

Creating Opportunities for Computer Game R&D Projects

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and

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Overview

- Motivation and self interest
- About game making projects: reflective practice
- Project examples
- Work in progress and game demo

Motivation

What are we doing?

- Empirical research and technology prototyping of Computer Games and Virtual Worlds 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

Research Collaborators

Faculty

– Robert Nideffer, Thomas Alspaugh, Jill Berg, Yunan Chen, Steve Cramer, Alfred Kobsa, Jung-Ah Lee, Crista Lopes, Gloria Mark, Bonnie Nardi, David Redmiles, Richard Taylor, and others

Post-Doctoral Scholars

– Garnet Hertz (UCI LUCI)

Research Staff

– Craig Brown (SMU), Yuzo Kanomata (VDIO), Kari Nies (HRI/ISR), Alex Szeto (ISR)

Making game making: Reflective practices on creating computer game R&D project opportunities

- Actively participate in game culture and technology activities
 - * play/experience games, “read” game genres, socialize with gamers and non-gamers.
- Scour research funding sources for “game friendly” solicitations
- Get audiences with game-friendly sponsors
- Create game project concept realities
- Remix, reuse, repurpose, extend, blend prior Game project results/experiences

Some game projects of interest

- 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

Web-based science learning games for informal science education for K-6 students and families: *DinoQuest Online*



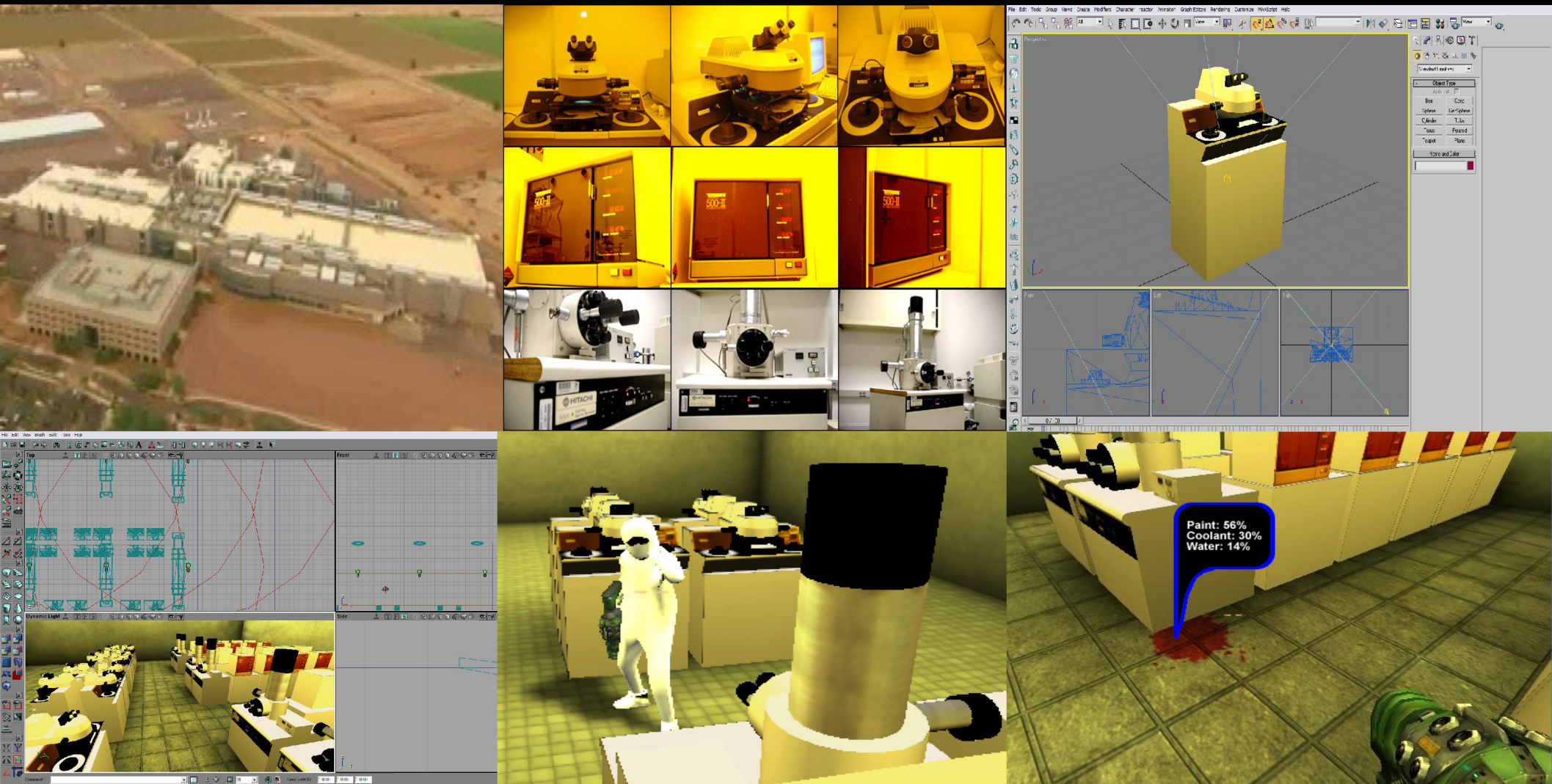
<http://www.DQOnline.org/>

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.

Presenting *DinoQuest Online* at Game Developers Conference 2007 thanks to UC Office of the President



