

Recent Advances in Computer Games and Virtual Worlds

Walt Scacchi

Center for Computer Games and Virtual Worlds

Donald Bren School of Information and Computer Sciences

University of California, Irvine

<http://cgvw.ics.uci.edu>

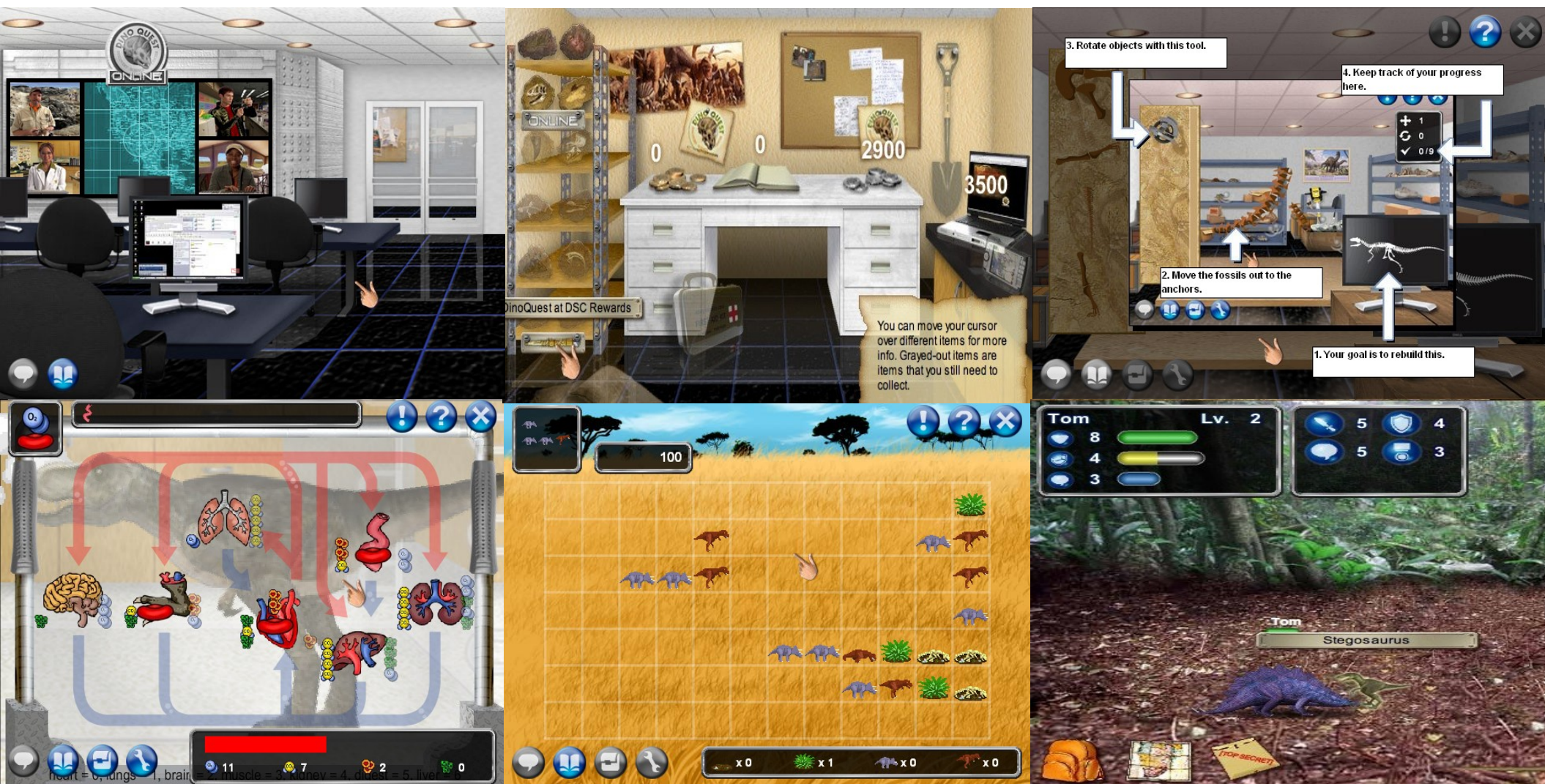
