

*Integrating knowledge,  
deriving genius.*

# EOH 2010

**VISITOR'S  
GUIDE**

MARCH 12-13, 2010  
<http://eoh.illinois.edu>



# EOH 2010

Director's Welcome Letter.....5

AMD W.J. "Jerry" Sanders Creative Design Competition.....6

Exhibit Index.....7

## Project Descriptions

Campus Map.....3

Agricultural Engineering Sciences Building.....9

Digital Computer Laboratory.....9

Engineering Hall.....10

Everitt Laboratory.....11

Hydrosystems Laboratory.....12

Loomis Laboratory.....15

Material Science and Engineering Building.....15

Mechanical Engineering Laboratory.....18

Newmark Laboratory.....20

Siebel Center.....23

Talbot Laboratory.....26

Transportation Building.....27

## EVENT HIGHLIGHTS

### MIDDLE SCHOOL COMPETITION

The Middle School Design Competition offers 5th through 8th graders an opportunity to "integrate knowledge, derive genius" through a prepared design challenge. This year, the challenge is to build a wire glider using everyday materials. Come and check out the competition on **Saturday, March 13th in Digital Computer Laboratory between 10:00am and 1:00pm!** By using ordinary objects, contestants have to apply engineering principles combined with creativity to compete for the best design.

### RUBE GOLDBERG HIGH SCHOOL DESIGN CONTEST

Teams of high school students have put their heads together to design exciting contraptions with the goal of dispensing an appropriate amount of hand sanitizer into a hand. Inspired by the famous cartoons of Rueben Lucius Goldberg, students find complex ways of accomplishing a simple task using ordinary (and sometimes not-so-ordinary) materials. Science and engineering principles are combined with creativity and ingenuity to create these awesome inventions. Stop by **Campus Recreation Center East on Friday between 10:00am and 1:00pm** to see these amazing machines in action and vote for your favorite one!

### ILLINI ENGINEERING CHALLENGE

Here's a chance for EVERYONE to work on an actual engineering project! The Illini Engineering Challenge is an on-site design challenge open to the general public, so everyone who attends EOH 2010 is welcome to participate! There are several challenges for you at the Transportation Building this year. Stop by and try your hands on the challenges and you could win a free EOH t-shirt!

### AMD W.J. "JERRY" SANDERS

#### CREATIVE DESIGN COMPETITION

AMD W.J. "Jerry" Sanders Creative Design Competition is an annual robotics contest which allows teams of the best engineering students in the country to test their engineering skills and ingenuity. This year, robots will be playing a game of Tic-Tac-Toe. This is one of the largest and most exciting events at EOH, and is sponsored by Advanced Micro Devices. Come join us to encourage creativity and excellence in engineering!

**Kenney Gym, Friday (9AM-4PM), Saturday (9AM-3PM)**

#### Micro and Nanotechnology Laboratory Tours

Friday Only-First tour at 9AM, approximately every 15 minutes, last tour at 3:45PM.

#### Concrete Crushing

Talbot Laboratory basement - 10:00am, 11:30am, 1:00pm, 2:30pm

#### Rube Goldberg Machine

The Rube Goldberg Society has built a machine to dispense hand sanitizer. A Rube Goldberg machine contains many small steps that accomplish a big task. The machine is themed after Willy Wonka's Chocolate Factory, containing all kinds of gizmos from the movie. Come check out the amazing machine this year!

#### Engineering Hall 106B3

**Run Times: Friday -9:30/10:15/11:00/11:45/12:30/1:15/2:00/2:45/3:30**

**Saturday-9:30/10:15/11:00/11:45/12:30/1:15/2:00/2:45**



ENGINEERING OPEN HOUSE 2010

# EVENT HIGHLIGHTS

## TRAFFIC AND SAFETY

Engineering Open House works hard to ensure the safety of our visitors. We ask that you not enter the rooms and buildings not marked for EOH use as indicated in the Visitor's Guide. Additionally, please follow standard safety precautions with special consideration for campus construction sites. For the safety of yourself and others, please cross at the designated crossings when walking on the campus. Thank you!

## SHUTTLE AND PARKING

In order to make your visit to EOH more relaxing, parking at EOH is free. **Please park your vehicles at the E-14 parking lot along Kirby Ave.** The EOH Shuttle-- Operated by Peoria Charter Coach Company-- will run every 15-20 minutes during EOH hours.

- Circle Drive in front of the ACES Library
- Green and Wright
- Kenney Gym (Springfield Ave.)
- Goodwin Ave. and Green St.
- Gregory Dr. and Goodwin Ave.
- Sixth St. and Pennsylvania Ave.
- Biomedical Magnetic Resonance Facility

A tour guide will introduce the University campus to the visitors during rides, and EOH visitor's guides will be provided in the EOH shuttle. **School buses can drop off visitors on Wright Street, between Talbot Lab (just north of Green St) and Stoughton St. All buses must park in the E-14 parking lot.**

## FOOD AND ENTERTAINMENT

Engineering Open House is proud to present the Oasis, food and entertainment central! The Oasis is conveniently located between **Engineering Hall and Everitt Lab**, right across the street from the Illini Union. Here, you will be able to grab a bite to eat and enjoy entertainment by U of I's own student groups. So take a moment to stop by, relax, and recharge!

Operating Hours: **Food, beverage, and entertainment: 11:00 a.m. to 2:00 p.m.**

Friday, March 12:

11:45 - 12:20 p.m. Chai Town

12:30 - 1:05 p.m. I-Pan

1:15 - 1:50 p.m. I-Pan

Saturday, March 13:

11:00 - 11:35 a.m. Illini Contraband

11:45 - 12:20 p.m. Illini Contraband

12:30 - 1:05 p.m. 3 Spot

1:15 - 1:50 p.m. Girls Next Door

### ***A Short History of Engineering Open House at UIUC***

The Open House is the result of over a century of evolution. At the dawn of the 20th century, it became the policy of various departments to sponsor shows and open houses at which time the students and faculty would collaborate on demonstrations and lectures. In 1906, the Department of Physics held its first annual Open House, becoming the precedent and inspiration for the present-day Engineering Open House. This showing of departmental equipment was held in the laboratories of Engineering Hall, where the Physics Department was located at the time. The exhibits centered around light, sound, wireless telegraphy, and other electrical operations, featuring lectures on the principles involved.

In the later years, from 1938 to 1942, the tendency was to demonstrate more of the University's equipment and student work, thereby diminishing the commercial flavor. Most had a serious purpose, seeking to illustrate some of the latest advances in electrical engineering (though a few were purely for the purposes of showmanship). In the fall of 1914, a few years after the first E. E. show, members of the Student Branch of the American Society of Mechanical Engineers acted as hosts at the first annual Mechanical Engineering Open House. Some two thousand people representing all departments of the University passed through the displays of student work and demonstrations of machines in operation, and heard talks on subjects concerning the popular machines of the day.

# EOH 2010

Friday, March 12: 9 AM - 4 PM

Saturday, March 13: 9 AM - 3 PM

## Visitor Booths

The EOH Visitor Booths can be found in the following locations:

- Digital Computer Lab:** Atrium
- Engineering Hall:** Main Hallway
- Engineering Quad:** North side, next to Grainger Library

Be sure to pick up your EOH 2010 merchandise, including this year's t-shirt, at the Visitor Booth located outside.

Questions? Talk to volunteers at the visitor's booths or committee members with name tags.

## Tours@Engineering Campus

Learn more about departments and research. Take advantage of your time here and embark on a guided tour. Tours are led by current engineering undergrads and end with a Dean's Information Session.

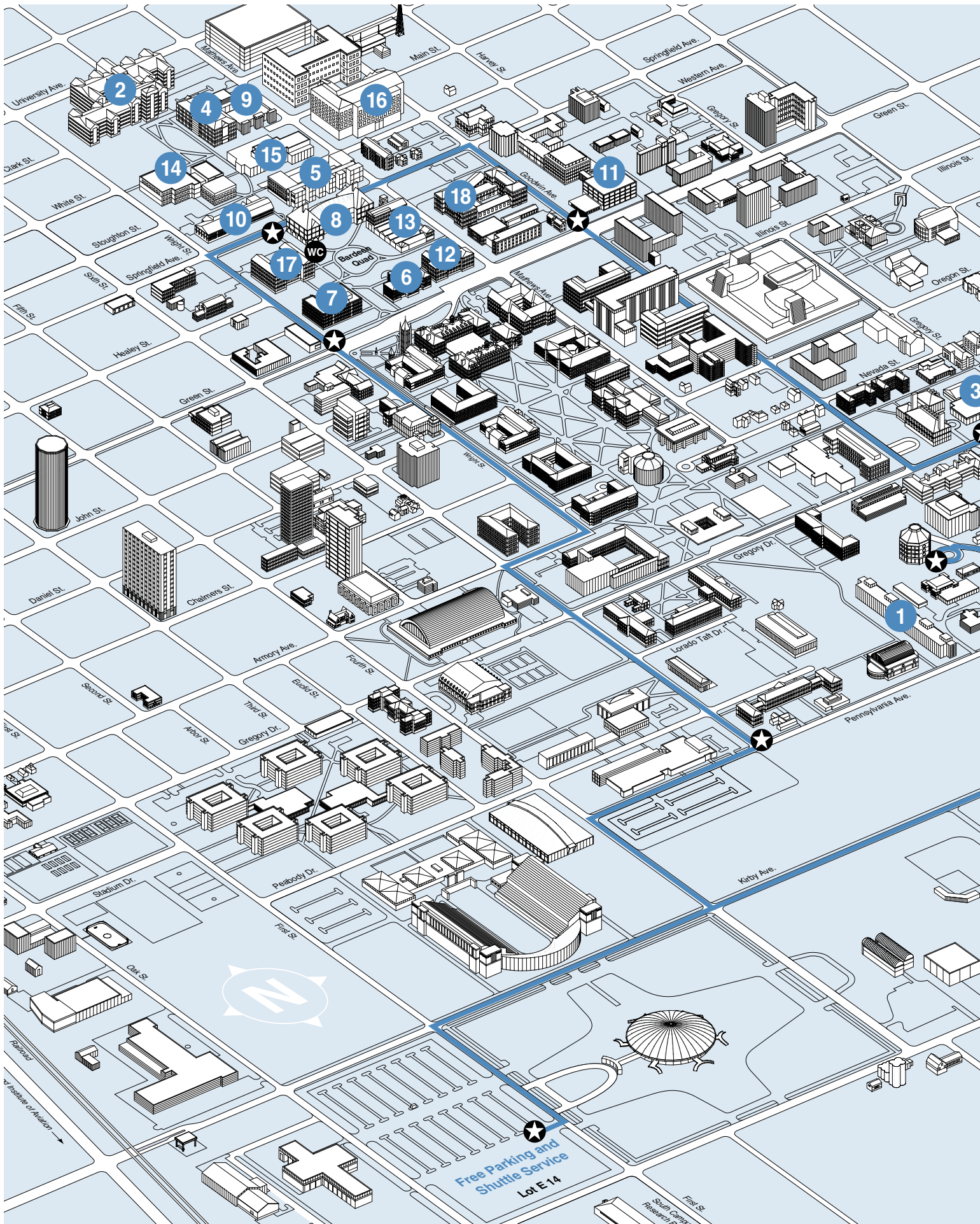
Tours leave from Visitor's Booth on the **west side of Grainger Library** at the following times:

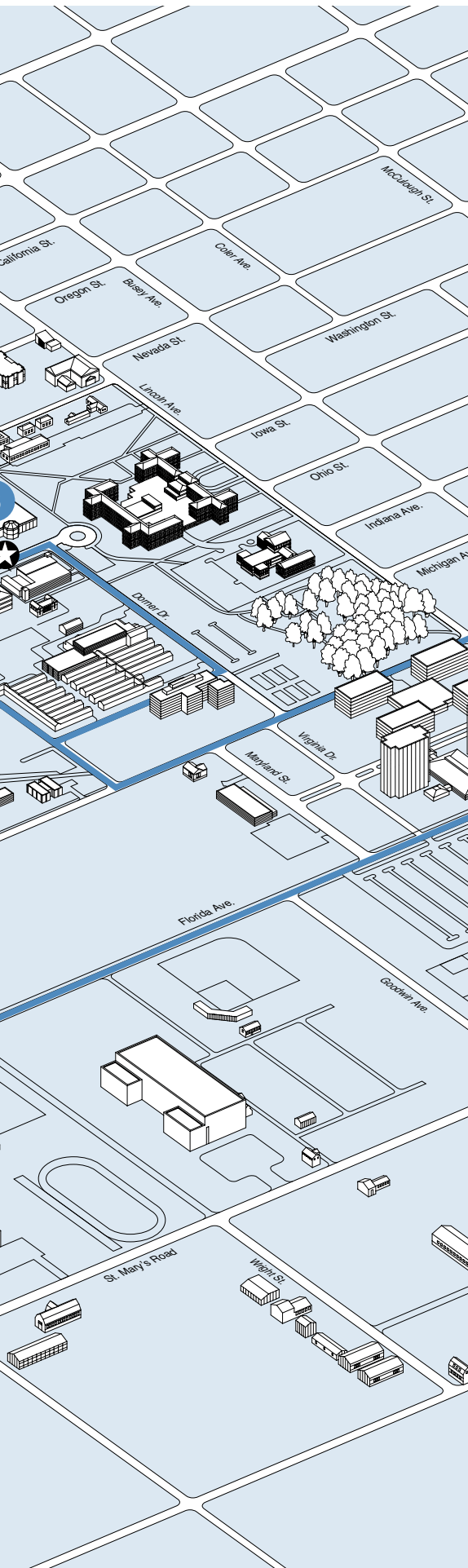
Friday: 10AM/12PM/2PM/3PM

Saturday: 10AM/12PM/2PM

*Prior registration not required*







# Engineering Open House

## Building Guide and Shuttle Route

- 1 Agricultural Engineering Sciences Building
- 2 Beckman Institute
- 3 Campus Recreation Center East  
(High School Design Contest)
- 4 Coordinated Science Laboratory
- 5 Digital Computer Laboratory
- 6 Engineering Hall
- 7 Everitt Laboratory
- 8 Grainger Engineering Laboratory
- 9 Hydrosystems Laboratory
- 10 Kenney Gym & Annex  
(Jerry Sanders Design Competition)
- 11 Loomis Laboratory
- 12 Materials Science & Engineering Building
- 13 Mechanical Engineering Laboratory
- 14 Micro & Nanotechnology Laboratory
- 15 Newmark Laboratory
- 16 Siebel Center
- 17 Talbot Laboratory
- 18 Transportation Building



**Welcome Center**



**Shuttle Stop**

(Shuttle runs every 15-20 minutes,  
Friday, 9 a.m. to 4 p.m., and  
Saturday, 9 a.m. to 3 p.m.)

*Not Shown on map: Shuttle route continues on to Biomedical  
Imaging Center before returning to E-14 Parking lot.*





## EOH 2010

**Welcome** to the 90th Engineering Open House at the University of Illinois at Urbana-Champaign. This event has been a part of the Engineering at Illinois tradition since 1907 and has been an annual event since 1952. Each year, thousands of visitors converge on the Illinois campus to see and learn about all aspects of engineering and how it affects every facet of our lives. The exhibits reflect the interests, creativity and passion of students across all engineering disciplines. Every visitor will have the opportunity to learn about the engineering behind everyday items, see new technologies, and experience the wonders of engineering. We encourage you to ask questions and participate in all aspects of Engineering Open House.

This year we have created two new aspects to Engineering Open House. EOH Mobile is a mobile website designed for the iPhone, Android, Palm, Blackberry, and other mobile devices. It offers up-to-the-minute information about our exhibits, locations, and EOH announcements. To access this website, please visit <http://eoh.illinois.edu/mobile>. For our many supporters of EOH who can't make it back to campus, we have created EOH Live! – an online, live video stream of the best parts of Engineering Open House. Many videos from the two days of EOH will be available for on-demand viewing after EOH too – check the EOH Live website for more information – <http://eoh.illinois.edu/live>.

Engineering Open House is organized by a central committee under Engineering Council (EC), a student organization that works to enrich the engineering experience through a distinctive array of programs of services. Information about EC programs can be found at <http://ec.illinois.edu>. For more information about the College of Engineering, please visit <http://engineering.illinois.edu>.

Thank you for visiting Engineering Open House.

Sincerely,

Gavin Rehkemper

Director, Engineering Open House 2010



### Engineering Open House 2010 Central Committee

Engineering Open House Director  
Secretary/Treasurer  
Junior Corporate Director  
Grade School Design Contest Director  
Director of External Marketing  
Director of Visitor's Information  
Director of Traffic & Safety  
Creative Design Director  
Webmaster

Gavin Rehkemper  
Parag Zaveri  
Mike Driscoll  
Ann Pan  
Jimmy Kryger  
Stanley Chang  
Stephanie Graves  
Doug Litteken  
Allen Huang

Director of Exhibits  
Senior Corporate Director  
High School Design Contest Director  
Jerry Sanders Design Contest Director  
Director of Internal Marketing  
Director of Facilities & Equipment  
Director of Judging & Awards  
Social & Entertainment Director

Kelsey Erickson  
Brian Chae  
Andrew Zwicky  
Jon Hansen  
Perri Kofkin  
Palak Doshi  
Mark Persaud  
Emily Carroll

# 23rd Annual AMD W.J. "Jerry" Sanders Creative Design Competition

Integrating knowledge,  
deriving genius.



College students from around the world come to participate in the 22nd Annual AMD W.J. "Jerry" Sanders Creative Design Competition, a two-day contest of robotic design and engineering. This year, teams will need to move a weighted, air-filled balloon to play a large game of tic-tac-toe. Instead of Xs and Os, teams will play with colored balloons. Each team will be assigned a colored balloon to score with. To get their balloons, a team will first have to 'unlock' their balloons from a cage. Once released onto the field, teams can score by placing it into a box. Once scored in, the box will remain under the team's control until another team takes control by scoring in that box.

## Scoring:

Points will be awarded for releasing balloons and scoring in a box. Additional points will be awarded if a team gains control over an entire 'line' in the tic-tac-toe grid. Points will be taken away for popping the balloons.

"Jerry" Sanders III graduated from the University of Illinois at Urbana-Champaign in 1958 with a Bachelors of Science in Electrical Engineering. Since then, he's gone on to start one of the most successful companies of our time.

W.J. "Jerry" Sanders III co-founded Advanced Micro Devices (AMD) in 1969. Under his leadership, AMD grew from being a "second-sourcer" of other companies' products to its current position as the fourth largest semi-conductor manufacturer in the United States.

Sanders also co-founded several prominent industry groups, including the Semiconductor Industry Association, the Santa Clara Manufacturing Group, the Semiconductor Research Corporation, and the Microelectronics and Computer Technology Corporation.

The Wall Street Transcript named Sanders the Best Chief Executive Officer in the semiconductor industry for the years 1983, 1984, and 1985, and runner-up in 1991. Mr. Sanders received the Robert N. Noyce Award from the Semi-conductor Industry Association (SIA) in 1998. In 2001, he received the Medal of Achievement for the AeA, the nation's largest high-tech industry association.

Sanders' continued support for the University of Illinois, and in particular this design contest, is a testament to his support for education and competition, both of which he thinks breeds success, creativity, and excellence.

W.J. Sanders III  
Founder and Chairman Emeritus of Advanced Micro Devices, Inc.



## Location and Time:

March 12 (9AM-4PM) , March 13 (9AM-3PM)  
Kenney Gym Annex  
University of Illinois at Urbana-Champaign

## Schedule:

Competition will take place from 9 am to 4 pm on both days with final rounds starting around 1 pm on Saturday, March 13th.

There will be rounds running at all times with bonus rounds and even crowd participation events spaced throughout the day. Towards the end of the competition on Saturday there will also be a demolition round where teams fight to have the last functional robot standing!

## W.J. "Jerry" Sanders Creative Design Competition Committee

Director: Jon Hansen  
Rules Chair: Jack Pritz  
Field Chair: Luke Zaczek  
Publicity Chair: Joel Spadin  
Faculty Advisor: Dan Mast  
Treasurer: Ross Wolf  
Teams Coordinator: Chloe Sevilla  
Programmer: Nishit Sharma  
Webmaster: Brendan Neunaber  
Mechanical Design Officer: Duane Bertels

Check out the photo gallery on our website for interesting pictures of the competition. You can find us at <http://dc.ec.uiuc.edu>

We welcome all feedback and suggestions! If you would like to contact the Jerry Sanders Design Committee, please email us at: [eoh-jerry-sanders@ec.uiuc.edu](mailto:eoh-jerry-sanders@ec.uiuc.edu)

## Special Thanks

The EOH Central Committee would like to thank:

Angie Dimit	Kay Kappes	Dana Tempel
Kalev Leetaru	Greg Larson	Chris Holt
Rick Kubetz	Ketty Duvall	Rich Holm
James Vattano	Russ Schmalz	Tamara Ingram
Jerry Rabbitt	Charles Tucker III	Sarah Zehr
Eric Thome	Oasis Performers	Corporate Sponsors
Illini Tours	City of Urbana	F&G Sound
City of Champaign Parking	Champaign County Tents	Illini Union Board
Special Events Planning Committee		



## EXHIBIT INDEX

### EXHIBIT

ACM - SIG Embedded  
Acoustic Fax Machine  
Acoustics Music Player  
Advanced Ceramics  
Air cannons for use in Agriculture and Forestry  
Alpha Epsilon  
Alpha Omega Epsilon  
Alternative Diesel Fuels for Off-Road Equipment  
American Concrete Institute (ACI)  
Anchors Aweigh  
Animal Welfare and Environmental Systems  
AREMA  
Art and Engineering Design  
ASCE  
ASCE- Balsa Wood Competition

Biodiesel Initiative  
BIOE: Frontiers of Medical Care  
Bluewater Ampworks  
Breakfast With SWE  
Bridge to China - Helping Paomaping  
Bubble Room Physics

Career Opportunities in Agricultural and Biological Engineering  
Chaos Vs Order  
Chemical Engineering at the U of I  
Cloud Chamber  
CNC Machining  
Concrete Canoe  
Concrete Crushing  
Corn Stalk Counter  
Cross Compiling a Linux System  
Curvature

Depth Camera  
Distracted Driving

Egg Drop  
Electric Mountain Board  
Electronic Materials  
Enzymes in Food Processing and BioSensing  
Ever seen the bottom of the Ocean?

Ferrofluid Cymatics  
Ferrofluids  
Festo - Air motion ride  
Flight Simulator  
Float Your Boat  
Fluid Power  
Fluids Lab Demonstration  
Frantic Elevator 2  
Frozen Treats!