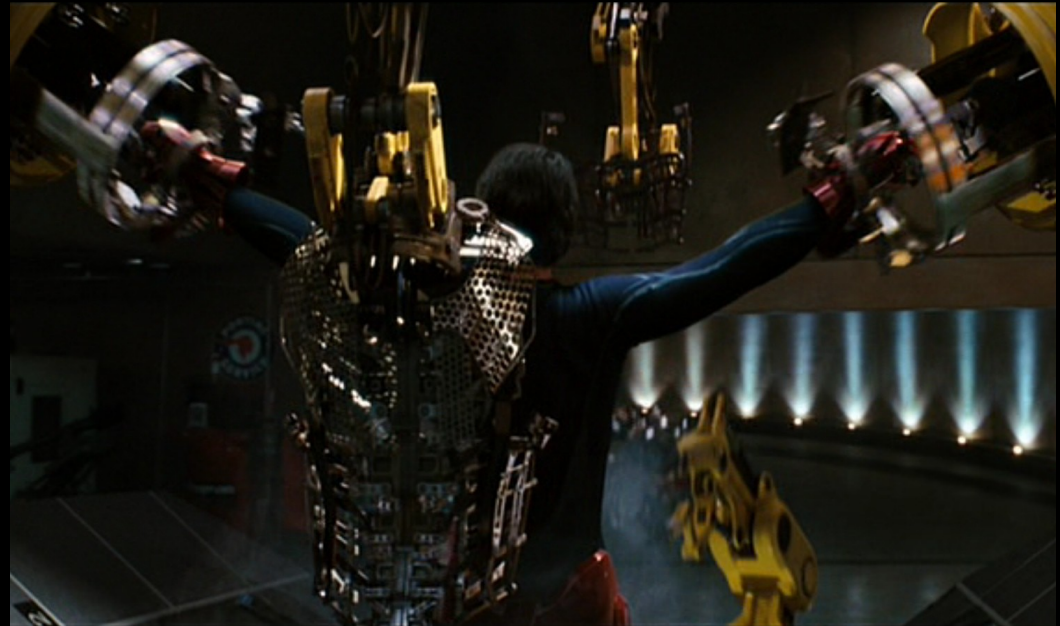
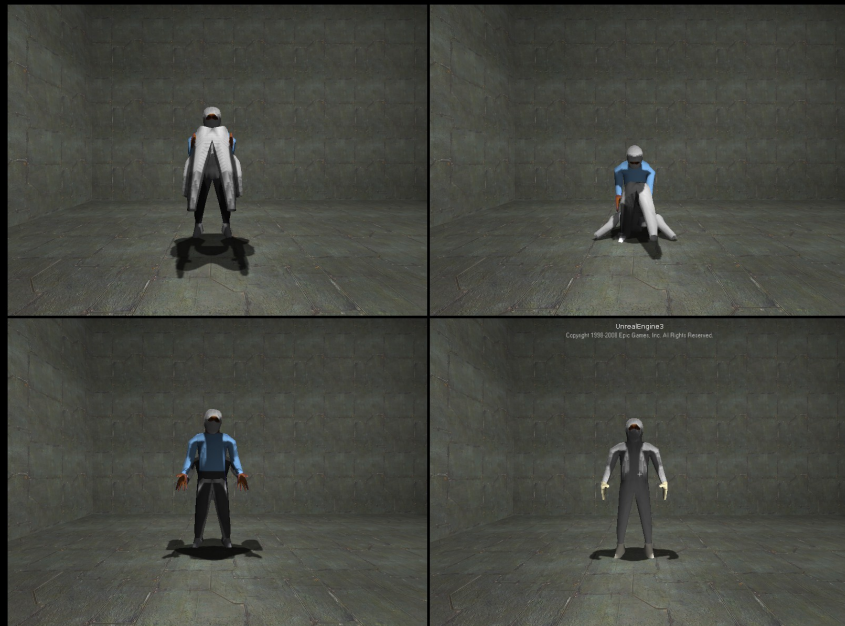
Semiconductor/nanotechnology fabrication operations and diagnostics training game



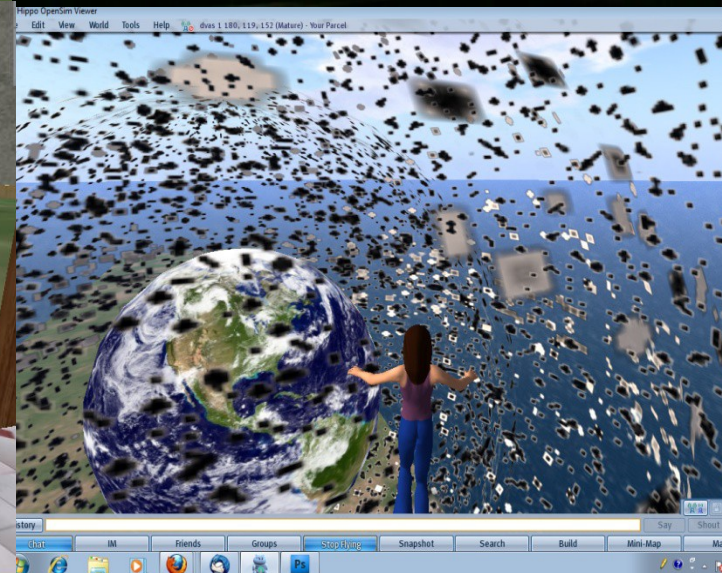
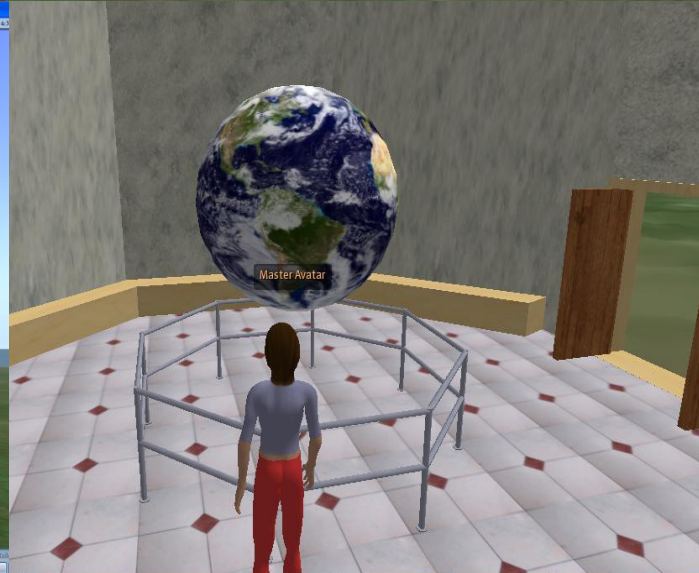
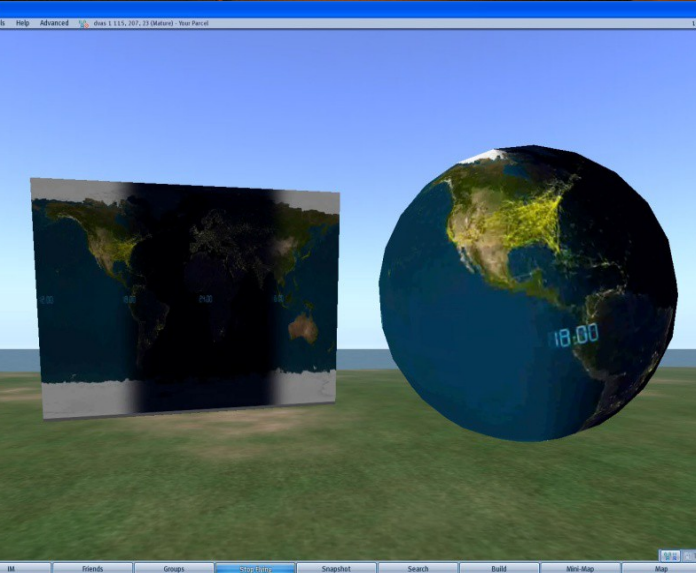
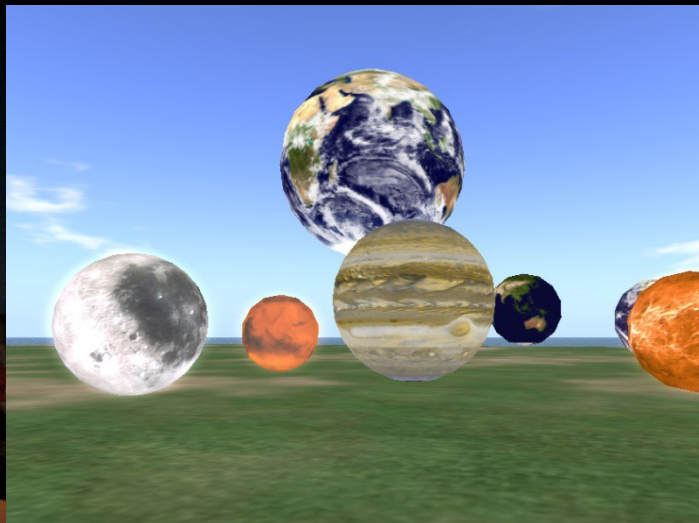
FabLab Demo Reel

