Recent Advances in Computer Games and Virtual Worlds

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http://cgvw.ics.uci.edu

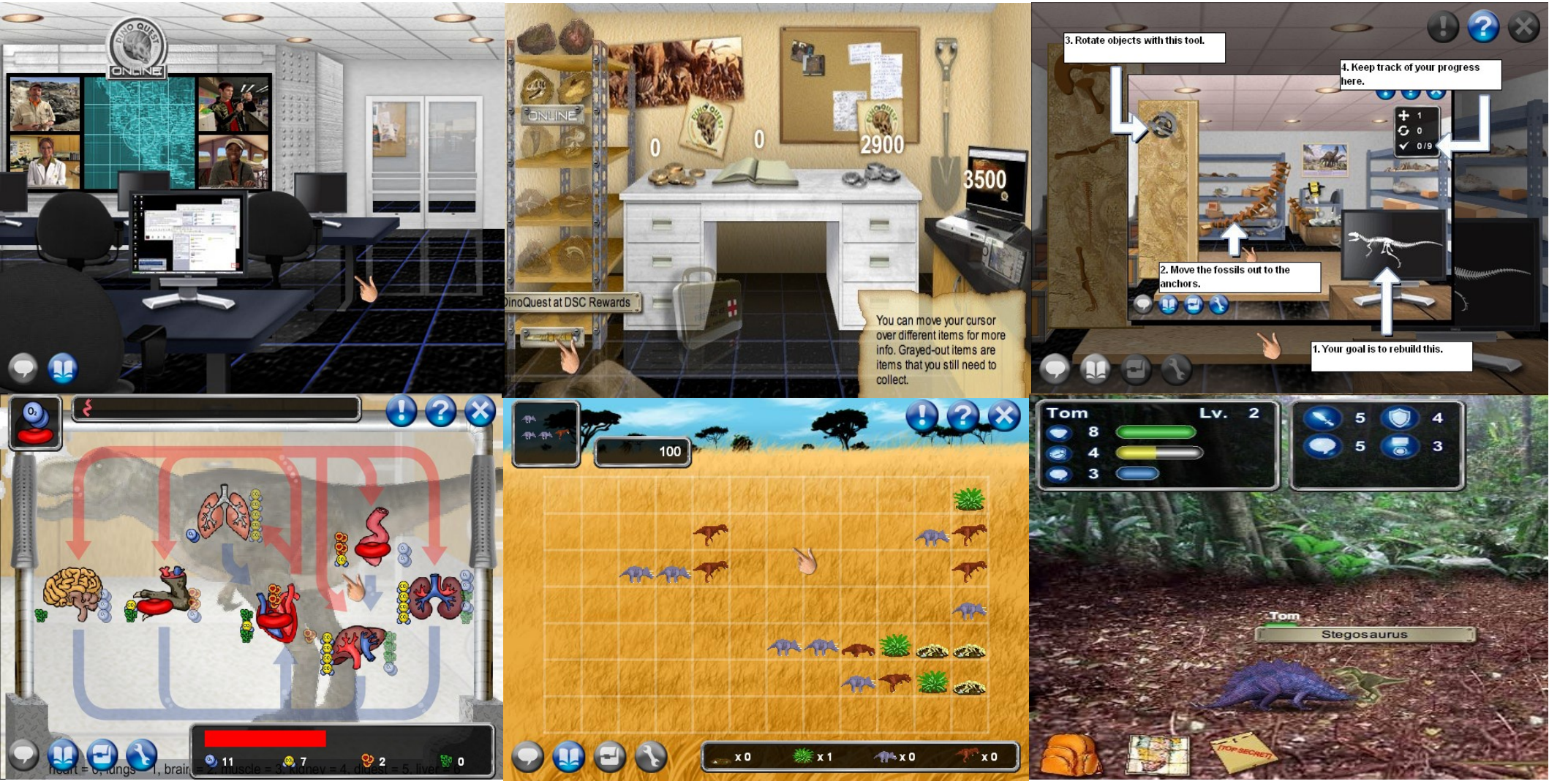
Overview

- Recent computer games and virtual world (CGVW) projects for Science or Technology R&D
- Future opportunities in CGVW for science and technology R&D

