

# VITAL

Virtual Immersive Technologies and Arts for Learning



Appalachian Ohio faces a unique and challenging set of environmental problems, including waste, water and land issues. An informed local citizenry is a crucial factor in environmental protection.

Now, Athens and Meigs High School students can get involved in making a difference through their participation in a new extracurricular activity.

"Improving Environmental Awareness of Water, Waste, and Land Issues in Appalachian Ohio (WWL Ohio) through High School Student Contest of Computer-Simulated Environmental Models" is sponsored by the Ohio Environmental Protection Agency and the Ohio Environmental Education Fund (OEEF). Two Ph.D. students and faculty members from Ohio University, Dr. Chang Liu, Assistant Professor in the Department of Electrical Engineering and Computer Sciences (EECS), En Ye (EECS), Dr. Taio Chang,

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Winter/Spring 2007

Professor of Civil Engineering and Yanhui Fang from the Department of Civil Engineering are supervising the three Meigs and four Athens High School teams. The groups of two to three students each are working to create virtual simulations of environmental conditions typically found in Appalachian Ohio. Their simulations will be on display at the Ohio University Research and Creative Activity Fair, Thursday May 3, 11:30am – 3:30pm at the Convocation Center. Meigs and Athens high schools will be bringing over 200 students to this event!

Students will also present their models at their high schools in May. These presentations, will help reach and inform not only students, but also parents and the general public.



## New STEAM module hits a Home Run



STEAM Graduate Fellow Mark Smearcheck and Miller Middle School science teacher Angela Adams have teamed up to produce the new educational game called "Velocity Park." In this module, students learn to calculate the speed of a baseball after "virtually" hitting a homerun. Students swing at pitches and then either strike out, hit a grounder, hit a fly ball, or if they are really good, hit a home run. After their turn at bat, students are given the distance and time of the ball travel and must correctly compute its speed.

## Upcoming Events

The VITAL LAB is coming out full force at the

### Ohio University Student Research and Creative Activity Fair

May 3, 2007

11:30am-3:30pm

### Convocation Center

Be sure to check out the STEAM graduate fellows at the Fair. They will be showcasing their education models, as well as interactively engaging the public in their virtual worlds.

It's going to be an immersive experience you are not going to want to miss!! The Ohio EPA sponsored high school environmental competition will also be featured at the Fair. The VITAL lab is sponsoring around 300 students from area schools on field trips to attend this event. Be sure to stop by and check it out!!

### Minority Health Month Nutrition Game

April 12 & 19 3-5pm

### Stocker Center 414

The Nutrition Game, funded by the Ohio Commission on Minority Health will track calories and fat consumption at virtual restaurants. Stop by to find out how and make healthy choices among Asian and African American foods.

# STEAM team excels at eTech Ohio Conference

***"Some of the educators I met at the conference were so excited by what I had developed that signing up for our mailing list wasn't enough. They gave me their e-mail addresses to me and requested I keep them informed of my new developments directly." Joshua Schendel***

From Feb 12 through 14, eTech Ohio, one of the largest educational technology conferences in the nation had a simultaneous virtual presence in Second Life for the first time ever - thanks to Ohio University and the VITAL lab.

The learning center at Ohio University's Without Boundaries (OUWB) virtual campus was decorated with poster boards for select eTech Ohio presentations and exhibits, including posters that give information for conference attendees on what the VITAL lab is doing with area middle-schools as a part of the STEAM project—integrating science and learning into a virtual Second Life environment with the use of games to teach scientific concepts in a hands-on, interactive manner. Artists from OUWB and the College of Fine Arts, both affiliated with the VITAL Lab, helped design this virtual exhibit.

Chang Liu, who has spearheaded

Ohio University's Second Life involvement, was pleased by the range of people the new



**Dr. Teresa Franklin from the OU College of Education presented three sessions at eTech Ohio**

technology was able to include in the conference. He notes, "The new technology we adopted not only expanded the reach of eTech Ohio so that people from as far away as Sweden could tune in to the event, but it also enabled remote presenters to 'virtually' be there

through avatar representations." Panelist Schendel said he was encouraged by the positive reaction of other educators about the opportunities Second Life affords education. "Some of the educators I met at the conference were so excited by what I had developed that signing up for our mailing list wasn't enough," he said. "They gave me their e-mail addresses to me and requested I keep them informed of my new developments directly."

Throughout the three-day conference VITAL lab also operated a floor booth on the Second Life activities of OU. Andrew Goodnite, project manager of VITAL lab at OU, manned the floor booth and said the conference was a success for VITAL lab and Ohio University. "E-Tech Ohio turned out as a great way to advertise our successes with the STEAM project funded by the NSF GK-12 program and to generate interest in Ohio University," he said.

## OLN Updates

The VITAL Lab has been actively enhancing regional professional learning by leading two Second Life learning communities. These learning communities are sponsored by the Ohio Learning Network (OLN) and have been key in bringing together area K-12 teachers and Ohio University professionals. These partnerships are working to introduce immersive, interactive learning into K-12 and college classrooms with the goal of creating enriched teaching and learning experiences for Appalachian area middle school, high school, and college students.