Scacchi, W. (2010). [Game-Based Virtual Worlds as Decentralized Virtual Activity Systems](#), in W.S. Bainbridge (Ed.), *Online Worlds: Convergence of the Real and the Virtual*, Springer, New York, 225-236.

Semiconductor/nanotechnology fabrication training game



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

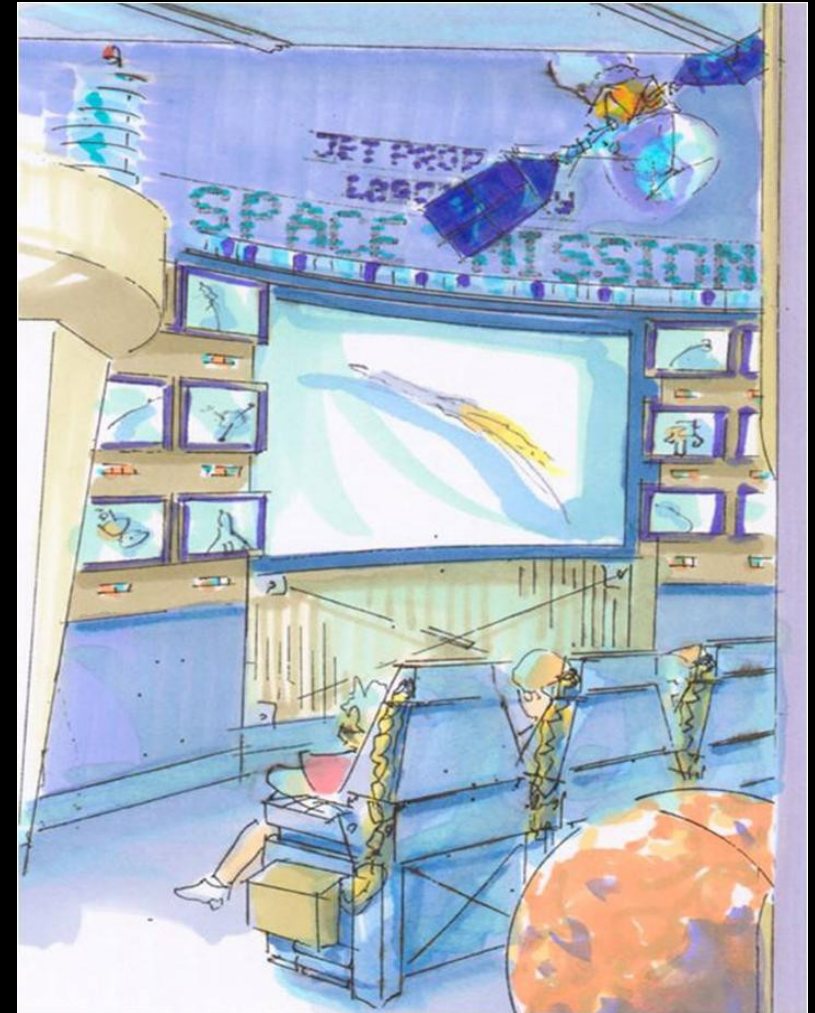
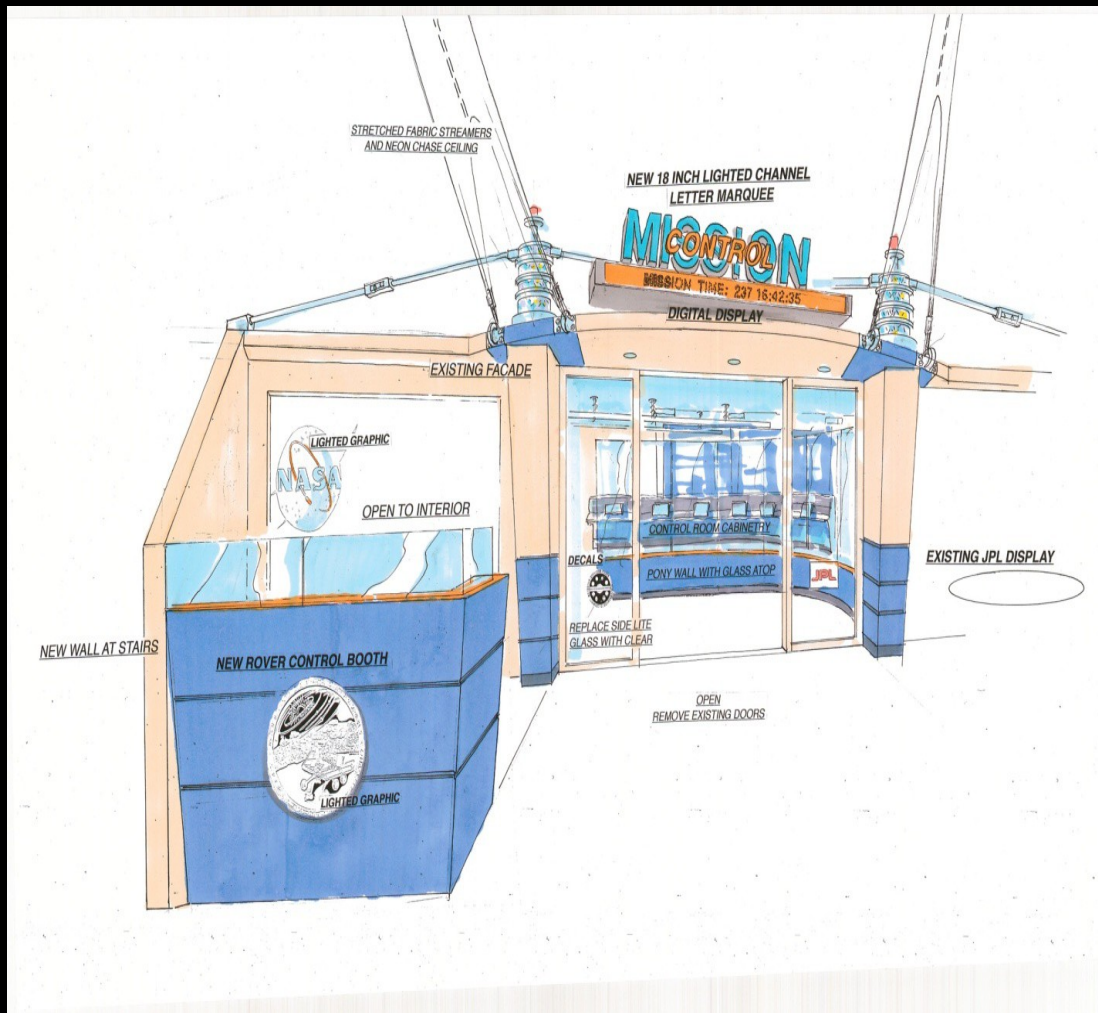