Recent CGVW Projects for Science and Technology at UCI

- Game-based science learning games exhibits for Science Centers
  - DinoQuest and DinoQuest Online
- Collaborative science learning and data exploration environment with spherical displays at *Discovery Science Center* and in *OpenSim*
  - Science on a Sphere
- Collaborative game world for semiconductor fabrication or nanotechnology design
  - FabLab training simulator
- Envisioning future virtual worlds for possible cultural experiences and new technological innovation opportunities
  - Virtual Life 2010+
  - Immersive motorsports racing experiences
    - Low-cost to high-cost virtual world simulators
  - OutRun @ UCI
- UCI undergraduate student game projects
  - Game Jams at UCI
  - Intercollegiate game development competition

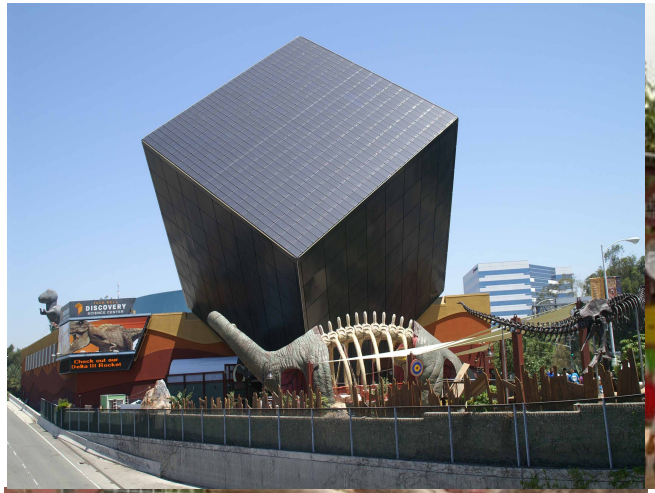
Web-based science learning games for informal science education for K-6 students and families



http://www.DQOnline.org/

Scacchi, W., Nideffer, R. and Adams, J. (2008), A Collaborative Science Learning Game Environment for Informal Science Education, in *New Frontiers for Entertainment Computing*; P. Ciancarini, R. Nakatsu, M. Rauterberg, M. Roccetti (Eds.); Boston: Springer, 71–82.

Mixed reality games for informal science education for K-6 grade students and families at DSC



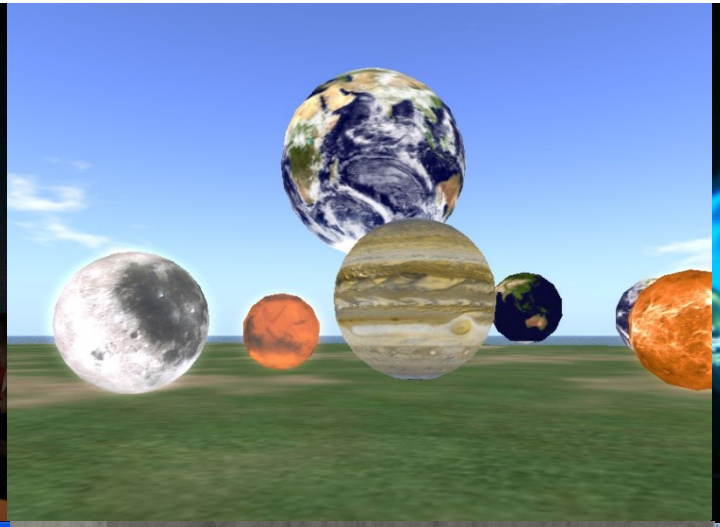
DinoQuest Research Team and Collaboratories:
Diverse Science Role Models (ethnicity, age, gender)