Galactic Strategy Game  
Gamebuilders Minigames

Hambot: Machine vs. Nature  
Hands-On Hydrologic Model  
Hexapods  
Hidden Waters  
Hydrogels

iFoundry and iEFX  
IGVRT Autonomous Robot  
Illiac III Supercomputer Redux  
Illini Entrepreneurship Network  
Illini Prosthetics Team  
Illini Pullers  
Illinois Biodiesel Initiative  
Illinois Electric Vehicle Club  
Illinois Student Branch of ASABE  
Ink  
Integrating Fun and Robotics  
Interactive Carbon Cycle  
Interference Room  
ISGE  
ITE

Keyless Dorm Entry

Laser Property - Protection Fence  
Left 4 Dead Kill Counter  
Light Up My Life  
Liquefaction Tank  
Liquid Nitrogen Table

### SOCIETY

ACM  
ECE  
ACM  
Material Science  
Department Of Ag And Bio Engineering  
Department Of Ag And Bio Engineering  
College of Engineering  
Department Of Ag And Bio Engineering  
ASCE  
Illinois Society of General Engineers  
Department Of Ag And Bio Engineering  
ASCE  
iFoundry  
CEE/ASCE  
CEE-ASCE

Biodiesel Initiative  
BMES and Bioe Department  
ECE  
Society of Women Engineers  
Wu Zhi Qiao (Bridge to China) Charitable  
Physics Society

Agricultural and Biological Engineering  
Computer Science  
AICHE  
Physics - Physics Society  
Society of Women Engineers  
ASCE  
Society for Experimental Mechanics  
Agricultural and Biological Engineering  
Linux Users Group  
UIUC ACM SIGGRAPH

ECE  
American Society of Mechanical Engineers

Gamma Epsilon  
ECE  
Material Advantage  
Agricultural and Biological Engineering  
IAHR/IWRA

Theta Tau  
Material Science  
CEEFP  
AIAA  
NOBE  
CEEFP  
Society for Experimental Mechanics  
ACM Gamebuilders  
Illinois Space Society

ACM Gamebuilders  
ACM Gamebuilders

CS, Psychology, EE  
IAHR & IWRA  
Pi Tau Sigma (MechSE)  
IAHR/IWRA  
Material Advantage

iFoundry  
Intelligent Ground Vehicles Robotics  
SIGArch  
Illini Entrepreneurship Network  
Illini Prosthetics Team  
Agricultural and Biological Engineering  
Engineers Without Borders UIUC  
Illinois Electric Vehicle RSO  
Agricultural and Biological Engineering  
ACM Gamebuilders  
Women in Engineering  
Agricultural and Biological Engineering  
Physics - Physics Society  
ISGE  
CEE - ASCE

ECE

IEEE  
IEEE  
WECE  
GESO  
Physics - Physics Van

### BUILDING

Siebel Center  
Everitt Laboratory  
Siebel Center  
Materials Science and Engineering Building  
Digital Computer Laboratory  
Digital Computer Laboratory  
Loomis Laboratory  
Agricultural Engineering Sciences Building  
Newmark Laboratory  
Transportation Building  
Agricultural Engineering Sciences Building  
Newmark Laboratory  
Engineering Hall  
Newmark Lab  
Newmark Lab

Digital Computer Lab  
Digital Computer Lab  
Everitt Lab  
Mechanical Engineering Laboratory  
Engineering Hall  
Loomis Lab

Digital Computer Lab  
Siebel Center  
Loomis Lab  
Loomis Lab  
Mechanical Engineering Laboratory  
Newmark Laboratory  
Talbot Lab  
Agricultural Engineering Sciences Building  
Siebel Center  
Siebel Center

Everitt Lab  
Mechanical Engineering Laboratory

Transportation Building  
Everitt Lab  
Material Science & Engineering Building  
Digital Computer Lab  
Hydrosystems Laboratory

Everitt Lab  
Material Science & Engineering Building  
Siebel Center  
Talbot Lab  
Engineering Hall  
Mechanical Engineering Laboratory  
Talbot Lab  
Siebel Center  
Everitt Lab

Siebel Center  
Siebel Center

Siebel Center  
Hydrosystems Laboratory  
Mechanical Engineering Laboratory  
Hydrosystems Laboratory  
Material Science & Engineering Building

Engineering Hall  
Siebel Center  
Siebel Center  
Siebel Center  
Mechanical Engineering Laboratory  
Digital Computer Lab  
Engineering Hall  
Newmark Lab  
Digital Computer Lab  
Siebel Center  
Digital Computer Lab  
Digital Computer Lab  
Loomis Lab  
Transportation Building  
Newmark Lab

Everitt Laboratory

Everitt Lab  
Everitt Lab  
Everitt Lab  
Newmark Lab  
Loomis Lab

### PAGE

23  
11  
23  
15  
9  
9  
15  
9  
20  
27  
9  
20  
10  
20=  
20

9  
9  
11  
18  
10  
15

9  
23  
15  
15  
18  
20  
26  
9  
23  
23

11  
18

27  
11  
15  
9  
12

11  
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23  
26  
10  
18  
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23  
11

23  
23

23  
12  
18  
12  
15

27  
23  
23  
23  
18  
9  
10  
20  
9  
23  
9  
9  
15  
27  
20

11

11  
11  
11  
20  
15



# EXHIBIT INDEX

Integrating knowledge,  
deriving genius.



EXHIBIT	SOCIETY	BUILDING	PAGE
Manufacturing Improvements with IIE	Institute of Industrial Engineers	Transportation Building	27
Marble Sorters	Danville High School	Engineering Hall	10
Material Science of Toys	Material Science	Material Science & Engineering Building	15
Materials Challenge	Material Advantage	Material Science & Engineering Building	15
Materials Science in Sports	Material Science	Material Science & Engineering Building	15
Materials Science of Food	Material Science	Material Science & Engineering Building	15
Materials Show	Material Advantage	Material Science & Engineering Building	15
Mechanical Magnetic Levitation	American Society Of Mechanical Engineers	Mechanical Engineering Laboratory	18
Mechanical Properties of Materials	Material Science	Material Science & Engineering Building	15
Megabyte	ACM Gamebuilders	Siebel Center	23
Metals Processing	Material Advantage	Material Science & Engineering Building	15
mEvent	ACM Webmonkeys	Siebel Center	23
MultiTask Force	ACM Gamebuilders	Siebel Center	23
Music With Tesla Coil and Continuum Fing	ECE (ADSL)	Mechanical Engineering Laboratory	18
MyCampus	MacWarriors	Siebel Center	23
Net-based AD/Photobioreactor System	CABER	Digital Computer Lab	9
Night Sky	Women in Aerospace	Talbot Lab	26
Night Vision Viewer	Project Q	Everitt Lab	11
Nightmare	ACM Gamebuilders	Siebel Center	23
Nobles of Urbana	Engineering Outreach Society	Everitt Lab	27
Non-newtonian Fluids	Material Science	Material Science & Engineering Building	15
NSBE	National Society of Black Engineers	Engineering Hall	10
Ntisaw Village Water Partnership	Engineers Without Borders	Newmark Lab	20
Observe Cosmic Particles From Space	Agricultural and Biological Engineering	Digital Computer Lab	9
Optical Materials	Material Science	Material Science & Engineering Building	15
Penny Smasher	American Society of Mechanical Engineers	Mechanical Engineering Laboratory	18
Photochromic Materials	Keramos	Material Science & Engineering Building	15
Physics Van Lecture Demos	Physics - Physics Van	Loomis Lab	15
Piezoelectric Materials	Material Science	Material Science & Engineering Building	15
Plasma Arc Speakers	Project Q	Everitt Lab	11
Plasmas: Not Just Science Fiction	NPPE, ANS	Loomis Lab	15
Polymer Slime	Material Science	Material Science & Engineering Building	15
Polymers Processing	Material Advantage	Material Science & Engineering Building	15
Portable NES		Siebel Center	23
Power and Energy Systems	Power and Energy Group, ECE Dept	Everitt Lab	11
Puzzle Game	ACM Gamebuilders	Siebel Center	23
Robot Communications	Agricultural and Biological Engineering	Digital Computer Lab	9
Rube Goldberg Society	Rube Goldberg Society	Engineering Hall	10
Running Water Sluice	IAHR/IWRA	Hydrosystems Laboratory	12
SAE Baja	MechSE	Mechanical Engineering Laboratory	18
Sand Casting	Pi Tau Sigma (MechSE)	Mechanical Engineering Laboratory	18
SEA		Newmark Laboratory	20
Shape Memory Materials	Material Science	Material Science & Engineering Building	15
Shifting Into Gear	Physics - Physics Society	Loomis Lab	15
Shuttle Tile	Illinois Space Society	Everitt Lab	11
SIGBot 2D Inverted Pendulum	ACM	Siebel Center	23
SIGBot Quadcopter	ACM	Siebel Center	23
SIGMusic	ACM	Siebel Center	23
Smoke Ring Launcher	Society for Experimental Mechanics	Talbot Lab	26
Society of Automotive Engineers	Society of Automotive Engineers	Mechanical Engineering Laboratory	18
Society Of Manufacturing Engineers	MechSE	Mechanical Engineering Laboratory	18
Soil and Water Resources Laboratory	Agricultural and Biological Engineering	Agricultural Engineering Sciences Building	9
Solar Car	Solar Car Club	Talbot Laboratory	23
Solar Cells and other Energy Materials	Material Science	Material Science & Engineering Building	15
Solar Room	Physics - Physics Society	Loomis Lab	15
Squiggly River Boat Race Challenge	IAHR/IWRA	Hydrosystems Laboratory	12
Standing Water Waves	IAHR/IWRA	Hydrosystems Laboratory	12
Steel Bridge	CEE-ASCE	Newmark Laboratory	20
Stellar Jockeys	ACM Gamebuilders	Siebel Center	23
Stored Energy Solar Cooker	Engineers Without Borders	Mechanical Engineering Building (Bardeen Quad)	18
Straw Rockets	Illinois Space Society	Everitt Lab	11
Student Sustainability Committee	SSC	Material Science & Engineering Building	10
Tactical RPG	ACM Gamebuilders	Siebel Center	23
TAM Toys and Nonlinear Dynamics	Society for Experimental Mechanics	Talbot Lab	26
The Amazing Underground World of TARP	IAHR/IWRA	Hydrosystems Laboratory	12
The Guatemala Water Project	WaterCAMPWS	Material Science & Engineering Building	18
The Hazards of the Modern Spillway	IAHR/IWRA	Hydrosystems Laboratory	12
The Tale of Heavy and Light	IAHR/IWRA	Hydrosystems Laboratory	12
The World of Nuclear Power	NPPE, ANS	Loomis Lab	15
Trebuchets	Society for Experimental Mechanics	Mechanical Engineering Laboratory	18
Tunneling Proxy over DNS Packets	Linux Users Group	Siebel Center	23
Van De Graaff Generator	SHPE	Everitt Lab	11
Water Container Challenges	IAHR/IWRA	Hydrosystems Laboratory	12
Water for the People	Engineers Without Borders	Material Science & Engineering Building	15
WCS TechTeam	Women in Computer Science	Siebel Center	23
Wheeling High School STEM Team		Digital Computer Lab	9
Wind Energy used for Mechanical Work	American Society of Mechanical Engineers	Mechanical Engineering Laboratory	18
Wind Tunnel	AIAA	Talbot Laboratory	26



## Agricultural and Biological Engineering Sciences Building

### Alternative Diesel Fuels for Off-Road Equipment

#### **Agricultural and Biological Engineering**

The engines and fuels lab has been instrumental in the analysis of alternative fuels in diesel engines. Fuels such as E-diesel and biodiesel have been produced, analyzed, and run through engines, testing the effects on the engines and the environment. The tour will provide visitors a chance to view research being conducted into the use of alternative fuels for diesel engines.