Overview

- 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



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

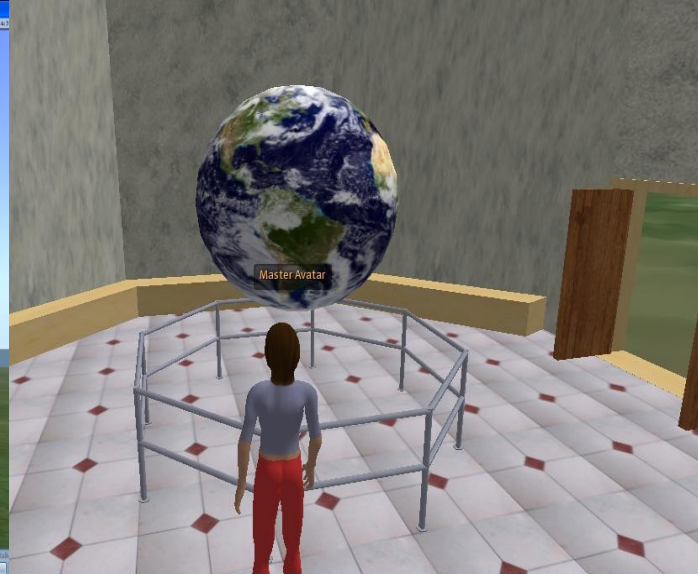
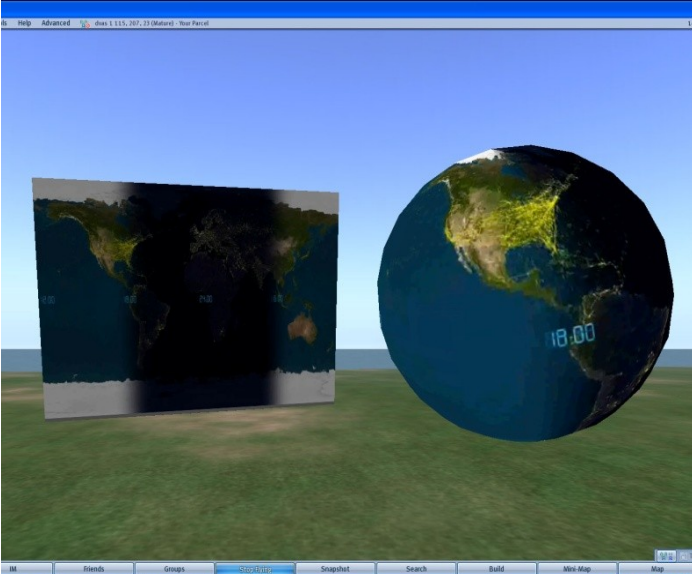
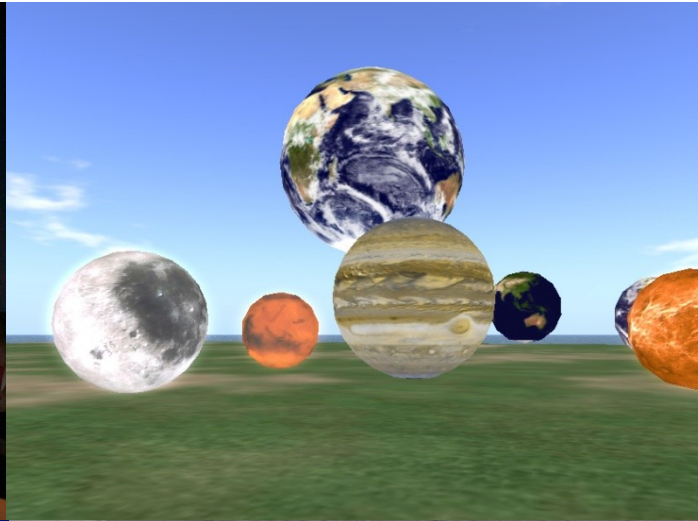
<http://www.DQOnline.org/>