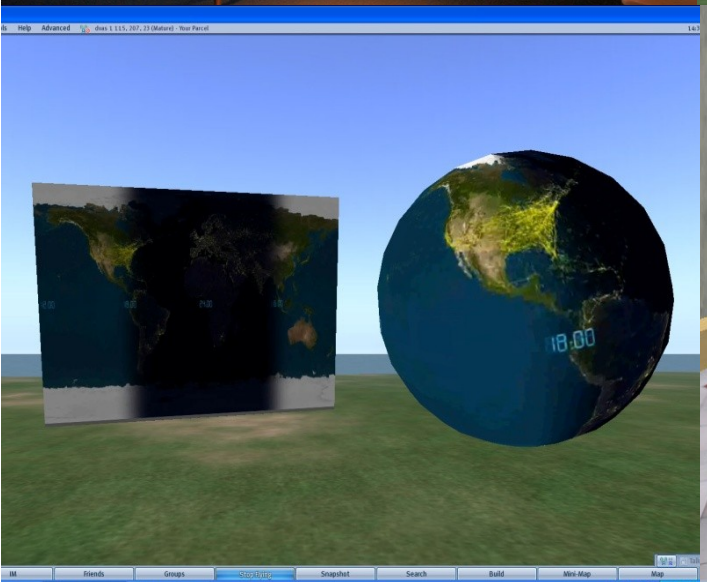
DISCOVERY SCIENCE CENTER

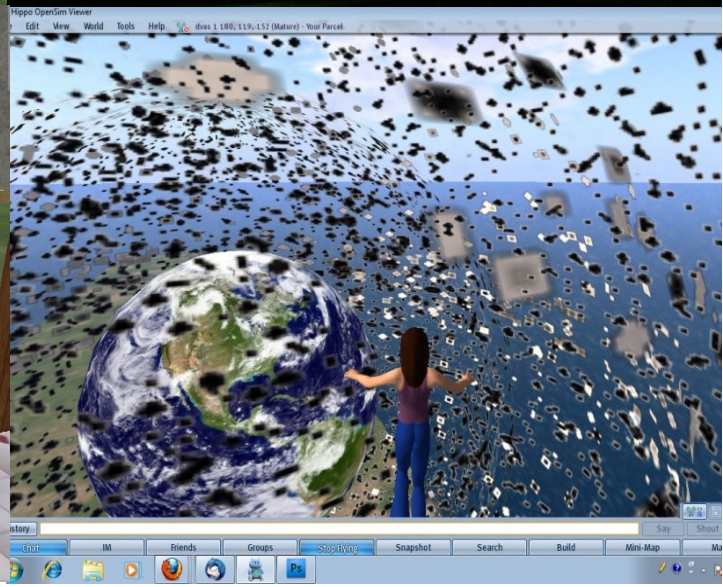
DINO QUEST
DISCOVERY SCIENCE CENTER

http://www.DiscoveryCube.org/