### Animal Welfare and Environmental Systems

#### **Agricultural and Biological Engineering**

Animal Welfare and Environmental Systems Laboratory. What do we do? Look at the systems where animals are housed, testing animal preferences for housing conditions, and measurement of environmental conditions within animal housing facilities.

### Corn Stalk Counter

#### **Agricultural and Biological Engineering**

Seed companies require a consistent count of germinated corn plants in experimental fields. This machine uses four laser beams that are interrupted by corn stalks, but also by corn leaves and weeds. A smart filtering mechanism distinguishes the corn stalks from other objects and counts the plants accurately. Corn stalk diameter and spacing are also measured.

### Soil and Water Resources Laboratory

#### **Agricultural and Biological Engineering**

The Soil and Water Resources Laboratory focuses on understanding the role of natural ecosystems in agriculture. The lab designs systems to control soil erosion and flooding, develops irrigation systems, consults on crop nutrition management, and designs ways to handle stormwater and control sediment.

### Air cannons for use in Agriculture and Farming

#### **Agricultural and Biological Engineering**

Air cannons are used for various purposes in agriculture such as a "puncher-planter," and for general safety testing. The air cannon contains a unique piston mechanism that enables reproducible acceleration of a test object. The working of the air cannon will be explained along with a demonstration.

### Digital Computer Laboratory

#### **Alpha Epsilon**

#### **Agricultural and Biological Engineering**

Alpha Epsilon is an honor society for outstanding biological and agricultural engineers. The objectives are to promote the high ideals of the engineering profession, to give recognition to those biological and agricultural engineers and to encourage such improvements in the biological and agricultural engineering profession.

Location: West Atrium

# **RUN** with the **BEST**



## **Congratulations to the Illinois Engineering students on your 2010 Open House!**

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## **JOHN DEERE**

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## Biodiesel Initiative

### **Biodiesel Initiative**

The Biodiesel Initiative is a student led organization that converts used vegetable oil from the campus dining halls into fuel for the campus fleet.

Location: West Atrium

## BIOE: Frontiers of Medical Care

### **BMES and Bioe Department**

Bioengineering is the application of engineering principles to address challenges in the fields of biology and medicine. This years display will include human-machine interface for flight control of aerial vehicles, a functioning prototype of sub 100 dollar emergency diagnostic device, computerized medical training dummy.

Location: Atrium

## Career Opportunities in Agricultural and Biological Engineering

### **Agricultural and Biological Engineering**

Agricultural and Biological Engineers solve engineering problems related to living organisms and systems. Careers are available in bioprocessing, renewable energy, water and air quality, food production systems and other areas. Employment is available in industry, government and academics.

Location: West Atrium

## Enzymes in Food Processing and BioSensing

### **Agricultural and Biological Engineering**

Enzymes are proteins that are efficient catalysts for biochemical reactions. They speed up reactions by lowering the activation energy of a reaction pathway. They are widely used commercially in the detergent, food and brewing industries. Recently, enzymes have been used in producing biosensors to measure sugar and alcohol content of foods.

Location: West Atrium

## Illini Pullers

### **Agricultural and Biological Engineering**

Illini Pullers will be displaying their newest design along with an older tractor.

Location: 1st Hall

## Illinois Student Branch of ASABE

### **Agricultural and Biological Engineering**

Visitors will be given the opportunity to talk with members about club experiences, opportunities through the club and ASABE, and about being a member of the Agricultural and Biological Engineering department.

Location: West Atrium

## Integrating Fun and Robotics

### **Women in Engineering**

Campus Middle School and Illinois Outreach Programs: Integrating Fun and Robotics, Deriving the Technologists of Tomorrow! At Campus Middle School for Girls in Urbana, University of Illinois engineering students volunteer to "coach" an after-school Lego Robotics Club. Using a motorized kit, sensors and Lego pieces, teams construct a robot to complete challenges on a standardized gameboard. Challenges include picking up objects, navigating to specific locations and collecting items.

Location: East Atrium

## Interactive Carbon Cycle

### **Agricultural and Biological Engineering**

In the BioMASS lab, we use models to help analyze how a complex system works. In this interactive game, become part of a carbon cycle model. We'll show how a complex system model works, and why little changes in the way we use fossil fuels can make a big difference to global warming.

Location: West Atrium

## Net-based AD/Photobioreactor System

### **CABER**

A network-based anaerobic digester/photobioreactor system which allows for the conversion of organic waste into electricity and algae biomass for biofuels production.

Location: Central Atrium

## Observe Cosmic Particles From Space

The alcohol is

super-saturated and when alpha particles pass through the vapor, they ionize the alcohol molecules and form condensation trails. In buildings, the arrangement can also make Radon particles visible.

Location: West Floor 1

## Robot Communications

### **Agricultural and Biological Engineering**

This exhibit will demonstrate how multiple robots communicate with each other in a greenhouse.

Location: West Floor 1

## Wheeling High School STEM Team

High school students from Wheeling High School in Wheeling, Illinois are presenting their work from the STEM (Science Technology Engineering and Math) Team project. Students are working on researching, designing, and fabricating a working wind turbine to be installed at Wheeling High School and will present on their research and process.

Location: West Atrium

# Engineering Hall

## Art and Engineering Design

### **iFoundry**

We are the Art and Engineering Design Team, part of iFoundry. Through opportunities in society, academics, the world of work, and service, along with a special emphasis on the intersection of art and applied science, we strive to highlight the importance of the missing basics in engineering education. Our EOH presentations will be design projects that we have been working on this past semester, which include design improvements on the traditional mouse trap and an improved bicycle basket.

Location: 112

## Bridge to China - Helping Paomaping Wu Zhi Qiao (Bridge to China) Charitable

We are the Illinois Bridge to China Team, the first international group stemming from the Wu Zhi Qiao Charitable Foundation, based in Hong Kong. Our aim is to build a safe and sustainable footbridge for the villagers in Paomaping Village, China.





During the summer, the rainy season floods the village's current bridge, preventing schoolchildren from going to school and villagers from commuting and selling their goods in the major markets. We are here to change that.

Location: Main Hall

## Float Your Boat

**NOBE**

Students are given a specific amount of fake money to purchase different items such as balloons, cardboard, string, and tape to make a small boat. There will be two ways to show off their boats, in a speed competition as well as a weight competition. The exhibit will be fun and challenge kids creativity to come up with the best designed boat.

Location: 106B8

## Illinois Biodiesel Initiative

**Engineers Without Borders UIUC**

The Illinois Biodiesel Initiative is a project focused primarily on lowering the emissions of the university and promoting education of renewable fuel sources. Our team is striving to ensure that the Illinois Biodiesel Initiative becomes a model for university and community biodiesel production. Our goal, to create a campus biodiesel processor to convert used cooking oil from the dining halls into a usable fuel for the campus, was conceived in the spring of 2006. At the present time, 300 gallon batches are reacted weekly and then integrated into the campus diesel supply, located at the Garage and Car Pool facility.

Location: 106B1

## Marble Sorters

**Danville High School**

Using RoboPro and Fishertechnics, students in Principles of Engineering, a Project Lead the Way class, have designed and built their own device to sort a group of 2 different colored marbles into separate bins.

Location: 106B6

## NSBE

**National Society of Black Engineers**

NSBE is going green! At our exhibit, see hands-on examples of alternative energy.

Location: 103A

## Rube Goldberg Machine

The Rube Goldberg Society has built a machine to dispense hand sanitizer. A Rube Goldberg machine contains many small steps that accomplish a big task. Examples of this include dominoes, mouse traps, and magnets, all working together to dispense hand sanitizer. The machine is themed after Willy Wonka's Chocolate Factory, containing all kinds of gizmos from the movie.

Location: 106B3

## Student Sustainability Committee

**SSC**

The SSC is responsible for allocating two student fees: the \$5.00 Sustainable Campus Environment fee and the \$2.00 Cleaner Energy Technologies fee, towards sustainable campus projects. The committee will be displaying example projects that have been funded in the past.

Location: Moved to Material Science & Engineering Building

## Everitt Laboratory

## Acoustic Fax Machine

**ECE**

What would it take to build a fax machine using little more than your sound card? A non-engineer applies the Engineering Design Algorithm to the problem. After weighing several tradeoffs, not only a scanner, but a full-blown (acoustic) wireless fax machine is constructed!

Location: 245

## Bluewater Ampworks

**ECE**

A demonstration and discussion of vacuum tube guitar amplifiers

Location: 241

## Depth Camera

**ECE**

Exhibit will demonstrate some of the new applications in image and video processing utilizing a camera that captures the depth of a scene.

Location: 169

## Electric Mountain Board

**ECE**

Come check out the electric mountain board that combines lithium iron phosphate batteries, brushless motors, regenerative braking, microcontrollers, and wireless control. It will be the lightest, greenest, and coolest way to get around campus.

Location: 169

## Ferrofluid Cymatics

**Theta Tau**

A demonstration of Ferrofluids in a new and interactive way. Using music as input, we will manipulate the sound waves generated to drive an electromagnet to make the ferrofluid "dance" to the music.

Location: 151

## Frozen Treats!

**Illinois Space Society**

Assorted Liquid Nitrogen dipped treats.

Location: 170

## Keyless Dorm Entry

**ECE**

Tired of lugging your dorm room key around with you when you run down to lunch or over to ARC? What would it take to convert your lock to accept key pad or I-Card entry? A UIUC freshman decides to tackle the problem with a limited budget and obtains spectacular results!

Location: 245

## Laser Property - Protection Fence

**IEEE**

A low-cost property-protection device provides a laser beam perimeter that when broken by an intruder, it will sound an alert or an intrusion deterrent. It consists of a laser beam generator, optical detector, controller and front surface mirrors to reflect the beam around the perimeter.

Location: 163

## Left 4 Dead Kill Counter

**IEEE**

The Kill Counter allows you to keep track of your score while you fight off hordes of Zombies in the popular PC game Left 4 Dead. Your kills are displayed on 7-Segment displays which is controlled by a microcontroller.

The microcontroller communicates with the PC running a modified version of Left 4 Dead.

Location: 163

## Light Up My Life

### WECE

Life exists in time. A fun way to keep track of time can definitely light up your day. Our project is an awesome little clock that shows time without clock hands or digital numbers, instead it uses light and shadow. It works like an improved sundial, with three hands instead of just an hour hand, each given as a shadow from colorful LED's.

Location: 143

## Night Vision Viewer

### Project Q

Using LED's and Infra-Red, we have created a Night Vision Viewer.

Location: 168

## Plasma Arc Speakers

### Project Q

Speakers using a electrical plasma as a radiating material. It is done by ionizing the gaseous material between two electrodes and using the vibrations to create sound.

Location: 168

## Power and Energy Systems

### Power and Energy Group, ECE Dept

This exhibit contains a number of projects demonstrating some exciting aspects of power and energy systems. Projects include a magnetic ring cannon, floating frying pan, automatic Etch-A-Sketch, and many more!

