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MIT Ed Tech Fair 2009
Innovation, Transformation, and Excellence in Learning

Lobby 13   Wednesday, October 14 (10am – 2pm)

**Sponsored by the Office of Educational Innovation and Technology, DUE
Co-hosted by the Office of Faculty Support & Teaching and Learning Lab, DUE**

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Mini-Crosstalk Panel: *Visualization and Learning* (11:00 – 11:30am)

Panel Presenters:
Dava Newman, Professor, Department of Aeronautics and Astronautics
Graham Walker, Professor, Department of Biology
John Belcher, Professor, Department of Physics
Kurt Fendt, Director, HyperStudio

Microsoft Research iCampus Technology Innovation Student Prize Award Presentation (12:30 – 1:00pm)

Poster Presentations & Demos (10-11am; 11:30am-12:30pm; 1-2pm)

A La Rencontre De Philippe: **An Award Winning Interactive Story for Language Learning (on CD-ROM)**

Gilberte Furstenberg, Senior Lecturer in French, Foreign Languages and Literatures;
Sabine Levet, Senior Lecturer in French, Foreign Languages and Literatures

A la rencontre de Philippe is an original interactive fiction filmed in Paris, in which learners of French interact with the main character and try to help him solve his many problems. Philippe has just broken up with his live-in girlfriend and the student's main task (among others) is to find him a place to live.

ARTstor – Images for Education, Research and Scholarship

Jolene de Verges, Rotch Library of Architecture and Planning; Peter Wilkins, OEIT
(Presented by ACCORD Image Tools team)

ARTstor is a digital library of more than one million images in the areas of art, architecture, the humanities, and social sciences with a set of tools to view, present, and manage images for research and pedagogical purposes.

Code of Best Practices in Fair Use for OpenCourseWare

Lindsey Weeramuni, Intellectual Property Supervisor, MIT OpenCourseWare

Understanding fair use can be frustrating and confusing. Six U.S.-based OpenCourseWare producers reexamined the principle for use in their own publications. This Code has been written to assert fair use rights in response to the chilling effects of over-zealous copyright holders. This session features highlights of the Code.

Collaboration for Geographically Distributed Groups in Sun's Wonderland Virtual Environment

John Belcher; Phillip Bailey; Fabio Ricardo Dos Santos; Mark Bessette, Physics Department, MIT

We believe that providing remote access to lab equipment and educational materials in a virtual 3D environment, including 3D visualizations, has many educational advantages for remote collaboration. We are using Sun's Wonderland environment to construct prototypes of such environments, and will demonstrate a prototype for a magnetostatics experiment and visualization.

Cultura: A Web-Based Telecollaborative Project between MIT Students and Students at Ecole Polytechnique (Paris)

Sabine Levet, Senior Lecturer in French, Foreign Languages and Literatures; Gilberte Furstenberg, Senior Lecturer in French, Foreign Languages and Literatures

Cultura is a Web-based, intercultural project**,** started at MIT in 1997 thanks to a grant from the National Endowment for the Humanities. It connects MIT students taking a French class with students in France taking an English class for the duration of a semester. Its goal is to help students understand the values, attitudes, beliefs and concepts inherent in each other's culture. *Cultura* has since been adopted by other institutions and adapted to many other languages and cultures connecting students in the US and sch countries as China, Germany, Italy, Japan, Mexico, the Philippines, Russia, Samoa and Spain.

Developing the Electronic Textbook and a New Problem-Solving Pedagogy

Dave Pritchard, Physics Dept.; Andrew Pawl, Physics Dept.; Analia Barrantes, ESG and Physics Dept.; Saif Rayyan, RLE

Modeling Applied to Problem Solving

Modeling[1] Applied to Problem Solving (MAPS) is a pedagogy that helps students transfer instruction to problem solving in an expert-like manner. Declarative and Procedural syllabus content is organized and learned as a hierarchy of General Models. Students solve problems using an explicit Problem Modeling Rubric that begins with System, Interactions and Model (S.I.M.). System and Interactions are emphasized as the key to a strategic description of the system and the identification of the appropriate General Model to apply to the problem. We have shown dramatic gains on test scores using this pedagogy in a 3-week review course over IAP.

1. M. Wells, D. Hestenes, and G. Swakhamer, "A Modeling Method for High School Physics Instruction", Am. J. Phys. 63, 606-619 (1995).

Addressing the Textbook's Shortcomings with a WikiTextBook

This e-Book will enable a shift in the role of the printed textbook[1] from authoritative serial repository to a modular, customizable, linkable, interactive hub that provides a clear overview of the domain, short summaries of key content, links to more detailed online resources and embedded self-assessment. It will be improved by student feedback. Our open-source wiki for introductory mechanics uses ideas from modeling physics to encourage strategic, concept-based problem solving. We invite collaborators writing textbooks in other domains to help us reinvent the textbook!