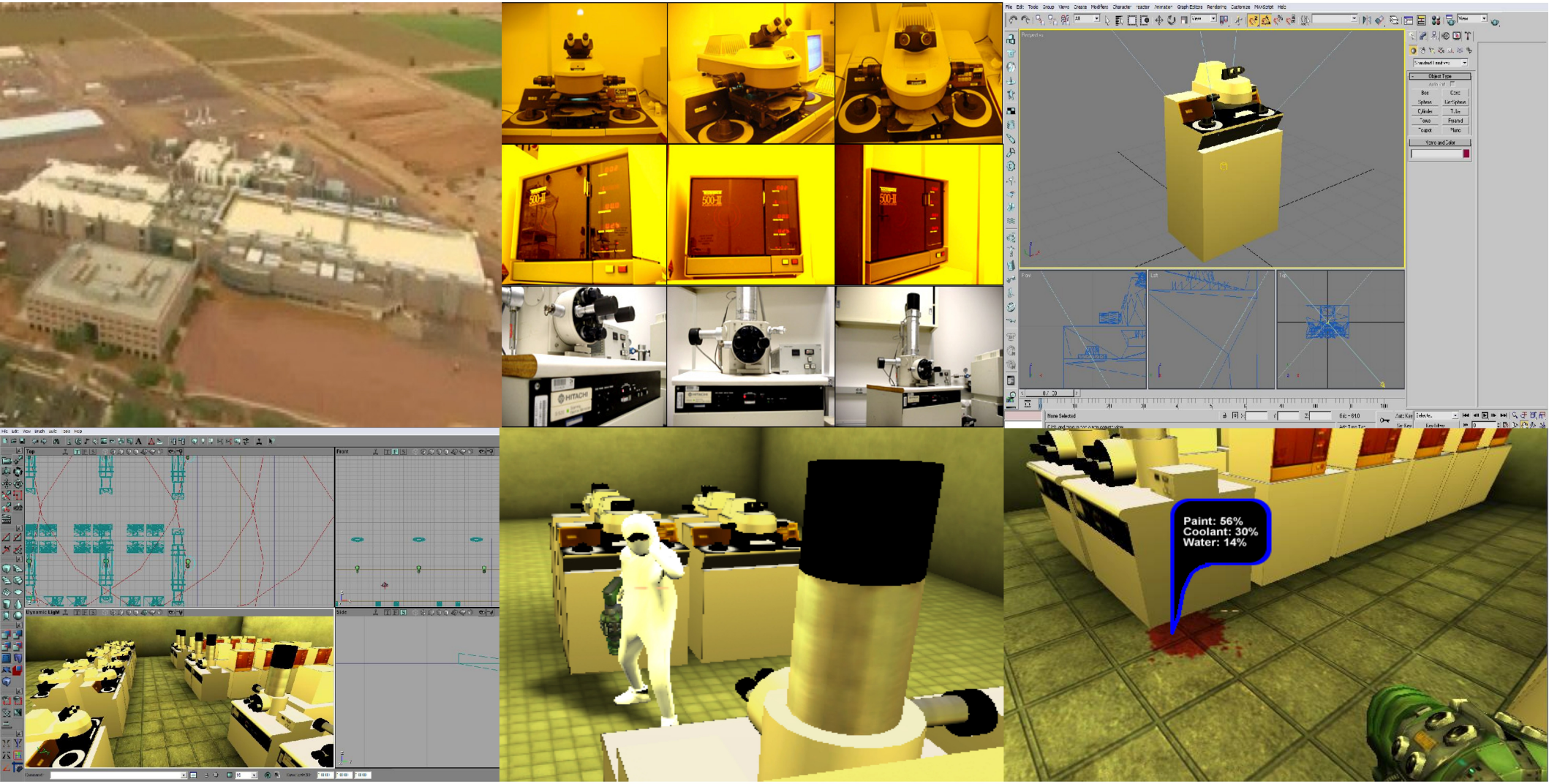
Spherical displays and “spherecasting” support: *NOAA Science on a Sphere* installation in *Opensim*