## VITAL Lab hits the road

On Mar 28, Dr. Chang Liu and Andrew Goodnite took the VITAL Lab show on the road. They attended the Ohio State Senate Edison Day Event at the State Capital Building. During the event, they showed the senators what Ohio University and the VITAL Lab has been doing to improve Science Technology Engineering and Math (STEM) learning in Appalachia area middle schools. Andrew Goodnite said "the speaker of the house stressed the importance of STEM learning in Ohio K-12 schools during his keynote address. It was definitely good to see such high support for programs such as our NSF sponsored STEAM grant project



**Goodnite represents STEAM at the State Capitol Building**

and it was a great time to show off the capabilities of Ohio University to our state leadership."

## Winter Professional Development benefits fellows and middle school teachers

The NSF Science and Technology Enrichment for Appalachian Middle-schoolers (STEAM) Graduate teaching fellows in K-12 education (GK-12) project team met on Feb 24 for their Winter quarter professional development meeting. The meeting began with a discussion of the accomplishments made by the project during Fall quarter, along with the projection of goals for the future. Mark Smearcheck and Scott Nykl then demonstrated their recently developed modules, which cover the middle school standards for plate tectonics, velocity, and force and momentum. At this year's annual eTech Ohio Conference, held in Columbus, Ohio, Mark's plate tectonics game and Scott's force and momentum module were the first games released by the STEAM project.

After reflection and goal setting, Dr. Teresa Franklin introduced the

new standards and criteria to be used for module review and survey. Additionally, she discussed the research protocol that will be used to publish the STEAM project's findings.

Following the overview by Dr. Franklin, the fellows and middle school teachers dove into Second Life. Fellows assisted their teaching partner to help them become more confident in navigating their avatars and to further their understanding of Second Life's possibilities. The teachers are now becoming more comfortable in navigating through Second Life and are more accustomed to the virtual 3-D environment.

Next, Dr. Chang Liu and Bruce Bilyeu lead a discussion and demonstration of Bruce's "Rafting Adventures" module in Second Life. The module shows students the effects of erosion and deposition by

glaciers and water. STEAM plans to use Second Life as a medium for collaboration and as a tool to hold future meetings with project members.

Dr. David Chelberg closed the meeting by holding a discussion and demonstration forum for alternative input devices in an effort to depart from the standard mouse and keyboard approach. A variety of alternative input devices were discussed and demonstrated, including the new Nintendo Wii and robotics. The hope is that by changing the way students interface with the instructional modules created by STEAM, their interest in the module itself, will in turn lead to more immersive game play experiences. STEAM is constantly looking at new and innovative ways to incorporate technology in an instructional manner.

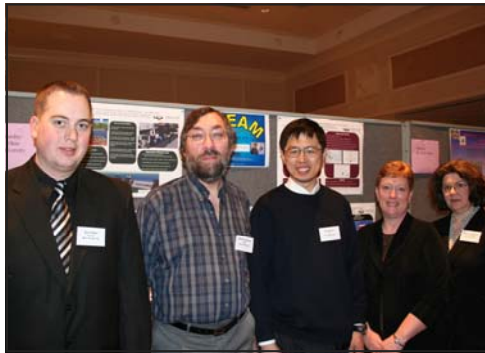


# STEAM heads to D.C. for NSF GK-12 Program

The 2007 Annual Meeting for National Science Foundation (NSF) Graduate Teaching Fellows in K-12 Education (GK-12) Program was held in Washington, D.C. March 9th through 11th. The conference provided a networking opportunity for GK-12 fellows, teachers, program managers, and principal investigators to meet with one another and exchange ideas and materials from the past year.

On Friday, Dr. Rosemary Haggett, Director of the Division of Graduate Education, Dr. Cora Marrett, Assistant Director for Education and Human Resources, and Dr. Sonia Ortega, GK-12 Program Director, welcomed the more than 500 participants that attended this year's meeting. They presented a framework for the future of the GK-12 program at NSF and how the program has excelled throughout the nation in recent years. The presentations demonstrated how diverse the GK-12 projects are amongst universities and how each one does its part to benefit the K-12 community.

On Saturday, Dr. Arden Bement, the director of the NSF, presented his insight on how essential the GK-12 program is to promoting Science Technology, Engineering, and Math (STEM) disciplines in the science classrooms of today's youth. Following Dr. Bement's speech, the participants were able to attend breakout sessions that were coordinated by other GK-12 project members to help explore successful methods and concepts that



***Eric Petri, Dr. David Chelberg, Dr. Chang Liu, Dr. Teresa Franklin, and Becci Hartline showcase STEAM in Washington D.C.***

they used to further the progress of their GK-12 project. In between the breakout sessions, each university was able to present their research and teaching ideas during poster sessions.

The annual meeting ended with the Iron Scientist Competition with thirteen teams competing against one another. The teams were given an ordinary object, a Starbucks coffee cup, to use to teach as many different science concepts as possible within six minutes. The Penn State team came out victorious at this year's Iron Scientist Competition but the Ohio University team plans to take this title from them at next year's competition.

## New STEAM module makes waves in the classroom

Paddling along rushing rivers in an inner tube, dodging shifting glaciers and avoiding steep cliff edges. It's all in a day's work for eighth graders at Alexander Middle School. That's because graduate fellow Bruce Bilyeu and science teacher Sarah Korte have added a new Second Life game to their stable. "Rafting Adventures" allows students to enjoy a white water rafting trip and learn about soil erosion simultaneously. The new game has received positive reviews from students who credit

the game with helping them learn lessons faster and understand material in a more complete way.



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