Supporting exploration of planets, earth systems (ocean, climate) and near-earth objects (space debris, small satellites, near-earth asteroids)

VW for experimental studies in decentralized command and control centers



DSC Mission Control Room: *Vision*

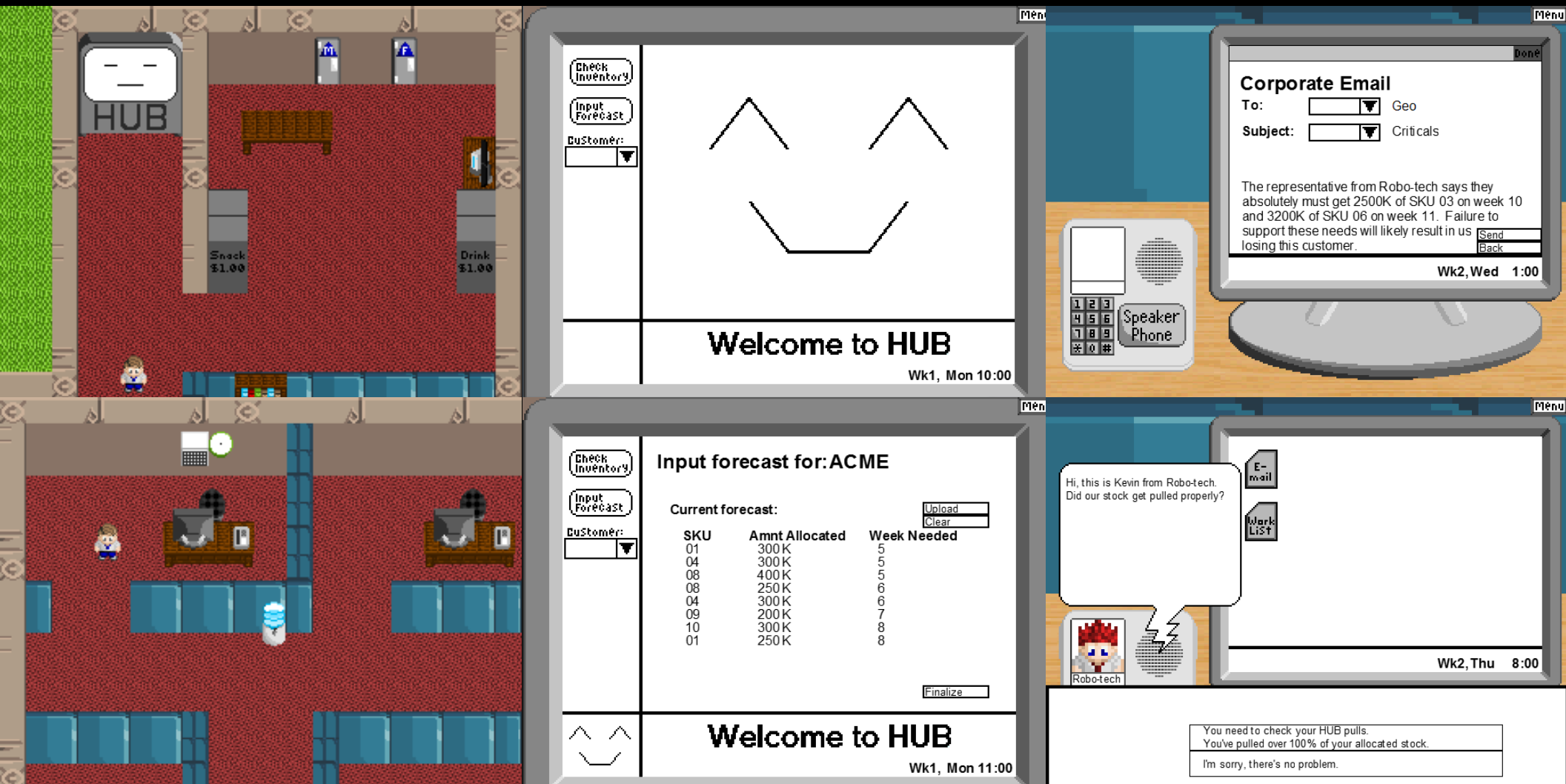


Envisioning a virtual social computing world



Virtual Life Demo Reel

CBA: Customer relations work practices simulator implemented using low-cost, rapid micro-development cycle



2D, side-scrolling, *World of Warcraft* inspired, role-playing game parody 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 Scene

Stocks Information Panel:

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 Status Bar (Top-Left):

- Capital Accumulation: \$2.00M In US Dollars
- Civic Health: 72.86%
- Economic Health: 70.73%
- Ecological Health: 72.15%
- Core: 60.73%
- Semi-Periphery: 35.73%
- Periphery: 33.57%

Top-Right Screenshot: City Street Scene with Speech Bubble

Speech Bubble:

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

Bottom Status Bar (Top-Right):

- Capital Accumulation
- Civic Health
- Economic Health
- Ecological Health

Bottom-Left Screenshot: Terminal Window

AAPL 270 v MkCap: 246B \$0

MSFT 25.0 v MkCap: 219B

Bottom Status Bar (Bottom-Left):

