ORU

ENGINEERING, PHYSICS AND PHYSICAL SCIENCE DEPARTMENT NEWSLETTER

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NASA INTERNSHIP AT MARSHALL SPACE FLIGHT CENTER

During the summer of 2008 Jennifer Luth, an Engineering student at ORU, had an internship at a NASA center that was sponsored by the Undergraduate Student Research Program (USRP). Jennifer was selected from among some 130 students selected from several hundred outstanding applicants, working on projects that impact the nation's space exploration missions. The experience that Jennifer gained at NASA was invaluable, and she was grateful for the opportunity that she got in part from being a student at ORU. Jennifer found out early on that the reason her mentor chose her was that she attended ORU; his uncle lived in Tulsa, so he had heard some good things about the university.

They needed her to figure out how to use some new equipment and software that they had recently received, perform some tests, and then teach them how to use the equipment and conduct the tests. For the first couple of days, she was reading about the standard tests that were typically executed in the lab. But after she completed those, she was able to completely immerse herself in learning about the process of Photo Stress and how to use the new equipment and software. ■

Jennifer Luth is checking out the International Space Station (ISS) mock-up.

ORU ENGINEERING AND PHYSICS GRADUATES OF 2009

Ten engineering seniors graduated this year, five students with summa cum laude, one with magna cum laude and one with cum laude. Nate Roman was selected as Outstanding Engineering and Physics Student. Jennifer Luth was selected as Outstanding Engineering Student— Mechanical Concentration and Nathan Marth was the Outstanding Engineering Student—Computer Concentration. ■

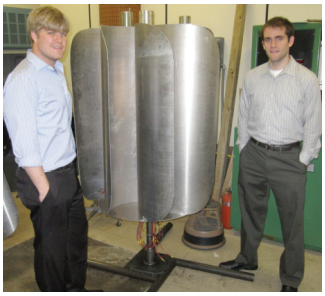
2009 ORU Engineering and Physics Graduates and Faculty

CAT INTERNSHIP IN PEORIA, ILLINOIS

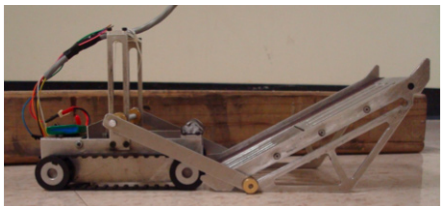
Sean Estes spent twelve weeks during the summer of 2008 in Peoria, Illinois working for Caterpillar, Inc in the Fluids Engineering Department under their Corporate Intern Program. This summer was an amazing experience for Sean both intellectually and personally. He was very satisfied with his decision to pursue a career with CAT as a result of his time working for them. Although he was not able to choose the specific department he wished to work in, the Fluids Group is a very fun group of professionals to work with. Sean was considered a full-time, temporary employee within the CAT system and experienced many facets of the company during his stay. Amongst the extremely broad knowledge base he now has concerning Caterpillar, Inc. as a worldwide corporation, he learned so much more about the corporate mindset and what it's like to work within a large corporation and with a group of experts that trust and respect their teammates. ■

2008–2009 SENIOR PROJECTS AT ORU ENGINEERING AND PHYSICS

A vertical axis wind turbine senior project by Sean Estes, Joshua Glesener and Evn Presson was selected this year as the Outstanding Senior Project. They produced a working model of a durable home wind turbine. Sean Estes won the Old Guard poster competition of the 2009 ASME Student Professional Development Conference (SPDC) in Arlington, TX in competition with a number of prestigious universities in the region.



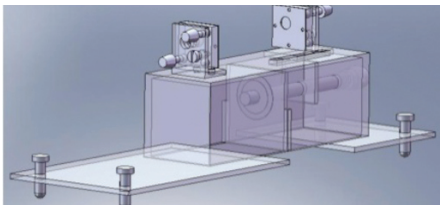
Joshua Glesener and Sean Estes with the assembled turbine



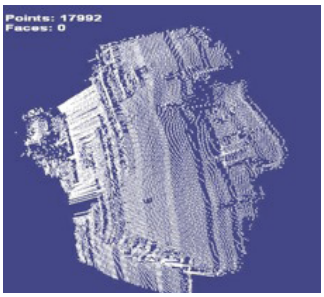
Mars Rocks Robot

Another senior project that was completed during the past academic year was the Mars Rocks project by Nicholas Halsmer, Jennifer Luth and Nathan Marth. They designed, built and tested a vehicle simulating a Mars rover. The vehicle was intended to navigate a course and retrieve rocks within a four-minute time limit. Jennifer received the second place poster award at the ASME SPDC Conference with her poster "Remote-Controlled Robot with Ramp for Rock Retrieval."

Nate Roman and Tyler Todd worked on a Scanning Fabry-Perot Interferometer. This interferometer is used to measure light source wavelengths and indices of refraction of different materials and gases. The purpose of this project was to construct an interferometer for use with a HeNe laser in the Engineering and Physics Dept. at ORU. The interferometer is readily portable, has removable mirrors, a variable cavity length, and is able to produce distinct fringes. This interferometer can be used for experimentation and demonstration purposes.