Location: 50

## Shuttle Tile

### Illinois Space Society

Demonstration of how the tiles on the space shuttle protect the space craft from the high temperatures of re-entry to Earth's atmosphere.

Location: 170

## Straw Rockets

### Illinois Space Society

Construct paper rockets and propel them at a target via target.

Location: 170

## Van De Graaff Generator

### SHPE

Demonstration of a Van De Graaff generator and its incredible hair raising properties. A Van De Graaff Generator is an electrostatic generator which uses a moving belt to accumulate very high electrostatically stable voltages on a hollow metal globe on the top of the stand.

Location: 151

## Hydrosystems Laboratory

## Ever seen the bottom of the Ocean?

### IAHR/IWRA

Come visit this exhibit and virtually dive down to the bottom of the ocean. Discover for yourself the interesting currents and bed forms present beneath the waves during a storm.

Location: 1504

## Hands-On Hydrologic Model

### IAHR/IWRA

In this hands-on model one can explore how the power of water shapes the topology of our earth. Come design your own landscape and see how water works its magic using rain, rivers and groundwater.

Location: 1504

## Hidden Waters

### IAHR/IWRA

Do you know that water is moving all the time in the ground underneath our very feet? Don't miss your opportunity to see first hand from physical and computer models some of the processes in groundwater flow which include well pumping, surface water interaction, and contamination transport.

Location: 1504

## Running Water Sluice

### IAHR/IWRA

Step back in time and try your skills at become a 1849 Gold Miner and separate sediment from gems and minerals. Learn around the sediment transport physics which makes this possible as well as information about the rocks, gems and minerals you find.

Participants will be able to keep the gems they find to start their own collections!

Location: 1504

## Squiggly River Boat Race Challenge

### IAHR/IWRA

Meandering rivers transport both water and sediment. The understanding of their physical processes are important for human-nature interaction and preservation. Come learn and then play "Boat Race Challenge" in which participants will be able to build and race their own aluminum foil boats.

Location: 1504

## Standing Water Waves

### IAHR/IWRA

Have you ever seen what water waves look like when they fully reflect from a beach? Come visit our giant water wave tank and see first hand the peculiar wave patterns and the resulting sand bed forms!

Location: 1504

## The Amazing Underground World of TARP

### IAHR/IWRA

Have you ever seen a 30 foot wide tunnel that is 300 feet underground? Come discover the complex and intriguing Tunnel and Reservoir Plan (TARP) of the greater Chicago area.

Location: 1504

## The Hazards of the Modern Spillway

### IAHR/IWRA

This demonstration examines incredible flow dynamics as water overtops a spillway as well as the dangerous turbulent hydraulic which generated downstream of the structure.

Location: 1504

## The Tale of Heavy and Light

### IAHR/IWRA

Heavy things sink and light things float. Mother Nature is a master on this basic rule of physics. Come and see how density flows generate a river under the Chicago River in Chicago, Illinois.

Location: 1504



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## Water Container Challenges

### IAHR/IWRA

Challenge 1: Have you ever stopped and observed how water drains out of a hole near the bottom of a tank of water? In this challenge, see if you have what it takes to determine which container will drain faster. Challenge 2: Have you ever heard the riddle, "You have 3 gallon bucket and a 5 gallon bucket and you need to measure exactly 4 gallons of water?" Come test your skill against this water riddle.

Location: 1504

## Loomis Laboratory

### Alpha Omega Epsilon

#### College of Engineering

Alpha Omega Epsilon is a professional and social engineering sorority.

Location: Lobby

### Bubble Room

#### Physics - Physics Society

Teach kids about the science behind bubbles.

Location: 137

### Chemical Engineering at the U of I

#### AICHE

Ever wonder what Chemical Engineering is and what a Chemical Engineer does? Come find out and learn about Chemical Engineering at the University of Illinois.

Location: Lobby

### Cloud Chamber

#### Physics - Physics Society

Check out the Cloud Chamber.

Location: 136

### Interference Room

#### Physics - Physics Society

Demonstrate the phenomenon of interference in a variety of interesting demos.

Location: 143

### Liquid Nitrogen Table

#### Physics - Physics Van

The Liquid nitrogen Table is a demonstration of what happens when various materials are subjected to extreme cold.

The exhibit explores the behaviour of the gaseous, liquid, and solid phases of matter, and the transitions between those phases. Come guess what will happen to bananas, balloons, and flowers when they reach -320 degrees F!

Location: Lobby

### Physics Van Lecture Demos

#### Physics - Physics Van

This annual favorite of EOH-goers presents some of the most fundamental concepts of physics in entertaining and educational ways. If you get excited about Einstein, Newton and Bernoulli, or if you just get a kick out of things blowing up, this is a show you won't want to miss.

Location: 141

### Plasmas: Not Just Science Fiction

#### NPPE, ANS

What exactly is a plasma, and what can it do for me? Learn about the fourth state of matter, its properties, and its applications. Demonstrations will show the crushing power of magnetism and a low-temperature plasma.

Location: 151

### Shifting Into Gear

#### Physics - Physics Society

In a world where tools and toys are becoming increasingly complex, lots of kids don't have as high of an appreciation for those simple machines which helped build our world. In this exhibit, kids can explore through various activities the usefulness of wheel and axels, ramps, and levers along with the shift from these simpler tools to more complex machines such as screws, pulleys, and, most importantly, gears.

Location: 137

### Solar Room

#### Physics - Physics Society

The amount of energy provided by the sun is an awesome 1300 Watts per meter squared. Come explore the many fascinating different methods of drawing power from sun light. The demonstrations include a salt pond, a focused light boiler, and photo electric cells.

Location: 144

### The World of Nuclear Power

#### NPPE, ANS

Ever wondered what radiation is, or how a nuclear reactor works? Learn about nuclear power, why it is important, and why it is safe. Demonstrations will show different radiation shielding methods and a model nuclear reaction with mousetraps and ping-pong balls.

Location: 141

## Materials Science & Engineering Building

### Advanced Ceramics

#### Material Science

Ceramics are way more than just mugs and tea sets. Come and learn the inner working about superconductors such as why and how they work, where they are used, and future applications. We will have a demonstration that will use a length of "track" made up of neodymium magnets which a "train" containing a superconductor will be able to float over.

Location: Main Hallway

### Electronic Materials

#### Material Advantage

Ever wonder what material science is going on behind the screen? Our project will be on how electronic materials are related to movies. We will be looking at digital cameras, projectors, TV screens, and lighting. We will also highlight how material science plays a role in making 3D movies like Avatar, and talk about the new technologies in TVs. Throw in some of the guts of a digital camera/camcorder and you are sure to learn plenty at our exhibit.

Location: Main Hallway

### Ferrofluids

#### Material Science

Do you know what a ferrofluid is? Interested in nanotechnology? Come learn what ferrofluids are and how they incorporate nano-scale ferromagnetic particles. We will have a ferrofluid demonstration container spotlighting the incredible shapes and formations that ferrofluids can take.

# ENGINEERING ALUMNI?

Head up to the 3rd floor of  
Engineering Hall to enjoy  
complimentary food and drinks,  
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Friday: 9am - 4pm  
Saturday: 9am - 3pm  
3rd Floor Engineering Hall

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Learn how electromagnets can provide the driving force for these materials as well as how they are applied in current technology.

Location: Main Hallway

## Hydrogels

### Material Advantage

We will be demonstrating the many medically relevant functions of hydrogels such as wound dressing applications and drug delivery systems. We will also be exploring the water absorbency and molecular exchange capabilities of a hydrogel. Come and learn how materials are bio-compatible, and how the degradation of hydrogels plays an important role in bio-compatibility.

Location: Main Hallway

## Material Science of Toys

### Material Science

Be sure to stop by as we discuss the material science behind some of your favorite toys. We will be demonstrating how a lava lamp works with one that we have built ourselves and teaching you how to make one at home. By playing with certain material properties, we can show you how to really make it move.

Location: Main Hallway

## Materials Challenge

### Material Advantage

Think you have what it takes to make the best composite? Come test your skills at the Materials Challenge booth! We will be making advanced composites out of household items such as string, toothpicks, and paperclips; and then testing them to see which is the strongest. The strongest composites will receive prizes, and everyone can learn how composite materials achieve their superior properties.

Location: Main Hallway

## Materials Science in Sports

### Material Science

Many common sports equipment take advantage of material science. We will be displaying how material science can effect sport balls and why they are made of different materials. We will also be discussing the recent debate over new batting helmets for baseball players.

By dissecting the helmet and applying a material science perspective, there is much to be learned about its durability.

Location: Main Hallway

## Materials Science of Food

### Material Science

Come to our exhibit to learn how material science plays a critical role in food processing. We be making ice cream with liquid nitrogen to explore how material science plays an important part in food preparation, the effect of cooling, and melting temperature. You will also be able to learn the material science behind other food products.

Location: Main Hallway

## Materials Show

### Material Advantage

It's MatSE at the movies! After a walk down the red carpet of amazing projects and exhibits, make sure to rest your feet in MSEB 119 as we have the world premier of the 2010 Materials Show. This unique movie will capture the essence of material science and is sure to be a hit with all the critics.

Location: 119

## Mechanical Properties of Materials

### Material Science

The goal of our exhibit is to show you how materials are tested for mechanical properties such as strength and impact resistance. We will be testing a wide variety of materials and explaining how their properties make them good for applications ranging from bulletproof vests to storage containers. Come watch as we destroy materials in order to build our knowledge.

Location: Main Hallway

## Metals Processing

### Material Advantage

Are you interested in metals? Visit our exhibit to learn about various applications metals have in material science. We will have a demonstration of the Indium-Gallium eutectic, and we will be examining how structural welds can affect the properties of metals in super-structures such as buildings and bridges.

Location: Main Hallway

## Non-newtonian Fluids

### Material Science

Non-newtonian fluids are probably nothing like you have seen before. How can a liquid be both hard and soft at the same time? Come and see for yourself the strange properties of non-newtonian fluids at our hands-on demonstration. You will be able to learn how they are able to achieve these weird properties and how to make some for yourself at home. Don't forget to take home your very own sample of non-newtonian fluid too!

Location: Main Hallway

## Optical Materials

### Material Science

Optical materials are seen in a wide variety of applications and have many uses in advanced technology. Come to our exhibit to learn how they are made, how they work, and where they are used. We will also be demonstrating how to make your very own optical glass fibers out of Jolly Ranchers.

Location: Main Hallway

## Photochromic Materials

### Keramos

Photochromic materials are ones that can change color in the presence of ultraviolet light. Come join us as we display a variety of applications for photochromic materials, such as transition lenses, and explain how they work. We will also be making color changing bracelets and testing them out under our black lights!

Location: Main Hallway

## Piezoelectric Materials

### Material Science

Piezoelectric materials are able to produce a battery-like voltage simply by changing their shape. Come to our exhibit to learn how a small ceramic material can produce enough electricity to power a light bulb. You can also learn how piezoelectrics are used in everyday objects such as grills and electric guitars.

Location: Main Hallway

## Polymer Slime

### Material Science

Polymers are a unique class of material that can be used for many practical applications.

We will be making polymer slime bouncy balls by various methods. You will learn how polymers are formed and why they exhibit their unique properties that make them advantageous over other materials such as metals and ceramics.