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

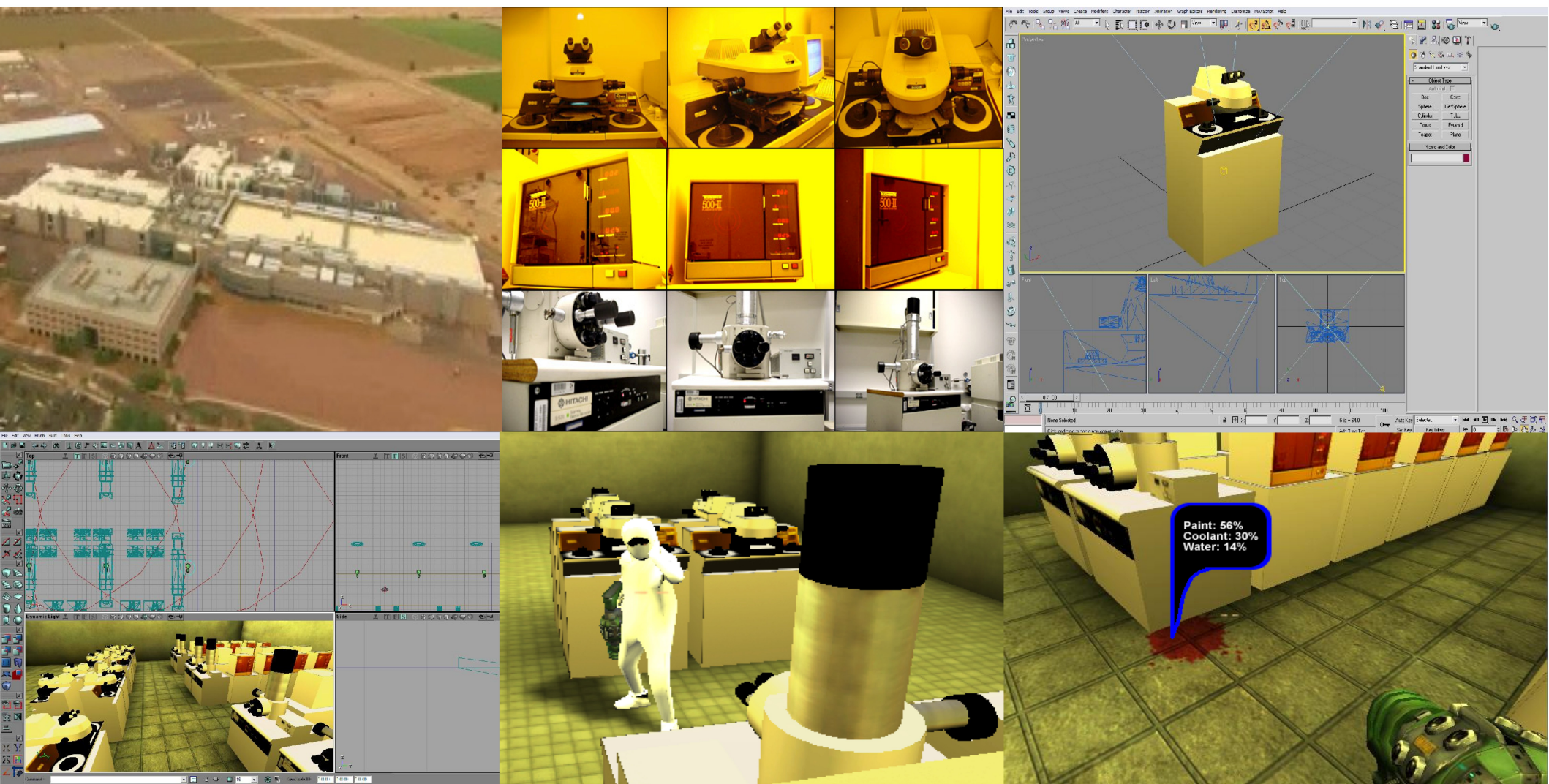


<http://www.DiscoveryCube.org/>

Spherical displays and “spherescasting” 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/nanotechnology fabrication training game