[1] P. Bierman, "Initial Workshop Summary", NSF Workshop Reconsidering the Textbook, May 24-26, 2006 (National Academy of Sciences, WA).

(Other Theme: *Perfecting an Online Textbook Environment*)

Educational 3D Visualization of Astronaut Motion in Microgravity

Prof. Dava Newman, Aeronautics and Astronautics; Violeta Ivanova, Ph.D., OEIT

Educators teamed up with visual artists to create a series of 3D interactive animations of human motion in microgravity, which now enable students to learn core curriculum concepts, such as conservation of angular momentum, through latest findings from astronautics research at MIT.

From Image Collections to RSS feeds: Using VUE to Work With, Analyze and Present Digital Content

Melanie St.James, Senior Interactive Media Designer, Academic Technology, Tufts University; Anoop Kumar, Information Systems Architect, Academic Technology, Tufts University

VUE (Visual Understanding Environment), an Open Source project based at Tufts University, can help students, faculty and anyone who works with digital content, make sense of information and data using VUE's flexible visualization, annotation and presentation tools.

Games And Simulations For Learning K-12 Science And Math

Eric Klopfer, MIT STEP; Jason Haas, MIT STEP; Dana Tenneson, MIT STEP; Daniel Wendel, MIT STEP; Judy Perry, MIT STEP

The MIT Scheller Teacher Education Program (STEP) performs research and development of games and simulations for K-12 education, focusing on math and science learning. Demos of several of the games and simulations will be shown, including games for learning math, physics and earth science.

Global Shakespeare: Video Annotation and Performance Archive with New Tools for Research and Education

Professor Peter S. Donaldson, Literature; Belinda Yung, Literature; Suzana Lisanti, Literature

Shakespeare performances are not static works with a single authoritative meaning, but exist in multiple versions, recreated in a wide array of media and across time and cultures. In order to access and engage with these multiple matrices of cultural expression and meaning, we need tools to compare versions of the same scene side by side, to create clips, and to annotate and cross-reference text, video, and cultural references.

The MIT Global Shakespeare Project will show educational and research tools including the Cross Media Annotation System (XMAS) and the Shakespeare Performance in Asia (SPIA) archive http://**web.mit.edu/shakespeare/asia**

HyperStudio – Digital Humanities at MIT

Kurt Fendt (HyperStudio, CMS, FL&L, SHASS); Stephanie Stewart (HyperStudio); Brett Barros (HyperStudio); Dave Della Costa (HyperStudio)

HyperStudio - Laboratory for Digital Humanities explores the potential of new media technologies for the enhancement of education and research in the humanities. A range of projects in the humanities and social sciences along with on-line tools for education and research will be presented.

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iLabs at MIT

Kirky DeLong, Center for Educational Computing Initiatives (CECI); Phil Bailey, Center for Educational Computing Initiatives (CECI)

The iLab Project is dedicated to the proposition that online laboratories - real laboratories accessed through the Internet - can enrich science and engineering education by greatly expanding the range of experiments that the students are exposed to in the course of their education. During this session, we will be demonstrating iLabs in electrical engineering, physics and nuclear engineering.

"Learning Lab: the Cell": A Collaboration between the MIT Center for Environmental Health Sciences and the MIT Museum

Kathleen M. Vandiver, Ph.D., Director, Community Outreach and Education, MIT Center for Environmental Health Sciences; Amanda Gruhl, Ph.D. Curriculum Coordinator, Community Outreach and Education, MIT Center for Environmental Health Sciences; Robin Meisner, Director of Programs, MIT Museum

"Learning Lab: the Cell" is classroom where learners experience how molecules function using both tactile LEGO® molecules specially designed for teaching cell processes, and computer simulations. A kit for cloning this exhibit and its curriculum is under development.

Mapping Controversies

Verena Paravel, Research Associate MACOSPOL; Vincent Lepinay, Associate Professor, Science Technology and Society

The Mapping Controversies web directory enhances student learning within a sub-domain of social science. Online resources are vetted and organized in such a way that students are guided towards recommended tools and thus their research process and learning experience is more efficient.

MIT GIS Services

Daniel Sheehan, OEIT; Lisa Sweeney, MIT Libraries

MIT GIS Services, a collaboration of the MIT Libraries, DUE's office of Educational Innovation & Technology, works to support GIS use by the MIT community. We offer workshops, regular open office hours in the GIS Lab, access to the MIT Libraries Geodata Repository, and collaborate with faculty to implement GIS exercises in MIT

classes.