SolidWorks model of Scanning Fabry-Perot Interferometer



Scan acquired using FlexScan 3D

The senior project by David Kobilnyk and Vyacheslav Tokarev employs the use of a commercial software scanning system called FlexScan 3D and the Java programming language to construct the major components of a 3D face recognition system. A 3D scanner and a face-matching program were separately implemented. The face-matching program achieved a perfect matching rate for forty face models, all of which were in frontal perspective. ■

UPCOMING SENIOR PROJECTS FOR 2009-2010

The ORU Engineering Dept. is currently looking to put itself on the map with new and inventive senior project ideas. One proposed project is a formula SAE racecar that would be built and raced by students in national SAE competitions (http://students.sae.org/competitions/formulaseries/.) This large project, will require ORU community involvement. If you are interested in supporting this project or other projects please contact Dr. John Matsson at 918.495.6935 or jmatsson@oru.edu. ■

Formula SAE Racecar

HELP WANTED!

The Engineering and Physics Dept. at ORU needs you! Join the Alumni Advisory Board or the Industrial Advisory Board. Please come and spend a couple of hours twice a year helping us make a better engineering education at ORU. The boards meet with faculty and students twice a year and during these meetings we discuss possible improvements and get feedback from different boards.

For more information, please contact Dr. John Matsson: jmatsson@oru.edu, 918.495.6935.

ORU ENGINEERING AND PHYSICS STUDENTS PARTICIPATE IN SOAP BOX DERBY

Five students from ORU Engineering and Physics participated in the Sand Springs Downhill Soap Box Derby Race during fall 2008. The students were Mithun Abraham, Zachary Proud, William Wagener, Kyle Sabourin, and Salmon Riaz. The next race will be on October 10, 2009 and the students are looking into ways to improve their design for this race. ■

Engineering students with Soap Box Derby Racecar

FEATURED FACULTY MEMBER

Dr. Steve Herr was elected as the Outstanding Faculty Member of the Year for the Engineering and Physics Dept. and he was also the outstanding School of Science and Engineering Faculty Member of the Year. Dr. Herr has been serving ORU students during a period of twenty years. Ten years ago he started the Environmental Stewardship Club at ORU and he also introduced an Environmental Science minor. Recently he spearheaded our Environmental Engineering major and he is student section advisor for the new Engineers Without Borders (EWB) section. If you would like to support our EWB section, please call Dr. Herr at 918.495.6920 or send an e-mail to sherr@oru.edu. ■

ORU ENGINEERING STUDENTS FLY A HIGH-ALTITUDE BALLOON

Five engineering students flew a high-altitude balloon on February 21, 2009 together with a student from Taylor University, IN and a representative from Stratostar Systems. The ORU students were Jonathan Luth, Brian Ostling, Nathan Pease, Kevin Stark, and Aaron Wilbur. The flight started in Perkins and the balloon landed south of Stroud. Measurements can be made of different parameters such as temperature, pressure, and humidity. Photographs can be taken together with video recordings during flight. The launching and recovery of a high-altitude balloon is an exciting experience for everyone involved and a perfect tool for outreach to schools in the Tulsa area. The Engineering and Physics Dept. is currently looking for funding to purchase a $10,000 kit from Stratostar Systems and any contribution would be greatly appreciated. ■

Launch of a High-Altitude Balloon

ORU ENGINEERING AND PHYSICS HOSTS THE THIRD ANNUAL LEGO ROBOTICS COMPETITION

On April 25, 2009 the ORU Engineering and Physics Dept. together with the ORU ASME Student Section hosted the annual Lego competition for area schools. This year the winning team was from Metro Christian Academy and a team from Union got second place. The students had to program the robot to follow a curved track using light sensors connected to the Lego robot. Schools in the Tulsa area can borrow one of our Lego Mindstorms kits during a couple of months each spring semester. Please let us know of any schools that would be interested in the 2010 competition. ■

Lego Robotics Team from Metro Christian Academy

ALUMNI NEWS

Nate Roman (2009 graduate) started a new job at Boeing in St. Louis.

Nathan Marth (2009 graduate) will be working for the Department of Defense at the Naval Surface Warfare Center in Dahlgren, VA.

WHAT'S HAPPENING?
If you would like to include an ad in this newsletter or if you would like to submit alumni news, please contact Dr. John Matsson: jmatsson@oru.edu, 918.495.6935.

SURVEY OF ALUMNI

ATTENTION ALUMNI OF THE ENGINEERING AND PHYSICS DEPARTMENT

Dear ORU alumnus:
As part of Oral Roberts University's Program Review and accreditation procedures mandated by the the Accreditation Board for Engineering and Technology (ABET), the Engineering and Physics Department is required to design and implement an assessment program that measures and improves the effectiveness of our undergraduate curriculum. An important feature of these procedures is a survey of alumni in order to assess the value of an ORU education in professional practice and/or in a graduate school setting.

Please complete the survey by August 31, 2009. Thank you in advance for your help and cooperation in this important exercise!

The survey is available at **http://egr.oru.edu** On the left side there is a link called "EGR/PHY Surveys", click on this link and the alumni survey is one of four available surveys.

By completing this survey you will be entered in a drawing for a chance to win a $50 gift card from WalMart.

Dr. John Matsson, Chair
Engineering and Physics Department
Phone: 918.495.6935
Email: jmatsson@oru.edu

ORU

7777 South Lewis Avenue
Tulsa, Oklahoma 74171-0001

www.oru.edu