- Capital Accumulation: \$1.780M In US Dollars
- Civic Health: 74.96%
- Economic Health: 74.93%
- Ecological Health: 74.95%
- Core: 64.93%
- Semi-Periphery: 39.93%
- Periphery: 34.97%

Bottom-Right Screenshot: Military Base Scene

Bottom Status Bar (Bottom-Right):

- Capital Accumulation: \$2.00M In US Dollars
- Civic Health: 74.21%
- Economic Health: 73.43%
- Ecological Health: 73.95%
- Core: 63.43%
- Semi-Periphery: 38.43%
- Periphery: 34.47%

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

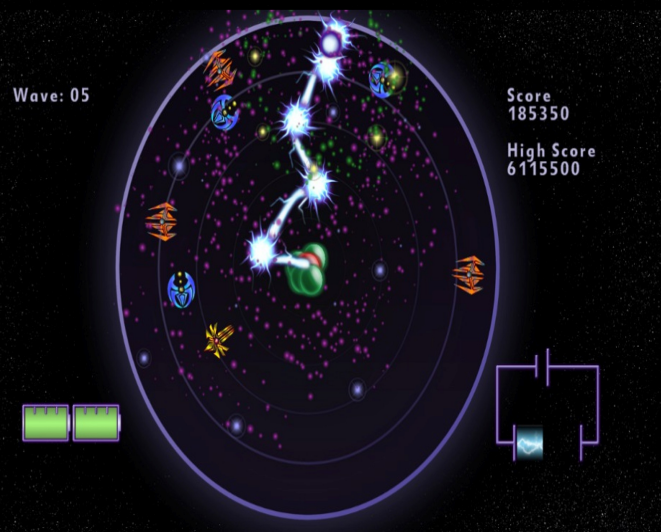


<http://www.conceptlab.com/outrun>

Community development concept: Supporting UCI video game developers club via Computer Game Science Laboratory



Community development concept: Supporting UCI video game developers club projects (sample)



Community development concept: *IEEE Intercollegiate Computer Game Development Showcase*



Search...

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Intercollegiate
Game Showcase

2012



Programming skills on Fire

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

Do You Have
What It Takes?

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](#)

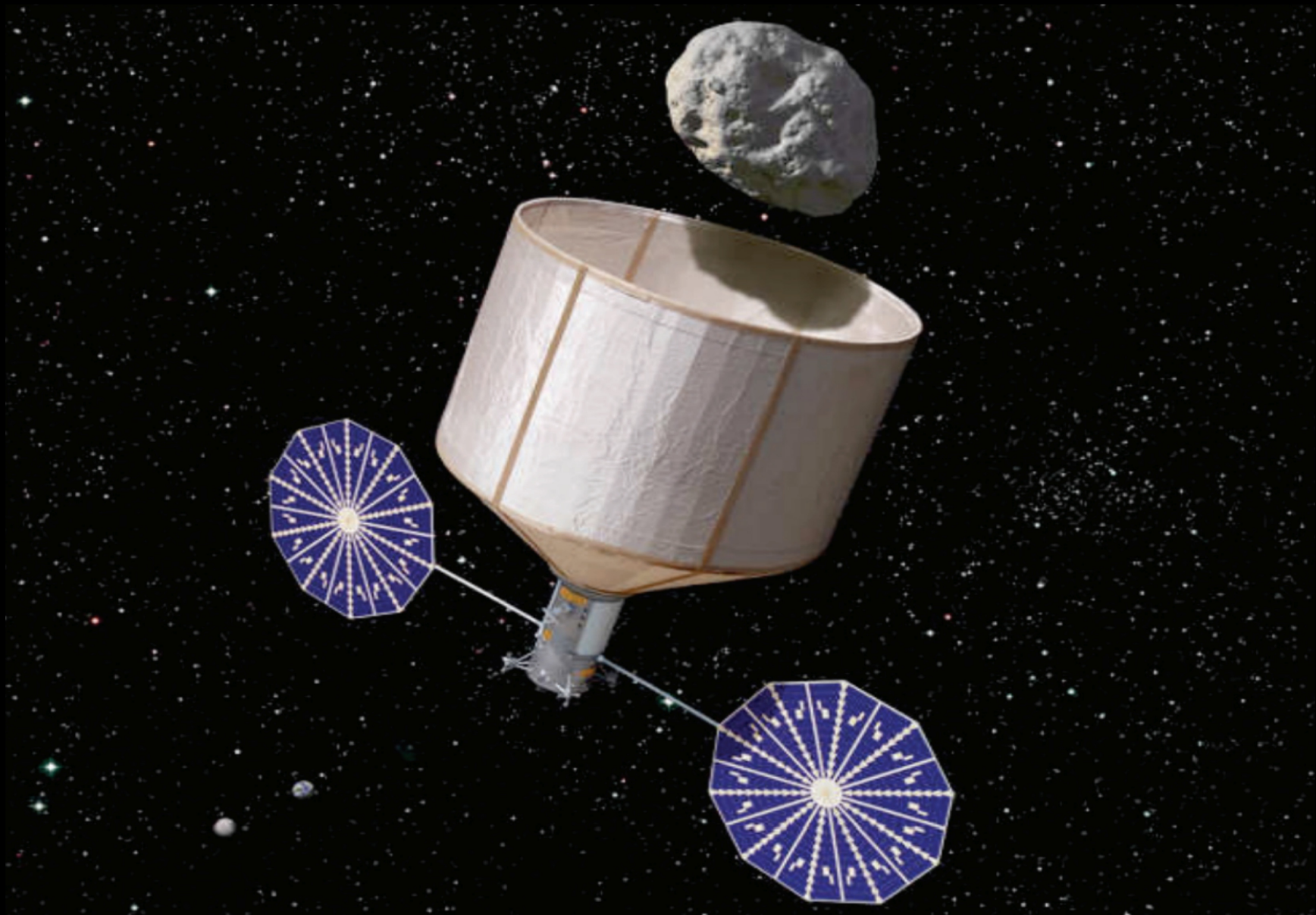


Submission Guidelines

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](#)

*New project: develop reusable framework for developing
“science mission games”*



Sample game activity: Capture a near-earth asteroid

Work in progress: Informal game-based music learning environment for 8-13 year old students



Song of America game project – Historic Music video creation game (still not yet funded)