Location: Main Hallway

## Polymers Processing

### Material Advantage

Come and learn how many of the plastics we use every day are made. Polymers processing has been crucial in the development of many modern technologies, and the understanding of polymers processing has made the realization of new products and technology possible. This project shows on a first hand basis how plastic parts are shaped and formed.

Location: Main Hallway

## Shape Memory Materials

### Material Science

Shape memory have the amazing property that they can be deformed to any shape and return to their original form simply with the application of heat. Come to our exhibit to learn how shape memory materials work and try it for yourself.

You will also learn how shape memory materials have the promise to be used in a wide variety of common applications.

Location: Main Hallway

## Solar Cells and Energy Materials

### Material Science

Are you interested in how solar cells work and how they can fit into our energy future? Come to our exhibit to learn how they can convert solar energy into a usable form as demonstrated through our mini solar powered car. You can also come and test your knowledge with our Jeopardy style review game and have the chance to win a prize.

Location: Main Hallway

## Water for the People

### Engineers Without Borders

Nearly 1 billion people across the globe lack access to clean water. Technology to change that exists today. This exhibit will demonstrate different technologies to filter water and test its purity. Children will be able to make their own water filters out of sand, cotton wool and pebbles, and then disinfect the resulting water with

UV. Different computer-connected test probes and a microscope will allow visitors to perform tests to gauge the cleanliness of filtered and disinfected water, as well as tap water and water from local streams. Finally, we will have a 3-D working model of a borewell, solar pumping station and water distribution system, similar to a system implemented by an EWB Project in Enugu, Nigeria.

Location: Main Hallway

## Mechanical Engineering Laboratory

### Breakfast With SWE

#### Society of Women Engineers

The Society of Women Engineers (SWE), founded in 1950, is a not-for-profit educational and service organization. Come grab a free breakfast Saturday morning with the members of the Society of Women Engineers! Learn more about SWE, from its role as a national organization to the Illinois section's activities on campus and in the community.



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## **CNC Machining**

### ***Society of Women Engineers***

Society of Women Engineers (SWE) and the MechSE department will collaborate to demonstrate how CNC machining works. We will manufacture some key chains at the exhibit and pass out key chains that have already been made. The key chains have a special SWE design.

## **Distracted Driving**

### ***American Society of Mechanical Engineers***

Come learn about the dangers of distracted driving. Try your hand at a driving simulation while performing other distracting tasks!

## **Fluid Power**

### ***CCEFP***

Have you ever wondered how an excavator or other large machinery works? Then come on by and learn about Fluid Power. Fluid Power is an important area of engineering as it can be used to precisely move large loads, which is why many large construction vehicles use it. This exhibit features interactive demonstrations of the amazing capabilities of fluid power and research that is being done at UIUC to improve fluid power. Come check out the drivable mini-excavator arm.

## **Hexapods**

### ***Pi Tau Sigma (MechSE)***

Visitors will be able to use robotic hexapods to race and complete a series of challenges on an obstacle course. They will also be able to learn about the real-life applications of the hexapods.

## **Illini Prosthetics Team**

### ***Illini Prosthetics Team***

The Illini Prosthetics Team is a group of independent undergraduate students with the goal of producing an inexpensive prosthetic arm for use in underdeveloped countries. They will be demonstrating the latest developments in the design and implementation of their project.

## **Mechanical Magnetic Levitation**

### ***American Society Of Mechanical Engineers***

Ever wonder how high speed magnetic levitation trains work? Come out and let ASME explain how magnetic levitation happens and watch us levitate a magnet without using another magnet. Come see the mechanical side of levitation!

## **Music With Tesla Coil and Continuum Fing**

### ***ECE (ADSL)***

The Tesla coil, invented by Nikola Tesla at the end of the 19th century, generates high voltages and was originally intended for wireless transmission of messages and energy. U of I alumnus Steve Ward, Jeff Larson, and staff member Mark Smart have developed a system for modulating a Tesla coil to produce musical tones. University professor Lippold Haken has developed a new electronic musical instrument called the Continuum Fingerboard. The Tesla coil system and Continuum Fingerboard will be featured in a concert of several short pieces, including one composed for the SEAMUS music society by U of I music professor Scott Wyatt and Mark Smart.

## **Penny Smasher**

### ***American Society Of Mechanical Engineers***

This exhibit will use a precision cut die and vice to crush aluminum blanks into a penny shaped object with an Illinois "I" indentation on it. A quick demonstration and unique souvenir!

## **SAE Baja**

### ***MechSE***

Baja is the off-road racing club at the University and completes the design, build, and race of a new off-road vehicle each year. Students get experience with research, design, Pro/Engineer, metal forming, tube fitting, welding, lathe, mill, EDM, teamwork, and much more. Over 100 teams, including international, compete for the top spot at competition in a range of events including design, cost, sales, maneuverability, acceleration, rock crawl, hill climb, and the always interesting 4 hour endurance event.

## **Sand Casting**

### ***Pi Tau Sigma (MechSE)***

Demonstrate process of forming metal parts using sand casting process. Visitors will be able to create their own sand casting molds from patterns created in the Ford Rapid Prototyping Lab and see a demonstration of the actual casting process.

## **Society of Automotive Engineers**

### ***Society of Automotive Engineers***

The UIUC Society of Automotive Engineers will be returning this year to showcase their Formula SAE and SAE Mini Baja cars from the 2008-2009 season.

## **Society Of Manufacturing Engineers**

### ***MechSE***

The Society of Manufacturing Engineers (SME) seeks to provide its members with educational, professional and social activities and opportunities related to manufacturing. Through its activities, SME hopes to foster members' engineering, communication and leadership skills. The faculty adviser to the group is Professor Michael L. Philpott. Our exhibit this year will showcase the car created by U of I students for the Shell Eco Marathon.

## **The Guatemala Water Project**

### ***WaterCAMPWS***

For the EOH exhibit, we would like to demonstrate how a biosand filter works and how our research will improve on the current design. We will display a full scale biosand and a smaller one with clear sides so that the public can see what is occurring within the biosand filter. Another module will demonstrate how the iron can remove certain contaminants based on surface characteristics. Lastly, children will have a chance to make their own mini biosand filter with a clear plastic bottle, gravel, and sand. Afterwards, we will pass dirty water through the filters to test how well they work.

[Location: Moved to Material Science & Engineering Building](#)

**Thank you for being  
a part of Engineering  
Open House 2010!**



## Trebuchets

### **Society for Experimental Mechanics**

The Society for Experimental Mechanics has constructed several trebuchets (catapults) of different designs. They will be demonstrating the pros and cons of each design. Check out this exhibition of medieval machinery!

## Wind Energy used for Mechanical Work

### **American Society Of Mechanical Engineers**

Come out and learn about sustainable energy options and their applications. See our vertical axis wind turbine that will be used to do mechanical work, showing wind energy can be used for more than just generating electricity.

## Newmark Laboratory

### **American Concrete Institute (ACI)**

#### **ASCE**

American Concrete Institute ASCE ACI-UIUC will have a hands-on demonstration of concrete mixing. Visitors can make their own concrete coasters. Strength tests of concrete will also be demonstrated during our yearly high strength concrete cylinder competition.

Location: Crane Bay

### **AREMA**

#### **ASCE**

Railroad Engineering Extravaganza Young Locomotive Engineers and Veteran Railroaders alike: come visit the Railroad Extravaganza, hosted by the UIUC Railroad Engineering Program. Participants will enjoy a variety of educational experiences including train dispatching demonstrations, a freight car display and model train layout hosted by the Illini Railroad Club, and research exhibits highlighting the ongoing world-class railroad engineering projects at Illinois. Students can also try their hand at the interactive Intermodal Transportation Game created by the AREMA Student Chapter.

Location: Crane Bay

U.S. News ranked the Agricultural, Civil, and Materials Science Engineering departments #1 in America for 2009.

The University of Illinois' College of Engineering is ranked the #4 Undergraduate Engineering Program in the U.S.

Some famous alumni from the University of Illinois' College of Engineering include YouTube co-founders Javed Karim and Steve Chen, Microsoft's Chief Software Architect Ray Ozzie, co-founder and CTO for Paypal Max Levchin, and co-founder and long time CEO of Advanced Micro Devices Jerry Sanders.

16 alumni and faculty have won the Nobel Prize, in addition to John Bardeen (professor of Physics and Electrical Engineering), who won the Nobel Prize in Physics twice.

### **College of Engineering**

Transfer Student Information Center

Friday, March 12

Hours: 10:00 am to 4:00 pm

212 Engineering Hall (2nd Floor)

Engineering Advisors and Staff will be available to visit with students interested in transferring to the College of Engineering after attending another college or university. Continuing students who are presently attending the College of Engineering at the U of I and have transferred from another college or university will be available to visit with interested students and families. Information will be available about the transfer programs that we have with more than 50 community colleges and 25 four year schools that don't offer an engineering degree.

Refreshments will be available from  
12PM to 3PM

See our new south campus home for our virtual reality tools including the CAVE™ and the Flight and Driving Simulators!



www.isl.beckman.illinois.edu

**Beckman Institute for Advanced Science and Technology**

**Illinois Simulator Laboratory Open House**

**2100 S. Goodwin Avenue, Urbana**

**Friday, March 12 • 9AM - 4PM**

**Saturday, March 13 • 9AM - 3PM**

The Beckman Institute's Illinois Simulator Laboratory is embarking on a new era in its new south campus location and to celebrate they are hosting an open house. At the open house you can see an amazing array of highly advanced visualization environments including the CAVE\*, and the Driving and Flight Simulators.

Driving directions:

<http://isl.beckman.illinois.edu/Drivingdirections/Drivingdirections.html>

*Parking is free in Lot E-14 with shuttle buses running every 15 minutes. Metered parking is available on Hazelwood Dr. (south of the Vet School) and in the lot on the west side of ISL. Meters are enforced on Friday, but are free on Saturday. \* To see the CAVE you must obtain a ticket. Tickets for set times will be available at the door on a first-come, first-served basis.*



## Jerry Sanders Design Competition

Robots

Balloons

Precision Engineering

BE THERE.

March 12 9AM-4PM  
March 13 9AM-3PM

Kenney Gym

# HEY, GENIUS

No two geniuses are the same,  
so Microsoft offers you a smorgasbord  
of assorted career delights. So, grab a  
plate and moist towelette, and get ready  
to stuff yourself full of the future.  
Hope you've got an appetite  
for technology.

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Interested in hearing more about software  
developer, software developer in test and  
program manager positions?

Visit our website to apply today!

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## Balsa Wood Competition

### CEE-ASCE

ASCE is sponsoring a Balsa Wood Bridge Competition. The purpose of this competition is to build a balsa wood bridge given certain constraints with an emphasis on the greatest load to weight ratio.

Location: Crane Bay

## Concrete Canoe

### ASCE

Design, build, and race a concrete canoe!

Location: Crane Bay

## Liquefaction Tank

### CEE-GESO

Sometimes an earthquake can be intense enough that sandy soils can lose their strength and become very soft. This happens when a loose, saturated sand undergoes vibration and tends to collapse. The collapse cause high water pressures to develop within the sand, which in turn causes a drastic reduction in the strength of the sand. When this happens buildings, bridge foundations, and other structures can be damaged, or can even fall over! This exhibit is designed to show just how this happens in a way that everyone can understand!

Location: Crane Bay

## Illinois Electric Vehicle Club

### Illinois Electric Vehicle RSO

Presentation of various electric vehicles.