(Other Theme: *Providing Geographic Information System (GIS) services to the MIT Community*)

MIT Mathlets: Interactive Web Sharing of Educational Innovation in Mathematics

Prof. Haynes Miller, Mathematics; Violeta Ivanova, Ph.D., OEIT

The new MIT Mathlets interactive website enables instructors from the Department of Mathematics to share with educators around the world the visualizations for teaching and learning differential equations, which were created under the D'Arbeloff Interactive Mathematics Project at MIT.

The Mathematics CI-Space: A Collaborative Online Space for Instructors

Mia Minnes, Mathematics; Violeta Ivanova, OEIT; Susan Ruff, WAC

We will present the working collaborative site now running at http://math.mit.edu/ci . In particular, we will showcase the two main components of the site: (1) the semi-static selection of "good practices" and advice about running these courses; and (2) the discussion facilities for instructors currently teaching such courses.

(Other Theme: *Online Tools for Promoting a Community of Instructors*)

The MIT BLOSSOMS Initiative (Blended Learning Open Source Science or Math Studies)

Elizabeth Murray, Project Manager, MIT BLOSSOMS Initiative

The vision of BLOSSOMS is to begin to develop a large, free repository of learning videos for high school students, created by gifted volunteer teachers from around the world, seeded initially by MIT faculty members and by partnering educators in Jordan and Pakistan. The goal is to develop deeper and richer skills in the students and to enhance their critical-thinking skills.

The MIT Libraries Video Tutorials

Courtney Crummett, MIT Libraries; Angie Locknar, MIT Libraries; Darcy Duke, MIT Libraries

The MIT Libraries use videos as a tool inside and outside of the classroom. Videos help

students learn how to use the libraries; videos highlighting bioinformatics resources provide learning at the research bench; and undergraduate students learn information searching skills from videos embedded in the curriculum of a GIR course.

MIT TechTV

Kris Brewer, MIT TechTV – MIT Libraries/MIT AMPS

MIT TechTV is in its 3rd year and has become part of the MIT Libraries! With over 2800 videos uploaded, well over 7 million video views and over 1100 accounts created, MIT TechTV continues to grow and be developed to enhance the video sharing and educational experience at MIT.

New Empirical Assessment Protocols To Evaluate Educational Technologies

David Singer, MIT

After four years and six independent studies at MIT on the use of the tablet pc, novel and empirical assessment protocols were established. These protocols have begun to be used by various software development companies, universities and secondary schools around the world.

(Other Theme: *Assessment protocols for educational technologies*)

Software Tools for Academics and Researchers (STAR)

Lourdes Aleman, OEIT; Ivan Ceraj, OEIT

Software Tools for Academics and Researchers (STAR) is a suite of research tools created to enhance learning for MIT students and others. Each of the seven STAR tools was built in response to a pedagogical need expressed by an MIT faculty member, but all STAR tools are freely available to anyone interested in using them in his or her own research or teaching.

SpokenMedia: Automatically Transcribing Lectures for Improved Discoverability and Engagement

Brandon Muramatsu, OEIT; Andrew McKinney, OEIT

Need to find a specific segment in an hour-long web video of a lecture? Want to use small segments of video for teaching and learning? The SpokenMedia project will

demonstrate our automatic lecture transcription solutions, and will discuss a number of tools/services to aid educators/learners in using this more granular media.

Update on MIT's Who's Teaching What/Online Subject Evaluation Project

Mary Z. Enterline, Associate Dean for Academic Information and Communication, Office of Faculty Support; Amitava "Babi" Mitra, Associate Director, Office of Educational Innovation and Technology; Rosanne S. Santucci, Communications/Data Specialist, Office of Faculty Support; Lee Leffler, Technical Writer/Usability Consultant, Office of Faculty Support

Since Spring 2008, MIT has been moving its paper-based subject evaluation system online, as well as improving the collection of teaching data. By AY2010-11, the system will be ready to handle the @750 subjects previously evaluated on paper. The presentation will give an update on the three parts of the project — data collection, surveys, and reports.

(Other Theme: *Online assessment and evaluation*)

Visualizing Cultures

Visualizing Cultures is an innovative website that opens windows on modern history by integrating graphic images, expert commentary, elegant design, and substantial databases in ways that have become technologically possible only recently. It can be accessed at http://visualizingcultures.mit.edu. Launched at MIT in 2002, the site has focused topically to date on Japan and Asia in the modern world. The principal investigators are MIT professors John W. Dower, a Pulitzer Prize-winning historian whose scholarship includes close attention to visual materials, and Shigeru Miyagawa, who holds a chair in Japanese language and culture and is a pioneer in the production and use of digital media for education.

Scott Shunk, Foreign Languages and Literatures Section, MIT

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