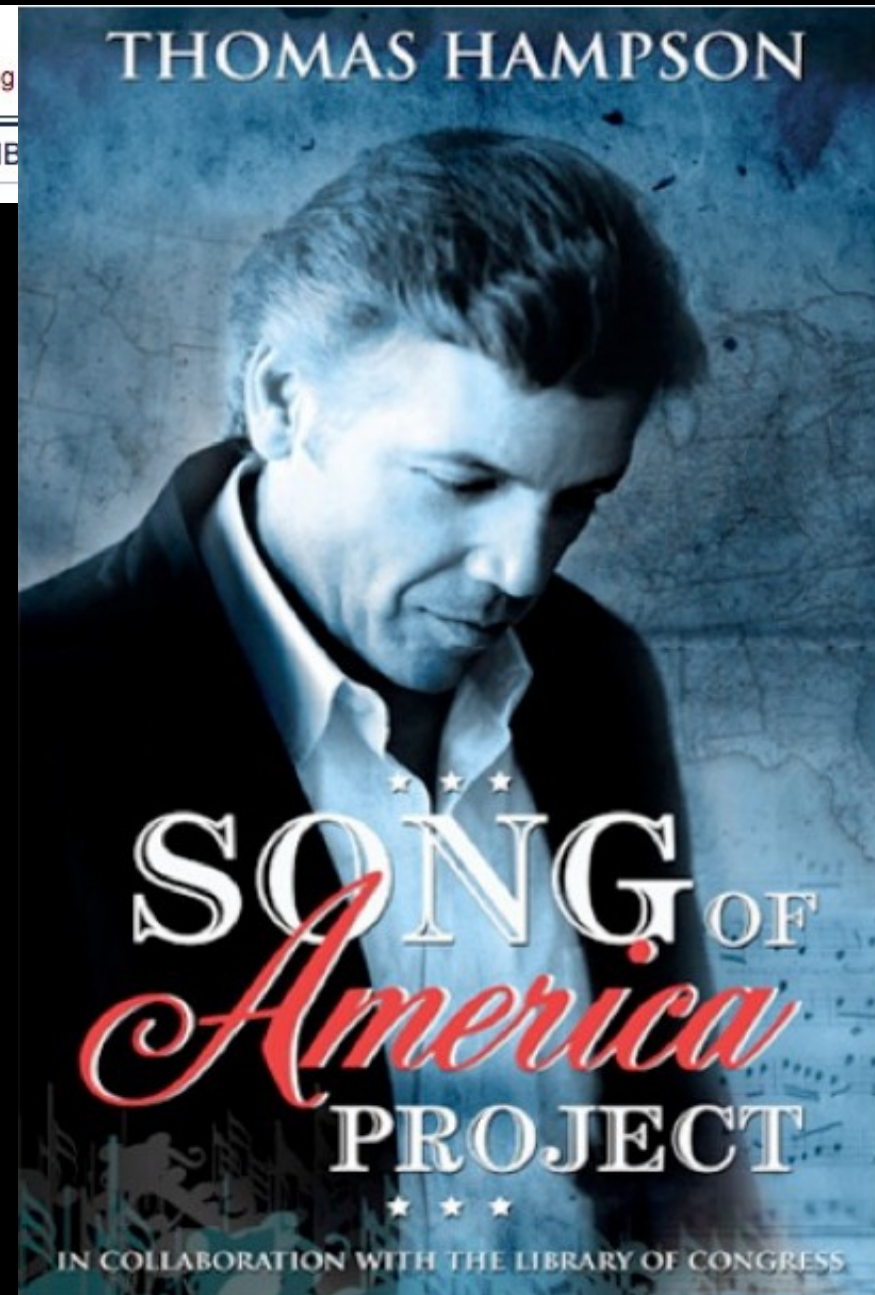
SONG OF AMERICA

Celebrating 250 years of American Song

[HOME](#)[COMPOSERS](#)[POETS & WRITERS](#)[SONGS](#)[TIMELINE](#)[LIBRARY](#)

The [Hampsong Foundation](#) is pleased to introduce "Song of America," a 13-week radio series that reveals American classic song – poetry set to music by American composers – as a vibrant diary of the American experience.

Programs include **Stephen Foster**, dedicated exclusively to the 19th-century songwriter who is considered the father of American music; **Song of Walt Whitman**, examining the great poet as well as his deep influence on American composers; **"There Is No Gender in Music,"** exploring the contributions of American women composers; and **Langston Hughes and the Harlem Renaissance**, which traces the roots and influence of the great 20th-century poet who gave jubilant voice to the lives of African Americans.



Interactive music composition application – *Composerizer*

The screenshot shows the 'SFS KIDS FUN WITH MUSIC' website interface. At the top, there are navigation links: HOME, SITE MAP, HELP!, RADIO, and a SEARCH bar with a 'GO' button. The main content area is titled 'THE MUSIC LAB' and features a grid of interactive buttons: BASICS, TEMPO, RHYTHM, PITCH, HARMONY, SYMBOLS, INSTRUMENTATION, PERFORMULATOR, and COMPOSERIZER (which is highlighted in red). Below this grid, there are seven musical staves, each with a 'PLAY' button. The 'COMPOSERIZER' section is prominently displayed, showing a large musical staff with a treble clef and a 3/4 time signature. The staff is divided into measures, with the first measure containing a quarter note and the last measure containing a half note. A text box above the staff instructs users to 'DRAG AND DROP THE MEASURES INTO THE SPACE BELOW'. At the bottom, there are controls for the application, including a 'REPEAT' toggle (ON/OFF), a 'PLAY' button, a 'STOP' button, and a 'START OVER' button. On the left side of the page, there are links to 'INSTRUMENTS OF THE ORCHESTRA', 'THE MUSIC LAB', 'WHAT'S UP AT THE SYMPHONY?', and 'ABOUT THIS SITE'. The San Francisco Symphony logo is also visible at the bottom left.