Location: Crane Bay

## Institute of Transportation Engineers

### ITE

Location: Crane Bay

## Ntisaw Village Water Partnership

### Engineers Without Borders

This exhibit will provide insight into the process of creating a water catchment and distribution system for a rural community in Cameroon. Be prepared for hands-on demonstrations on hydraulics, water quality, and construction materials in addition to relevant cultural insights from West Africa.

Location: Crane Bay

## SEA

### Structural Engineers Association

Learn about structural engineering with the friendly members of SEA!

Location: Crane Bay

## Steel Bridge

### CEE-ASCE

Students work together to design and fabricate a large scale steel bridge. This bridge must be assembled and loaded at regional and national competitions.

Location: Crane Bay

# Siebel Center

## SIG Embedded

### ACM

Special Interest Group Embedded specializes in embedded hardware and software. This year's project includes developing linux for an embedded AVR32 micro controller with the further aim of turning it into a wireless mesh networking mp3 player.

Location: Atrium

## Acoustics Music Player

### Association for Computing Machinery

People like music. Unfortunately, people like different types of music. The Acoustics Music Player brings a virtual jukebox to your room, office, or anywhere with speakers. Acoustics allows many people to vote on what music to play using their web browser and takes turns playing their music. Acoustics provides statistics on songs that are popular, recently played, recently added, as well as integration with various web services such as last.fm and Wikipedia.

Location: Atrium

## Chaos Vs Order

### Computer Science

This is a game that you can play on your Android powered phone with your friends or with complete strangers. Fight to bring order, or create chaos. Control the fate of the world with your actions all in the palm of your hand.

Location: Atrium

## Cross Compiling a Linux System

### Linux Users Group

This year the Linux Users Group is hosting a series of workshops on how to build Linux from the ground up for non-Intel architectures. The workshop goes through building a compiler to build the Linux kernel and support utilities, and ultimately packaging it up into a running system.

Location: Atrium

## Curvature

### UIUC ACM SIGGRAPH

We all "fit" in somewhere. Computer animated 3D short film. UIUC ACM SIGGRAPH 2010

Location: Atrium

## Festo - Air motion ride

### CCEFP

Pneumatically controlled race car simulation.

Location: 1302

## Frantic Elevator 2

### ACM Gamebuilders

Elevator themed fun for the whole family! Control elevators in a building and get everyone where they want to go.

Location: Atrium Video Wall

## Galactic Strategy Game

### ACM Gamebuilders

A Real Time Strategy game where players vie for control of planets.

Location: Atrium Video Wall

## Gamebuilders Minigames

### ACM Gamebuilders

A 2D mini-game collection that's super fun!

Location: Atrium Video Wall

## Hambot: Machine vs. Nature

### CS, Psychology, EE

Come check out the Hamster Robot, which runs around in a hamster ball and builds a cognitive map of its maze and learns to navigate through the maze (with a neural network) easily after the mental map is built. Hambot will be racing against real mice.

Location: 1304



# Innovation Drives Our Success

From prevention and diagnosis to treatment and cure, Abbott is a broad-based health care company that discovers, develops, manufactures and markets innovative products. Abbott is committed to bringing together individuals with diverse backgrounds and ideas and investing in their success. Combining different perspectives, management styles and ideas makes us stronger. Abbott is continually building a culture that not only recognizes, but values, people's differences and makes the most of them. Having an inclusive environment helps drive our innovation and makes Abbott a stronger, more dynamic, more successful company.





## **IGVRT Autonomous Robot**

### ***Intelligent Ground Vehicles Robototics***

The IGVRT team utilizes vision programming, artificial intelligence, in-depth electronics, and advanced mechanical techniques to develop a robot that is entirely autonomous. This robot has to operate outdoors with varying weather conditions.

Location: 1302

## **Illiac III Supercomputer Redux**

### ***SIGArch***

A remake of the class Illinois supercomputer, the Illiac III, on an FPGA.

Location: Atrium

## **Illini Entrepreneurship Network**

The Illini Entrepreneurship Network promotes student startups and ventures on campus through a technology incubator program, workshops, and events. It currently supports 13 startups in the Student Venture Accelerator ranging from web based to green ventures.

Location: Atrium

## **Ink**

### ***ACM Gamebuilders***

A 4-player Co-op 2D scrolling game.

Location: Atrium Video Wall

## **Megabyte**

### ***ACM Gamebuilders***

A game that resembles the classic platformer: Mega Man, but with randomly generated stages.

Location: Atrium Video Wall

## **mEvent**

### ***ACM Webmonkeys***

Developed by Webmonkeys, an ACM SIG, during the 09-10 school year, mEvent is a website that aggregates events on and near campus to help students find stuff to do in their spare time. It works by automatically reading and parsing websites and RSS feeds from local venues and organizations, then aggregating this data into a simple, easy-to-use website complete with search functionality.

Location: Atrium

## **MultiTask Force**

### ***ACM Gamebuilders***

Four player CTF / Destroy Castle Game. Each player controls two characters at one time via Xbox 360 game pads.

Location: Atrium Video Wall

## **MyCampus**

### ***MacWarriors***

MyCampus is an iPhone application designed to help UIUC students by providing them instant access to campus maps, local restaurant information, bus routes and more.

Location: Atrium

## **Nightmare**

### ***ACM Gamebuilders***

An isometric-platformer game.

Location: Atrium Video Wall

## **Portable NES**

An NES emulated on a microcontroller platform.

Location: Atrium

# ExplorACES

ExplorACES: two days where you (and your family!) can connect first-hand with academic and career-path opportunities awaiting you at the College of Agricultural, Consumer and Environmental Sciences (ACES).

More than 1,500 high school sophomores, juniors, and seniors from across the state of Illinois are expected to attend ExplorACES, which offers an inside look at the people and programs of the College of ACES at the University of Illinois.

ACES students will offer more than 100 hands-on exhibits relating to classroom work, club activities, and honors research. Teens and their parents can also tour lab and classroom facilities and visit with ACES faculty members.

The College of ACES offers 10 undergraduate majors with 39 different concentrations, and ExplorACES helps prospective students get an overview of the potential career pathways in areas of study such as bioengineering, community development, economics, human nutrition, plant breeding, resource ecology, and pre-veterinary studies.

We hope you'll stop by the ExplorACES welcome center in the ACES Library, Information and Alumni Center. You'll find a warm greeting there, along with an exciting introduction to all the options available to students in the College of ACES.

For a complete list of ExplorACES activities, go to [aces.illinois.edu/ExplorACES/](http://aces.illinois.edu/ExplorACES/).



### **Puzzle Game**

#### **ACM Gamebuilders**

A 2-player competitive puzzle game written in XNA.

Location: Atrium Video Wall

### **SIGBot 2D Inverted Pendulum**

#### **ACM**

It's like a pendulum, but upside down. In a crazy balancing act, SIGBot has built an inverted pendulum that can move in any direction (on the ground of course).

Location: Atrium

### **SIGBot Quadcopter**

#### **ACM**

SIGBot has taken to the skies with this flying robot. Come check out our quadcopter with its four rotating blades and automatic stabilization.

Location: Atrium

### **SIGMusic**

#### **ACM**

Check out SIGMusic's revolutionary digital instrument: Tacchi is a full sized table

converted into a multi-touch display.

Location: Atrium

### **Solar Car**

#### **Solar Car Club**

A self-sufficient solar powered car which can operate without the use of external power sources.

Location: Moved to Talbot Laboratory

### **Stellar Jockeys**

#### **ACM Gamebuilders**

Top-down space combat game.

Location: Atrium Video Wall

### **Tactical RPG**

#### **ACM Gamebuilders**

A tactical RPG/turn based strategy game similar to Final Fantasy Tactics and Fire Emblem.

Location: Atrium Video Wall

### **Tunneling Proxy over DNS Packets**

#### **Linux Users Group**

This project aims to implement a fast, efficient proxy server that passes data through DNS requests and responses to showcase vulnerabilities in modern subscription network services.

Location: Atrium

### **WCS TechTeam**

#### **Women in Computer Science**

A new calendar program which displays the week and day in a circle rather than in the traditional rectangle.

Location: Atrium

## **Talbot Laboratory**

### **Concrete Crushing**

#### **Society for Experimental Mechanics**

The Society for Experimental Mechanics will be demonstrating the 3 million pound testing machine in Talbot Lab by crushing large concrete cylinders. Stop by and check it out!

Location: Basement

# **ECE ILLINOIS**

Department of Electrical  
and Computer Engineering

## **ECE Admitted Student Event**

Students who have been admitted to the Department of Electrical and Computer Engineering (ECE) for the Fall 2010 semester are invited to a special event featuring a panel discussion with current ECE students followed by a reception with students, staff, faculty, and alumni. Families are welcome!

*Saturday @ 11 am*

*Room 1000 Micro and Nanotechnology Lab (MNTL)*

## **Prospective ECE students**

Interested in a career in electrical or computer engineering? Learn more during EOH by visiting with ECE student leaders or picking up a brochure in room 159 Everitt Lab.

**Flight Simulator****AIAA**

Get a chance to see what it feels like to fly an airplane! This flight simulator lets you take control of a yoke, pedals, and throttle to experience the thrills of flight.

Location: 105

**Fluids Lab Demonstration****Society for Experimental Mechanics**

The Society for Experimental Mechanics will be showcasing the fluids lab in Talbot Laboratory. The fluids lab includes demonstrations of a hydraulic jump, non-Newtonian fluids, pressure forces on various bodies, a flow table and much more. Check out this great interactive exhibit!

Location: 126

**Night Sky****Women in Aerospace**

An interactive exhibit of the night sky—its planets and moons, stars and constellations, and neighboring galaxies.

Location: 105

**Smoke Ring Launcher****Society for Experimental Mechanics**

The Society for Experimental Mechanics will be demonstrating their smoke ring launcher in the crane bay of Talbot Lab. The smoke ring launcher sends a ring of smoke over 5 feet in diameter floating across the room!

Location: Crane Bay

**TAM Toys and Nonlinear Dynamics****Society for Experimental Mechanics**

The Society for Experimental Mechanics will be demonstrating their collection of “TAM Toys.” These unique “toys” demonstrate both fundamentals of mechanics and some more interesting mechanical phenomena. One of the more interesting pieces includes a demonstration on nonlinear spring dynamics.

Location: 104

**Wind Tunnel****AIAA**

Have you ever wondered why a golf ball is covered with dimples? See a real wind tunnel in action as the aerodynamic properties of a golf ball are tested and compared with a smooth ball.

Location: 18a

**Transportation Building****Anchor's Aweigh****Illinois Society of General Engineers**

Come test your engineering skills by building a boat made of tin foil and straws. Also, see a demonstration of a tea light steam boat and bring home directions to build your own!

Location: 1st Floor Hallway

**Egg Drop****Gamma Epsilon**

Put your engineering skills to the test with the Gamma Epsilon Egg Drop! Design and build your egg capsule out of items including string, tape, cups, balloons, cotton balls, and more. Then, we'll toss your capsule out the window and enjoy the show. Watch out for eggsplussions!

Location: 206

**iFoundry and iEFX****<http://ifoundry.illinois.edu>**

iFoundry and Illinois Freshman Engineering Experience is designed to promote and communicate innovations in engineering education to the public audience attending EOH. Highlights of our new Intro to the Missing Basics course (ENG 100++), our emphasis on design and hands-on projects, and our cultivation of the joys of engineering, lifelong learning, and community will be shared.