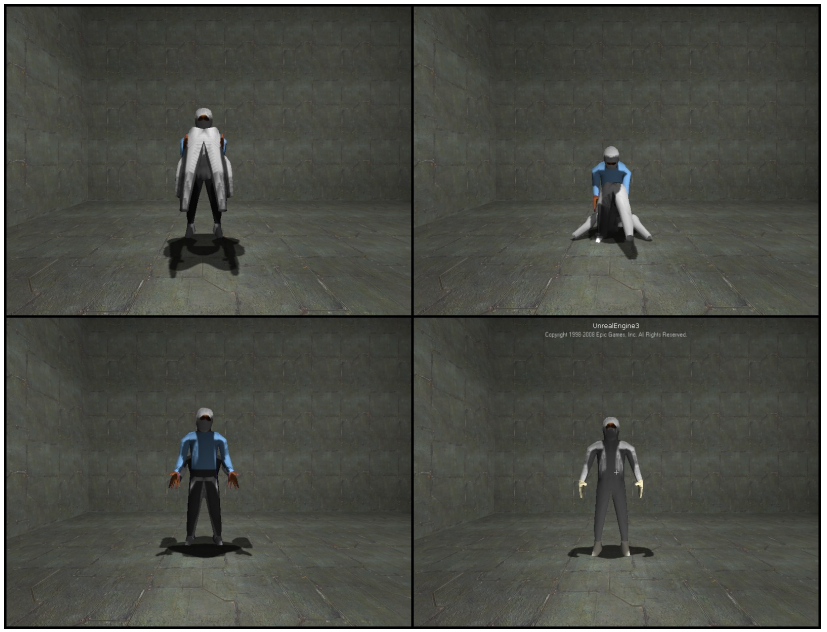


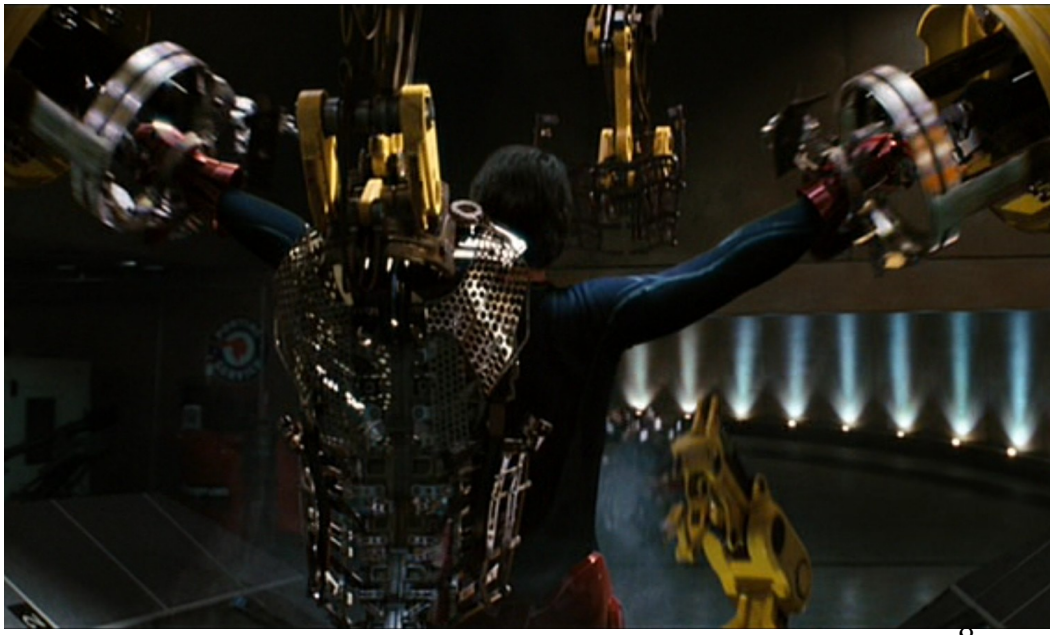
Game-based virtual world for semiconductor/nanotech fabrication training, remote presence and diagnosis