working in a cleanroom

Suit made of
ultra clean material

Battery pack for
air filter system

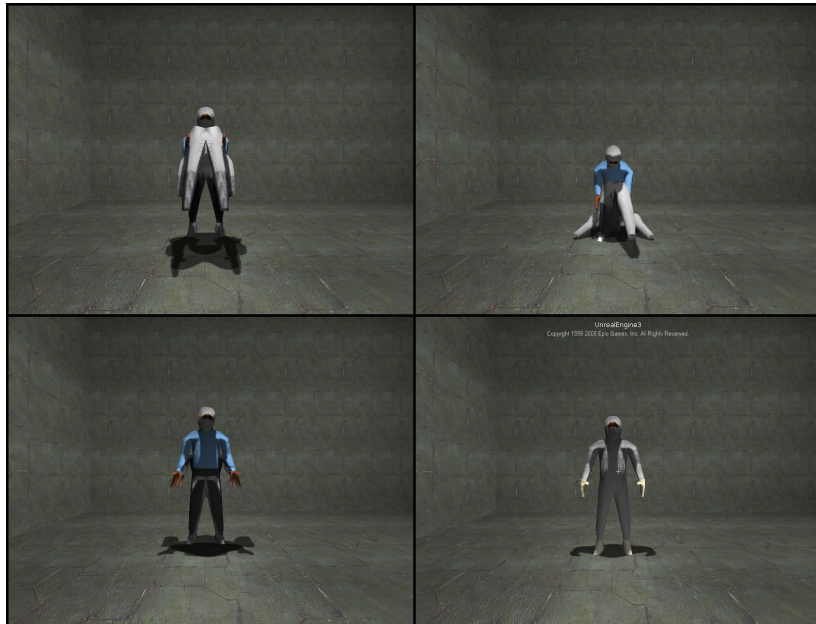
2 pairs of gloves
nylon & latex

2 pieces
of foot gear
disposable
shoe covers &
outer booties

Helmet
includes
air filter
unit

Will also
wear
hairnet
& safety
glasses

Belt

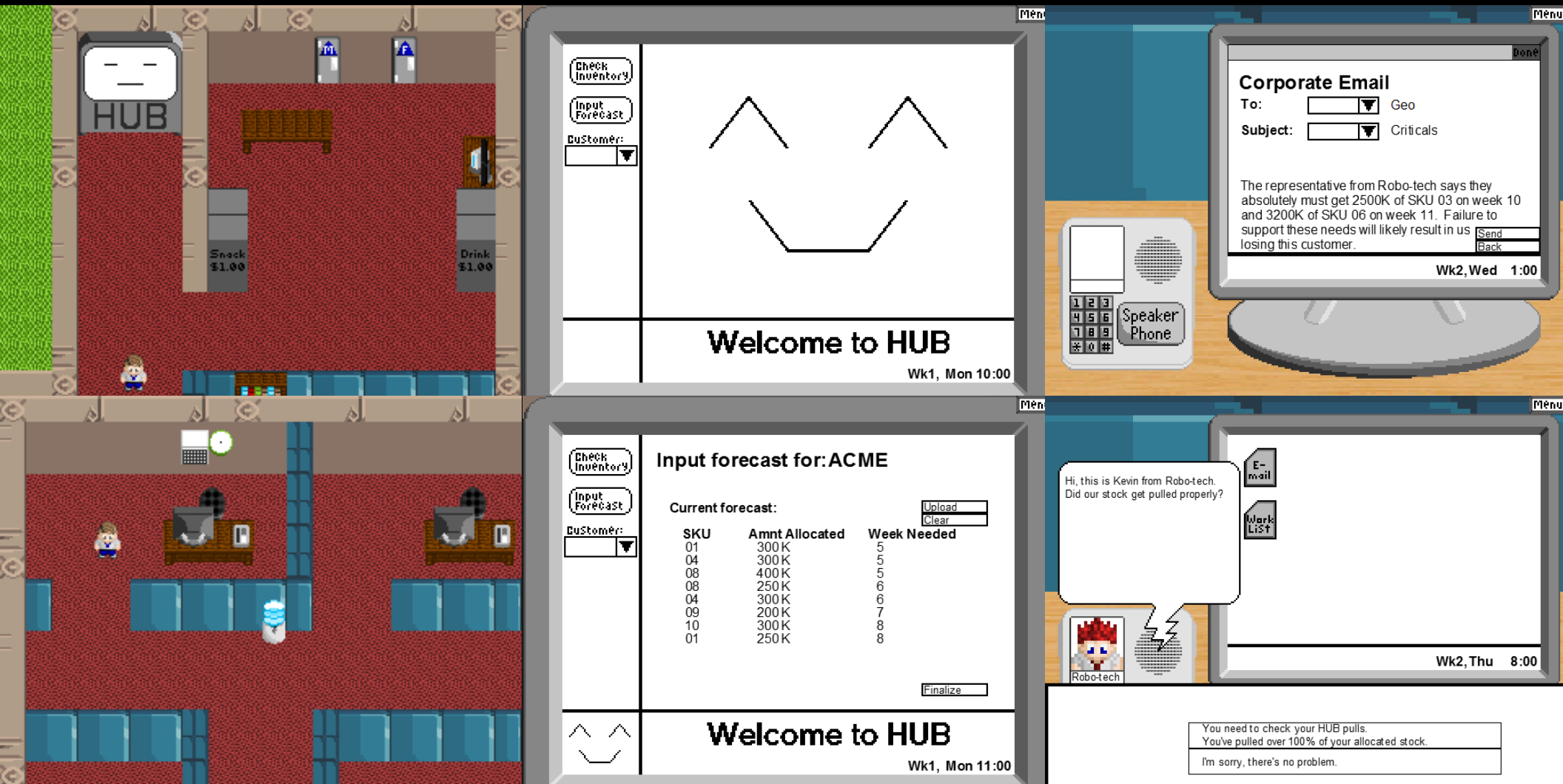


Envisioning collaborative virtual worlds 2010-2012



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

Top-Left Screenshot: City Street and Stocks

Stocks

A Monopoly exists when an enterprise has sufficient control over a particular product or service to determine the terms on which others have access to it.