SFS KIDS
FUN WITH MUSIC

HOME SITE MAP HELP! RADIO SEARCH GO

THE MUSIC LAB

BASICS TEMPO RHYTHM PITCH
HARMONY SYMBOLS INSTRUMENTATION
PERFORMULATOR **COMPOSERIZER**

PLAY PLAY PLAY PLAY PLAY PLAY PLAY

COMPOSERIZER™ DRAG AND DROP THE MEASURES INTO THE SPACE BELOW

3/4

REPEAT: ☐ ON ☐ OFF PLAY STOP START OVER

ABOUT THIS SITE

SAN FRANCISCO SYMPHONY

New York Philharmonic KidZone Game Room

New York Philharmonic
KidZONE

game room 

 instrument
storage room

dressing
rooms 

 instrument
lab

musicians'
lounge 

 composition
workshop


composers'
gallery 

 newsstand

 game room

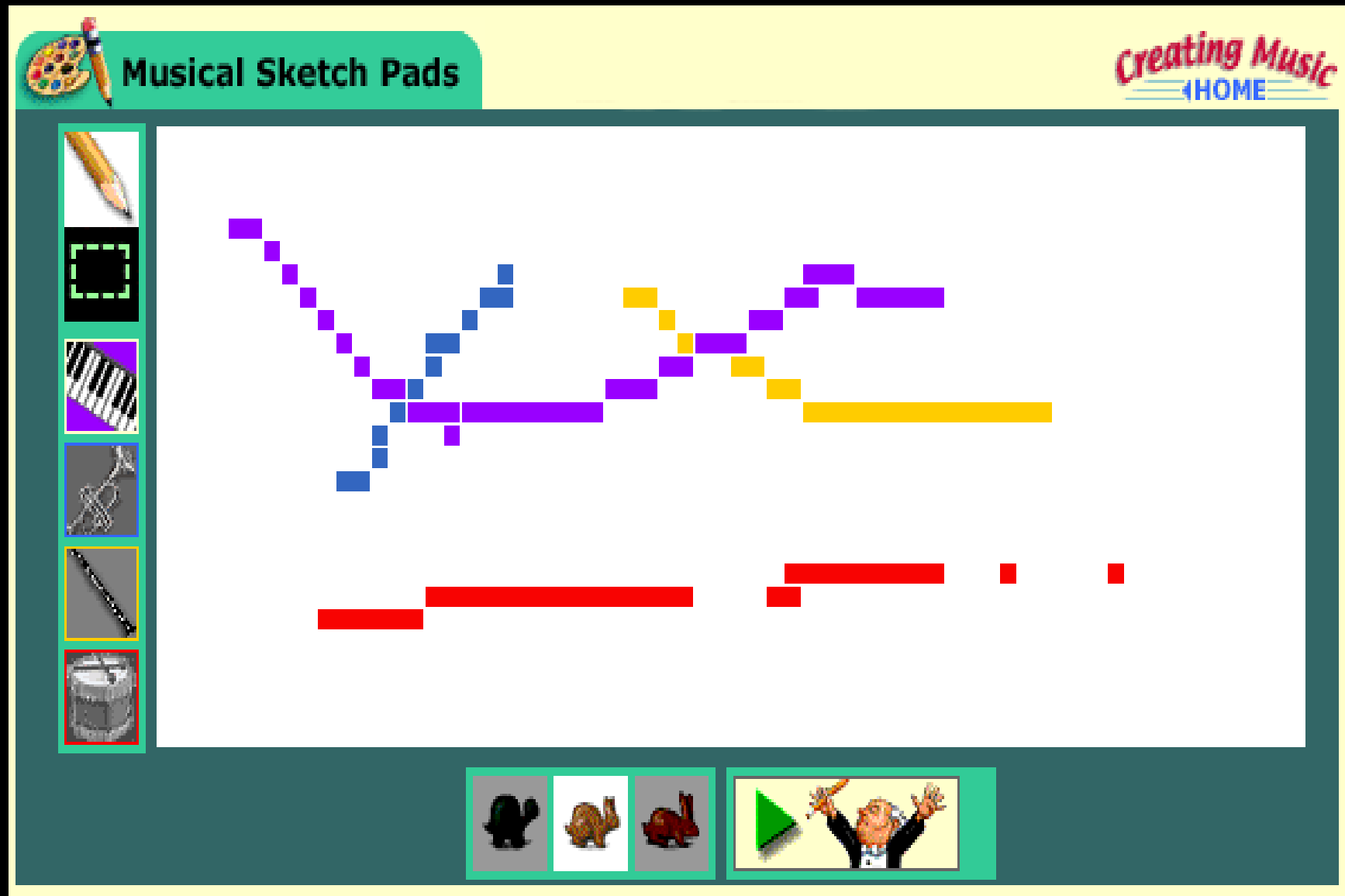


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 [send to a friend](#)

