directors from government agencies, and large companies. (Full story)

Attinger receives Presidential Initiative award for project to ensure future food security

Prize, which recognizes superior performance in publishable research by a graduate student. A check for $1,500 and a plaque was presented to Miller by the Iowa State University chapter of Sigma Xi, an international honor society for research scientists and engineers, at its banquet in April. (Full story)


Schwartz

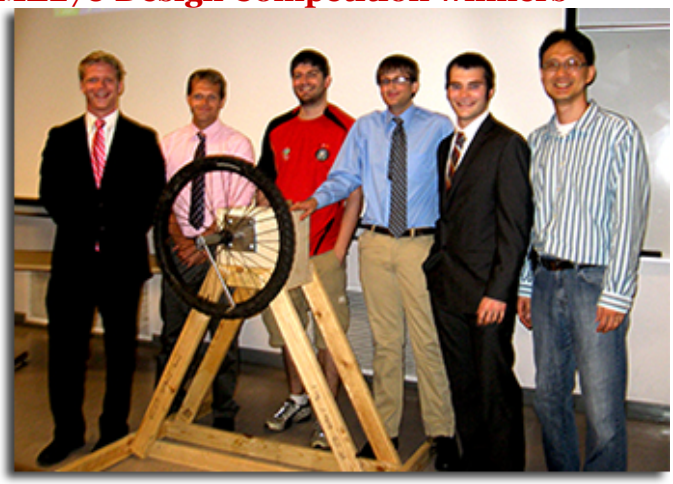
More ME news and announcements

- **Gap-Yong Kim** was promoted to Associate Professor with Tenure
- KCCI takes us inside C6 virtual reality
- Five ME graduate students receive Graduate College awards
- **Daniel Attinger** interviewed on Iowa Public Radio about bloodstain pattern analysis
- Team PrISUm hopes for Texas heat at this summer's Formula Sun Grand Prix
- Two ME undergrad students join Cardinal Key society
- **Valery Levitas** and PhD student explore potential of using silicon in lithium-ion batteries
- ME nominates Edward Angus as outstanding senior for student marshal
- Iowa State formula racers think engine problems are finally behind them

ME alum Brad Matt shares international experience, love for Iowa State

Even though he's a mechanical engineer, Brad Matt, a 2002 alumnus, prefers to spend his time working hands-on at a construction site rather than in his office. Lucky for Brad, his jobs have provided him with a steady mix of both environments. (Full story)

ME270 Design Competition winners



The winning team in the ME270 Design Competition was Team E6 from **Gap-Yong Kim**'s class section. Nathan Erickson, Payton Goodrich, Scott Johnston and Joseph Wallace are members of the team called GLO that worked on a gravity powered light for third-world countries.

MELT trebuchet competition

Daniel Attinger, associate professor of mechanical engineering, both received awards from the Presidential Initiative for Interdisciplinary Research program created by President Steven Leath. (Full story)


Attinger

Balasubramanian receives Miller Faculty Fellowship to develop nanoscale heat transfer curriculum

PI: **Ganesh Balasubramanian**
Proposal title: Development and Implementation of a Nanoscale Heat Transfer module and course in the Iowa State University Undergraduate Curriculum
Award: $15,000
Sponsor: Miller Faculty Fellowship, the program is administered by the President's Office and the Center for Excellence in Learning and Teaching


Balasubramanian

Abstract: The goals of this proposal are to develop and implement educational modules and a novel introductory course on nanoscale heat transfer for undergraduates at Iowa State University. The course will expose students pursing undergraduate degrees in engineering and sciences to fundamentals of thermal transport processes at the molecular scale and offer insights to potential technological challenges involved in thermal management and materials design of nano/microscale devices. A bottoms-up implementation strategy will be employed with lecture and hands-on modules incorporated in the ME436: Heat Transfer course followed by the offering of a senior level technical elective course in the Mechanical Engineering curriculum. It is anticipated that the educational outcomes of more than 400 undergraduates will be enhanced each year equipping them with contemporary scientific knowledge, out-of-the box thinking abilities and problem based learning skills. A learner-centered curriculum and integration of research with education are two fundamental principles underlying this course development.

Iowa State Baja SAE Team lends help to competition, still finds success

The Iowa State University Baja SAE Team made a solid showing in the Collegiate Design Series competition at Western Washington State May 16-19. Completing a series of dynamic events including maneuverability, the hill climb, acceleration and the rock crawl, the team only had one major hang-up, which came in the endurance race. A dislocated half-shaft cost the Iowa State team a few laps, but it still managed to place 37 out of 77 teams from across the world. (Full story)

Below are some videos from the SAE team.

The annual ME Learning Team (MELT) trebuchet competition was held at the end of the spring semester on the lawn by the Marston Water Tower, where the learning teams use trebuchets they designed to determine which design can fling water balloons the farthest distance. The winning team is pictured below with their design.

Upcoming events

June and July – New student orientation
June 17 – Session II coursework begins
July 4 – University holiday, offices closed
August 9 – Summer term ends
August 26 – Fall semester coursework begins
September 2 – University holiday, offices closed

- Performing in the rock crawl event
- First person view from the vehicle

Visit the team on Facebook for more.

Iowa State receives two Grand Challenges Explorations grants to improve global health and development

Iowa State researchers have received two $100,000 grants from Grand Challenges Explorations, an initiative funded by the Bill & Melinda Gates Foundation. The grants provide funding for individuals worldwide to explore ideas toward solving persistent global health and development challenges. Initial grants of $100,000 are awarded twice a year. Successful projects have the opportunity to receive an additional grant of up to $1 million. (Full story)

See related story: Engineering courses introduce students to problems in developing nations

Department of Mechanical Engineering
2025 Black Engineering Building, Ames, IA 50011
515 294-1423, isume@iastate.edu

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