Creating Opportunities for Computer Game R&D Projects

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and
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What are we doing?
- Empirical research and technology prototyping of computer games/virtual worlds (CGVWs) that support challenge problems in science, health care, art, technology and defense studies
- Serial research entrepreneurship

Why are we doing this?
- Computer games are both technology and new media
  – An opportunity area for research and innovation in playful socio-technical systems
- Enable immersive and transformative experiences that facilitate learning through R&D, play and failure experiences
- Engage new students and emerging scholars
Some game R&D projects of interest

- Vintage projects (1977-2000)
- Science learning games for informal science education at Discovery Science Center
- Game-based semiconductor fabrication operations training simulator
- Virtual worlds for space science on a sphere
- Game-based decentralized command and control training simulator
- Experimental games for business, cultural critique, art and technology
- Facilitating local game development community
- New projects in progress:
  - World of Music, and Science Mission games
Research challenge: develop interactive environment for visualizing mental imagery via “semantic” eye movements and verbal (narrative) cueing.

Imlac PDS-1 (Eye Movement Monitor not shown)

Research challenge: develop and deploy knowledge-based environment for modeling, simulating, and redesigning distributed multi-agent organizations.


Research challenge: design and develop a VW for visual modeling, simulation, and redesign of enterprise processes using knowledge-based CG technology (startup venture)
Web-based science learning games for informal science education for K-6th grade students and families


http://www.DQOnline.org/
Semiconductor/nanotechnology fabrication training game: “gowning processes”

working in a cleanroom

- Suit made of ultra clean material
- Battery pack for air filter system
- 2 pairs of gloves: nylon & latex
- 2 pieces of foot gear: disposable shoe covers & outer booties
- Helmet includes air filter unit
- Will also wear hairnet & safety glasses

Belt
Planetary science data visualization and “spherecasting” support: *NOAA Science on a Sphere* installation in *Opensim* VW platform

Supporting virtual exploration of planetary and near-earth objects (space debris, small satellites, near-earth asteroids)
Mission Control Room: Vision for Discovery Science Center
VW for experimental studies in decentralized command and control centers using open source software (*OpenSim*)
CBA: Customer relations training system implemented using low-cost, rapid micro-development cycle
2D, side-scrolling, *World of Warcraft* inspired, role-playing game and CGVW development/modding kit

Aoedipus.net
Envisioning a virtual social computing world

Virtual Life Demo Reel
Modeling and Simulating the design of a Personal Rapid Transit system for Uppsala, Sweden
Game-based VW incorporating real-world news feeds and geopolitically located Twitter feeds
Game-based VW simulator interfaces for immersive motorsports racing experiences
Game-based VW simulator you can actually drive in physical world! -- OutRun @ UCI

http://www.conceptlab.com/outrun
Community development concept: Supporting UCI video game developers club projects (sample)
Community development concept: Supporting UCI video game developers club via Computer Game Science Laboratory
Community development concept: **IEEE Intercollegiate Computer Game Development Showcase (2012-2013)**

**Do You Have What It Takes?**

**Game**
Programming skills on Fire

University of California at Irvine (UCI)
Saturday April 27, 2013 at 2:00PM

Compete in our Game Contest, Win Prizes, Earn Achievements & Fine Tune Your Skills

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**Game Event**
details about game event

Venue: University of California at Irvine in Bren Hall, Saturday, April 27. Setup starts at 11:00 AM. Main event starts at 2:00PM and ends at 4:00PM, followed by a reception with game demos from 4:00PM to 6:00PM. [READ MORE]

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**Our Esteemed Sponsors**
making this event possible

We have attracted even more sponsors this year, helping us make this event more exciting than ever. Please support these fine schools and companies... [SEE COMPLETE LIST]

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**Submission Guidelines**
our submission rules etc.

Submissions begin on April 1, 2013 at 12:01AM Pacific Time (PST), and end on April 7, 2013 at 8:00AM Pacific Time (PST). Finalists will be selected based on their one page Executive Summary and 3-5 minute YouTube video submissions... [READ MORE]
Informal Classical Music Learning Game Environment

**Discover Music**
Under the Sea of Knowledge.

**Play with Music**
Above the Musical Skies

**Perform Music**
In the Instrument Garden

**Conduct Music**
At the Symphony Hall

**Compose Music**
Atop the Mountain of Muses
New project: develop reusable framework for developing “science mission games”

Sample project game: *Capture a near-earth asteroid*
Adventure/Quest games for learning neuroscience via experiments in simulated brain/anatomical testbeds to study:

- Neurobiological processes
- Disease and drug pathologies
- Brain repair and rehabilitation
- Brain-computer interaction (HMD, EMM, EEG, 5.1 headphones)
Research Collaborators

Faculty

Post-Doctoral Scholars
– Garnet Hertz (UCI LUCI)

Research Staff
– Craig Brown (SMU), Yuzo Kanomata (VDIO), Kari Nies (HRI/ISR), Alex Szeto (ISR)
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– Digital Industry Promotion (DIP) Agency, Daegu, South Korea
– UCI Video Game Developers Club

👀 No review, approval, or endorsement implied.