Location: Moved to Engineering Hall 106B8

**ISGE****Illinois Society of General Engineers**

ISGE is a great way to connect with other General Engineers here at UIUC and get professional mentoring from GEs out in the field. ISGE hosts several guest speakers throughout the year, mock interviews, bar crawls, and much more.

Location: 204

**Manufacturing Improvements with****IIE Institute of Industrial Engineers**

Institute of Industrial Engineers will be hosting a hands-on demonstration showing how simple improvements in a manufacturing environment can make all the difference.

Location: 101

**Nobles of Urbana****Engineering Outreach Society**

This exhibit presented by EOS will incorporate two different aspects of engineering. The first is focused on the building and design of a small building using only recyclable materials. The other aspect is that of firing projectiles in a manner of taking down the city. The competitors are all students from Leal Elementary School and will compete in a bracket to be crowned King or Queen of Urbana.

Location: Moved to Everitt Laboratory

**Why Engineering at Illinois?**

Students choose Engineering at Illinois for a variety of reasons. Many of our students say they enjoy the opportunities and resources a Big Ten university provides, and they also appreciate the comfort and benefits of being part of the smaller engineering community within campus.

**A Rewarding Challenge**

Engineering students study and work hard but they have fun as well. One piece of advice students almost always identify as a key to success—good time management skills. Start developing these skills now and you will be ready for a transformational experience at Illinois.

Eventually, “success” will mean “getting a job”. Illinois’ engineering graduates are competitive in the job market. Typically more than 400 companies recruit on campus each year. Engineering Career Services statistics indicate engineering students who participate in these interviews receive more than two job offers each.

Although Engineering at Illinois is a challenging program of study, it is also rewarding. The thousands of successful—and even famous—graduates who have gone before you are proof.



ILLINOIS  
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



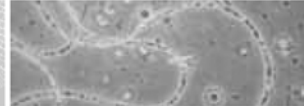
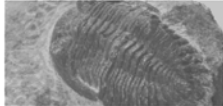
## NATURALLY ILLINOIS EXPO

INSTITUTE OF NATURAL RESOURCE SUSTAINABILITY

2010

INRS Expo

Friday, March 12 and Saturday, March 13



### NATURALLY ILLINOIS EXPO: INSTITUTE OF NATURAL RESOURCES SUSTAINABILITY

*Home of the State Scientific Surveys at the University of Illinois*

Please join us at the Naturally Illinois Expo 2010. Experience fifty exhibits, demonstrations, and hands-on activities of interest to the public, teachers, and students of all levels. Interact with scientists who work on cutting-edge research and solutions to water, energy, ecosystem, mineral resource, natural hazard, climate, and technology issues.

*Exhibits include:*

- Turtles of Illinois
- Microcritters: Dead and Alive
- Biofuels—From Waste to Biodiesel
- Building a Sustainable System in Haiti with *Jatropha curcas*
- Get to the Core: Steamy Swamps and Ice Age Glaciers
- Kids Fossil Dig
- Fun with Water Chemistry

Natural Resources Building  
(EOH shuttle stops outside)  
615 East Peabody Drive  
Champaign, Illinois 61820

## FREE Engineering Campus Tours!

ENGINEERING INFORMATION BUREAU is offering free tours of the engineering campus throughout EOH.

Tours will begin at The Visitor's Booth at the times listed below and will last approximately one hour.

**Tour Times:**

**Friday: 10am, 12pm, 2pm, 3pm**

**Saturday: 10am, 12pm, 2pm**







# *Thank You* for attending



**The College of Engineering** at the University of Illinois at Urbana-Champaign was first established in 1868, and is considered one of the original units of the school. The presence of a steam engine on the University's seal is a good clue as to the importance of the engineering program to the University. Engineering at Illinois consistently ranks amongst **the top five such engineering colleges** in the United States by the U.S. News and World Report and ranks amongst **the top three in the world** in the Academic Ranking of World Universities. The College of Engineering is located at the northern terminus of the University of Illinois occupying the Bardeen Quadrangle, the Beckman Quadrangle and many nearby areas. Green Street almost perfectly divides the Engineering campus from the rest of the University, so engineers and the College of Engineering are often referred to as "North of Green."

Engineering Hall serves as the primary anchor point for the College of Engineering and houses administrative offices as well as academic facilities. Built in 1894, it is the oldest surviving building on the Engineering portion of campus. It was designed by George Bullard, a University alumnus as part of a University held architecture competition and is an example of the Renaissance Revival style of architecture.

The Bardeen Quad is home to the Grainger Engineering Library, the largest Engineering Library in the world with over 260,000 physical volumes and a substantial electronic repository. The building itself cost nearly \$30 million and has 135,000 square feet (13,000 m<sup>2</sup>) of floor space. It serves in excess of 1.5 million people annually.

# THE 90TH ANNUAL ENGINEERING OPEN HOUSE AT THE UNIVERSITY OF ILLINOIS

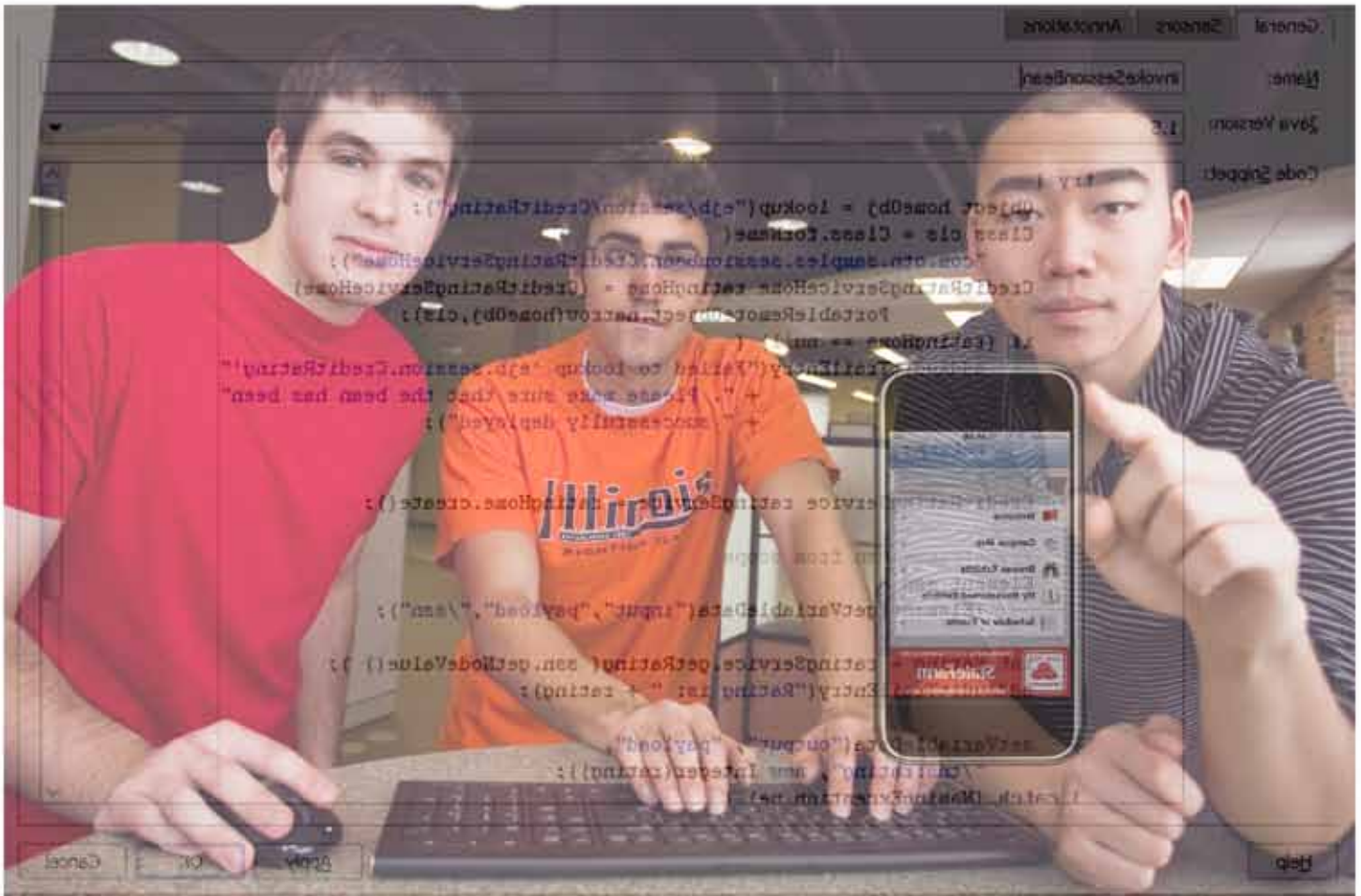


**The First Engineering Open House** at the University of Illinois was held in the spring of 1920, commemorating the centennial of the birth of James Watt. The Physics and Mechanical Engineering Open Houses were discontinued at this time to give greater chance for success to the all-college venture. The public was invited to inspect the facilities of the Engineering College and to see the displays, which had been set up in the laboratories, drafting rooms, and shops. The first Open House Program appeared at this time in the form of a twenty-page pamphlet. It briefly described sixty-odd experiments and contained a map of the engineering campus with a suggested itinerary.

Other open houses, later called Illinois Student Engineering Exhibitions, were held throughout the years. Students in all departments participated and were guided in their efforts by the Engineering Council. In 1928, the Open House was scheduled so as not to conflict (in year) with the Electrical Engineering Shows. The policy was also adopted of inviting state high schools and nearby colleges.

As was true of the Electrical Engineering Show, the all-engineering show was discontinued during the years of World War II. During the immediate post-war period the Electrical Engineering Show was reorganized and became a definite part of the newly named Engineering Open House.

Starting in 1948 and carrying through 1952, the Open House was held biannually. However, following the 1950 show, it was suggested that the Open House be planned as an annual affair. This proposal was accepted by both Engineering Council and the Executive Committee of the College of Engineering as an experiment in 1952 and 1953. Hence, the 2010 Open House will represent the 58th time that the annual event has been successfully held, but if you trace all the way back to the departmental open houses, this is the 90th Engineering Open House.



# Meet Joe, Marc, and Oscar.

## They know this app from the inside out.

How do they know the EOH Mobile app so well? They wrote it, right here on campus at the State Farm Research and Development Center in the University of Illinois Research Park.

Developing mobile apps isn't the only type of work we do here. Around ninety student interns are working with full-time employees this semester on projects important to State Farm, the nation's top car and home insurer.

Projects that include software development and research on new technology, consumers, and insurance risks.

We offer flexible hours, competitive pay, and real-world experience. And it's all in an environment that enables you to do work that will get noticed, like Joe, Marc, and Oscar's mobile app.

Come and get to know us, from the inside out.

✓ Check us out at [sfresearchcenter.com](http://sfresearchcenter.com)

f Become a fan at [facebook.com/SFResearch](https://facebook.com/SFResearch)

t Follow us on Twitter @SFRDC



LIKE A GOOD NEIGHBOR,  
STATE FARM IS THERE.™

### Your mobile guide to EOH

Use our free application as your guide to the University of Illinois Engineering Open House. You can find exhibits by building, category, or intended audience and rate them, too.

Access the app with your web-enabled mobile device at <http://eoh.ec.illinois.edu/mobile>.

If you need Wi-Fi, just connect your device to the EOH-App-By-SF network and you're set!