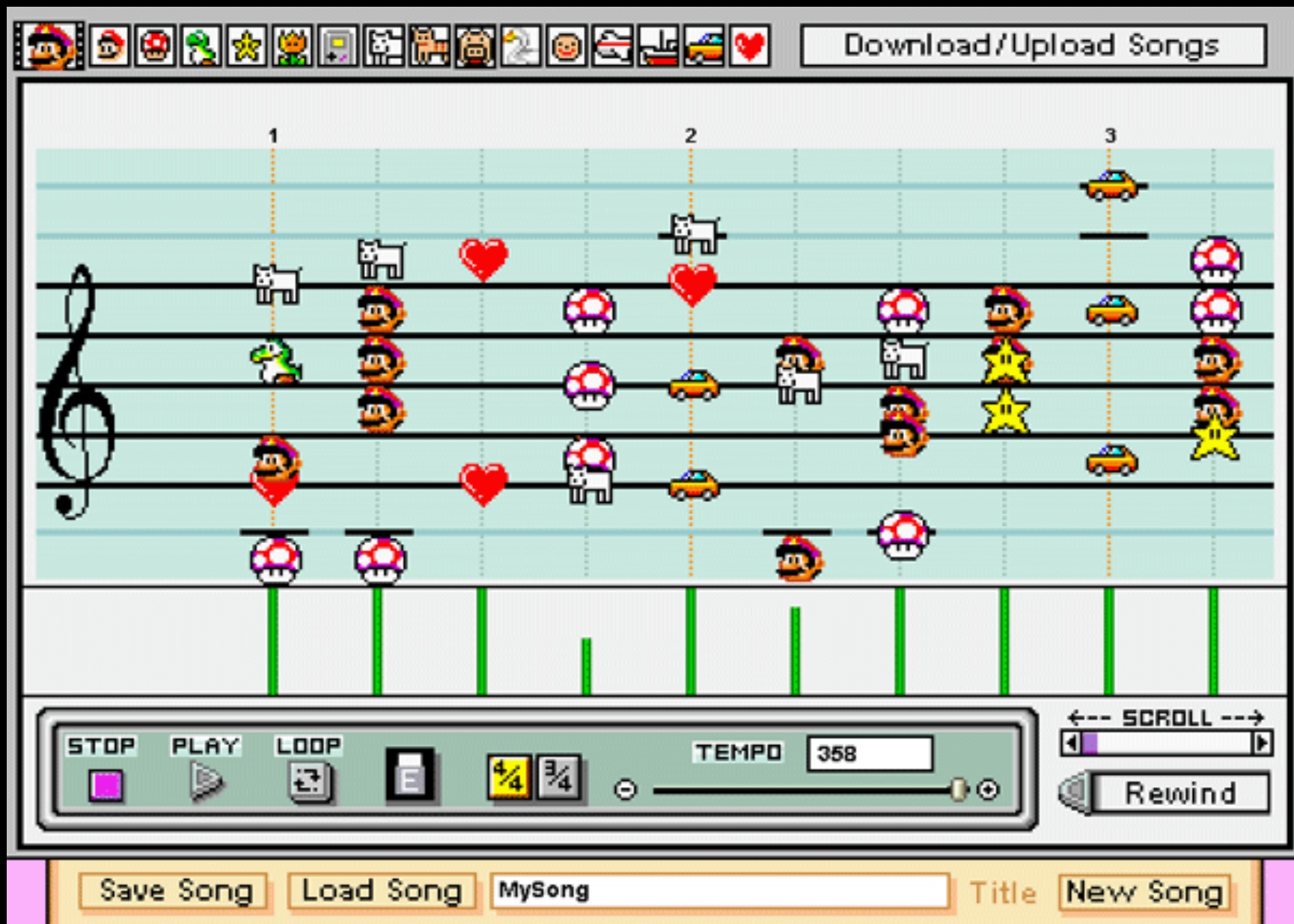
NEW YORK PHILHARMONIC

Making Music, Morton Subotnick, Interactive CDRoms



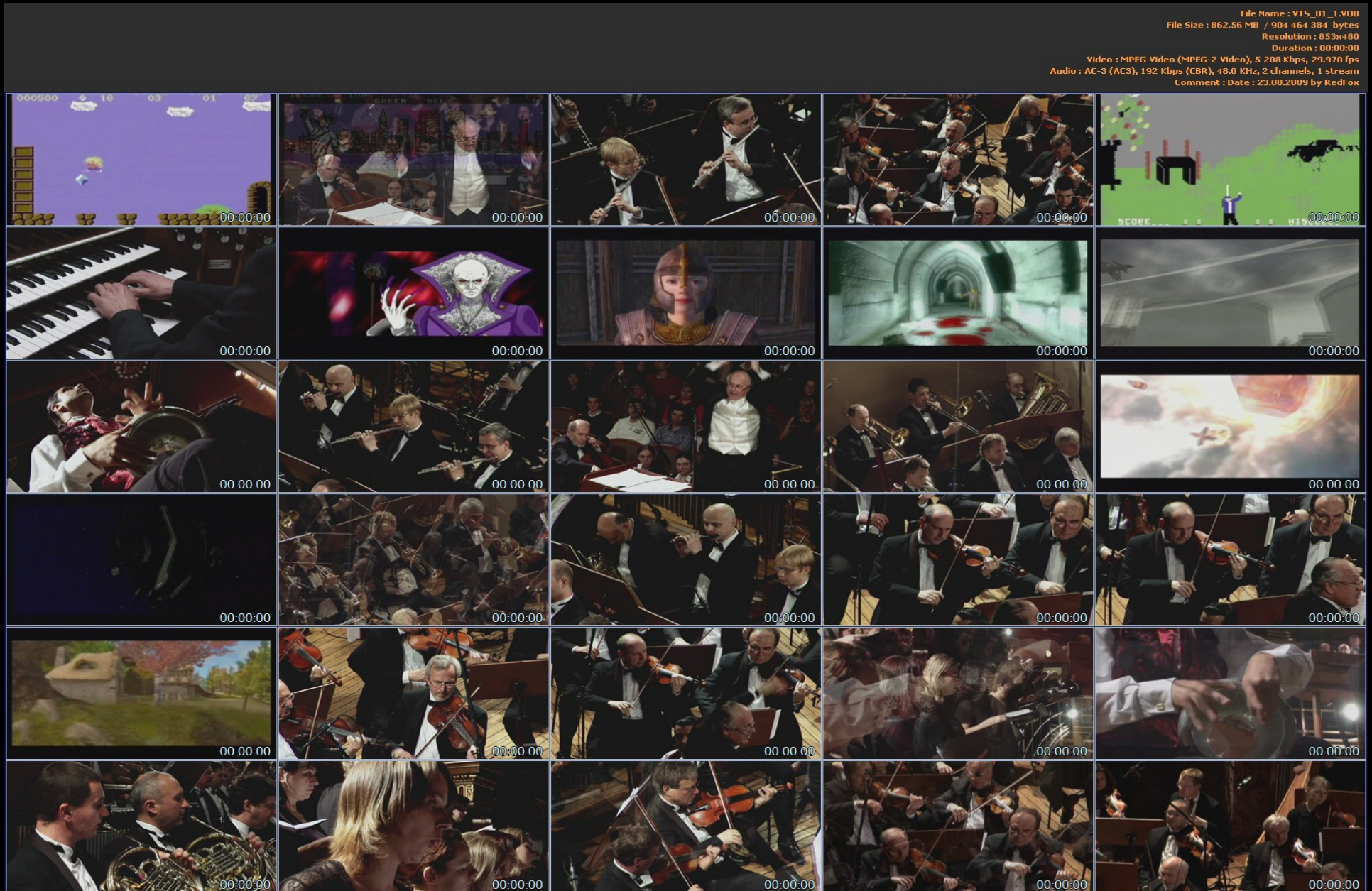
www.creatingmusic.com

2D, side-scrolling, music composition game – *Mario Paint Composer*, c. 1993



Bohemian Rhapsody

Video Game Live – Game music symphonic performances



Goal: *Align* music learning games with National Standards



National Association
for Music Education

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CHORUS

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GENERAL MUSIC

1. Singing, alone and with others, a varied repertoire of music.
2. Performing on instruments, alone and with others, a varied repertoire of music.
3. Improvising melodies, variations, and accompaniments.
4. Composing and arranging music within specified guidelines.
5. Reading and notating music.
6. Listening to, analyzing, and describing music.
7. Evaluating music and music performances.
8. Understanding relationships between music, the other arts, and disciplines outside the arts.
9. Understanding music in relation to history and culture.

Related Links:

- [Summary Statement](#) Education Reform, Standards, and the Arts—Summary Statement to the
- [National Standards for Arts Education: Introduction](#)
- [National Standards for Arts Education: A Brief History](#)
- [National Standards for Arts Education](#) (complete K-12 standards, hosted by ArtsEdge)

Informal game-based music learning environment: demo!



Acknowledgements

- National Science Foundation, grants #0808783 #1041918, #1256593
- Discovery Science Center; Naval Postgraduate School, Center for Edge Power; Intel; Northrop-Grumman; San Francisco Symphony; UCI Calit2; Panasonic Shikoku Electronics.
- Digital Industry Promotion (DIP) Agency, Daegu, South Korea
- UCI Video Game Developers Club
- IEEE GameSIG
- *No review, approval, or endorsement implied.*