FabLab Demo Reel

Semiconductor/nanotechology fabrication training game

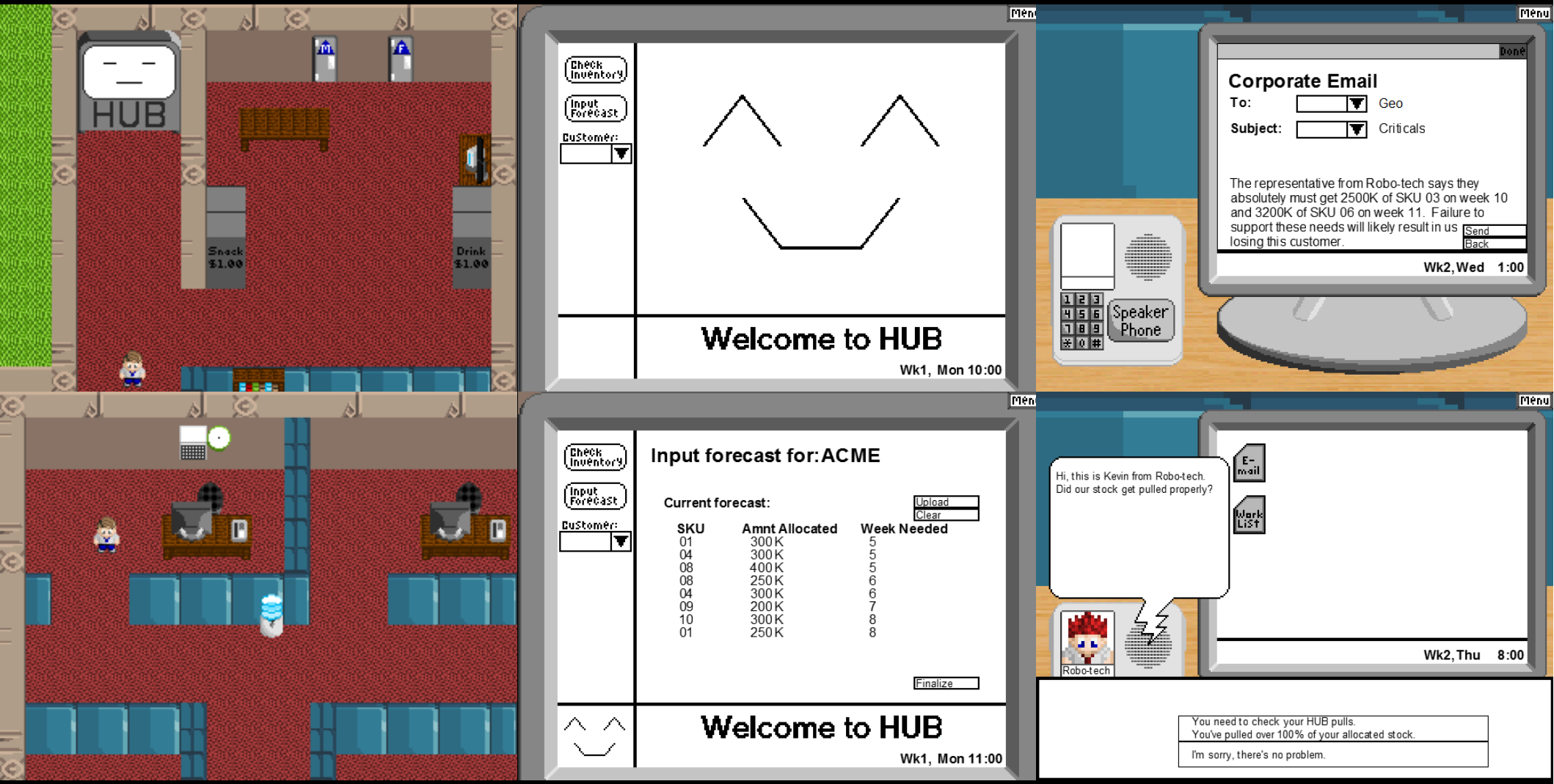




Envisioning collaborative virtual worlds 2010-2012

Virtual Life Demo Reel

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

Game-based VW incorporating real-world news feeds and geopolitically located Twitter feeds

Game-Based Virtual World Simulator Interfaces for immersive motorsports racing experiences

Game-based VW simulator you can actually drive in physical world! -- *OutRun* @ UCI

OutRun: Augmented Reality Driving Video Game YouTube

CGVW Laboratory and experimental game devices

Video game development club game @ UCI

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VGDC UCI

Video Game Developers of UC Irvine, CA

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Demos

Angry Hand of God

VGDC UCI

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Computer games developed by UCI video game developers club (undergrad students)

Published: April 13, 2011 Updated: 7:59 a.m.

UCI students build video games in week

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By IAN HAMILTON / THE ORANGE COUNTY REGISTER

After a week spent building a computer game from scratch, Justin Britch is sitting behind a laptop Monday night just five hours from an 11 p.m. deadline.

"We couldn't get our levels to work for a very long time," Britch tells Reza Ghassemi, president of UC Irvine's Video Game Development Club.

Jesus Quezada, a member of team Rainbow Dice Games works on coding a video game at UC Irvine on Monday.

CHRISTINE COTTER, FOR THE ORANGE COUNTY REGISTER

"For how long?" asks Ghassemi.

"Are they working now?" Britch, asks his teammates.

No, half the levels still don't work.

Britch, 19 and a resident of Mission Viejo, is participating in his second "Game Jam," a week-long marathon competition put on by the university's gaming club pitting teams of computer science, art and informatics majors working around the clock against one another to build computer games.

Though the games are simple, mostly two dimensional with flat maps and relatively simple multicolored animated characters, the third "Game Jam" competition held by the club is an opportunity for budding artists, game designers and programmers to add a finished product to their portfolio. And they do it in just a week while experiencing what it's like to work and collaborate on a project.

With video game giant **Blizzard Entertainment** nearby, UC Irvine is seeing an increase in the

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More from Technology

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- TheStreet: iPad Mini, iOS 6, MacBook Pro
- O.C.-based iPad restaurant touted as pioneer

Recommended for You

First Intercollegiate Game Development Showcase (2012)

Showcase games developed by UCI video game development club (undergrad students)

Future opportunities areas for collaborative R&D

- **Science**
  - CGVW-based Science Center
  - CGVW technologies for biological, chemical, ecological,and social science research

- **Technology**
  - CGVW for advanced manufacturing processes
  - CGVW-based training for software development
  - CGVW for developing, operating, and servicing of advanced automotive systems

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