Monopolies derive their market power by impeding a potential competitor's ability to enter and/or compete in a given market.

A prime source of monopoly power is the control of resources that are critical to the

Dow Jones Industrial	11,362.41
S&P 500	1,221.53
NASDAQ	2,579.35

Play Stock Investors

Bottom-Left Screenshot: Terminal Window

AAPL 270 v MkCap: 246B \$0

MSFT 25.0 v MkCap: 219B

Capital Accumulation \$1.780M In US Dollars

Bottom-Right Screenshot: Military Base

Foreign Military

Capital Accumulation \$2.000M In US Dollars

Health Metrics (Bottom-Left and Bottom-Right)

	Core	Semi-Periphery	Periphery
Civic Health	72.86%	60.73%	35.73%
Economic Health	70.73%	58.57%	33.57%
Ecological Health	72.15%	57.16%	67.15%

Top-Right Screenshot: Twitter Feed

RyameKenoshi: Doing differential diagnoses in class. I knew watching House would pay off someday. Totally diagnosed syphilis in a fake patient.

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

Video Game Development Club @UCI Log In Sign Up

VGDC UCI

Video Game Developers of UC Irvine, CA

THE BEST PLACE AT UC IRVINE TO LEVEL UP YOUR PORTFOLIO AND CAREER!

HOME

ACTIVITY

FORUMS

GROUPS

MEMBERS

PHOTOS

WIKI

INFO

DEMOS

GAME COMPANIES

Demos

Angry Hand of God

The Angry Hand of God Trailer

Like Share More info



1:11 / 1:16

YouTube



VGDC UCI

Like 136

Follow @vgdcuci 16 followers

TAGS

3d aif artist blizzard business contest
demo field trip first meeting game design
game idea game industry leaders game
industry professionals game
jam GDC guest speaker help
howto meeting mobile new room no
meeting obsidian oc weekly
opportunity pitch poll producer
projects research rookies slides summer syn
tips top this tour trivia night tutorial
tutorials uci alum vgdc in the news video
winner xna

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

 Tweet 15

 Recommend

 Sign Up to see what your friends recommend.

 Email

 Share

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

Text: 

Next Article »

TODAY'S DEAL

SEE IT

Tacos & Co

\$10 for \$20 Worth of Food and Drink at Tacos & Co

OCRegister.com



ADVERTISEMENT

Sprint

TRADE UP
& SAVE \$100

For a limited time, bring us an iPhone from any carrier and get at least \$100 off an iPhone 4S.

LEARN MORE

Restrictions apply.



Apple iPhone

More from Technology

- E3 shows companies looking beyond games
- TheStreet: iPad Mini, iOS 6, MacBook Pro
- O.C.-based iPad restaurant touted as pioneer

Recommended for You

First Intercollegiate Game Development Showcase (2012)



GameSIG

[HOME](#)[EVENT](#)[SPONSORS](#)[PARAMETERS](#)[GUIDELINES](#)[PRIZES](#)[CONTACT US](#)

Intercollegiate Game Showcase

2012

game

Programming skills on Fire

Venue: Chapman University, Folino Theater
Saturday April 28, 2012

Do You Have
What It Takes?

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

COMPETE in our GAME CONTEST, WIN PRIZES,
EARN ACHIEVEMENTS & FINE TUNE YOUR SKILLS



Game Event

details about game event

Venue: Chapman University, Folino Theater,
Saturday, April 28. Setup starts at 1:00. Main event
starts at 2:00 and ends at 4:00...

[READ MORE](#)



Contest Parameters

know more about contest

All platforms are acceptable. Submissions will be
judged based on originality, creativity and
execution — and on whether they are fun to play...

[READ MORE](#)



Submission Guidelines

our submission rules etc.

Finalists will be selected based on YouTube videos
3 to 5 minutes long. These should demonstrate
gameplay and key visuals and should include the
name of the game... [READ MORE](#)

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

Acknowledgements

- National Science Foundation, grants #0808783, #1041918, and #1256593
- Naval Postgraduate School, grant #N00244-10-1-003
- Digital Industry Promotion (DIP) Agency, Daegu, South Korea
- and our other External Partners.
- *No review, approval, or endorsement implied.*