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

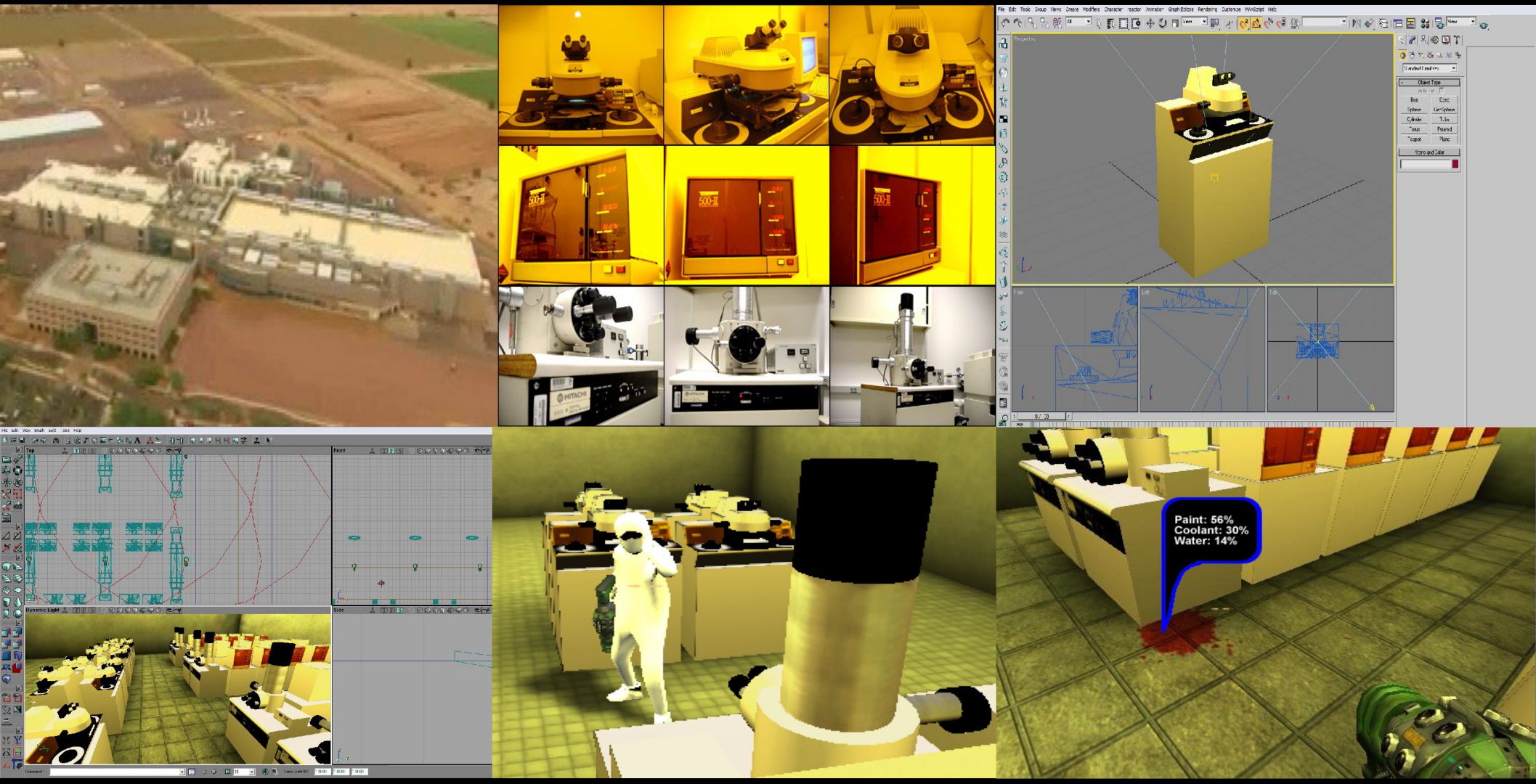
Web-based science learning games for informal science education for K-6 students and families: *DinoQuest Online*

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

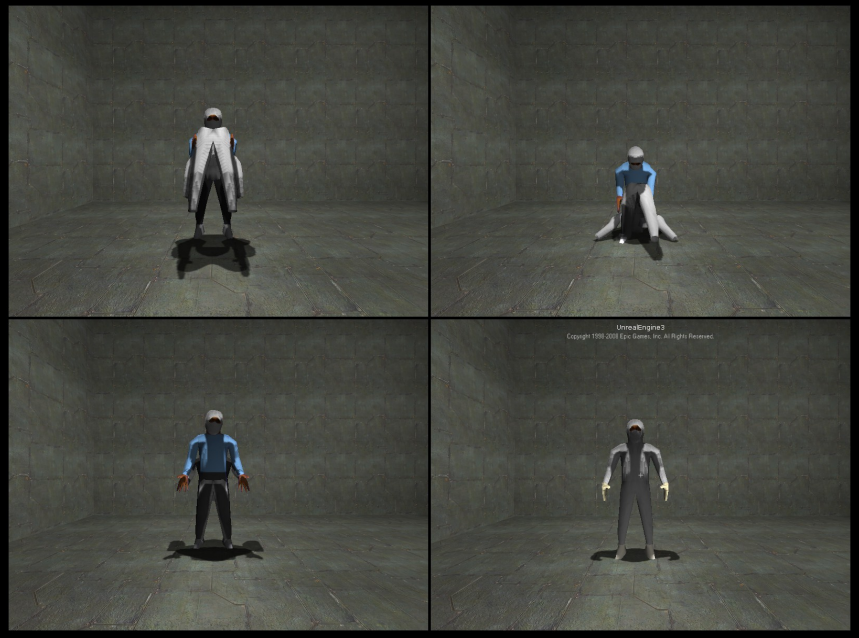
Semiconductor/nanotechology fabrication operations and diagnostics training game



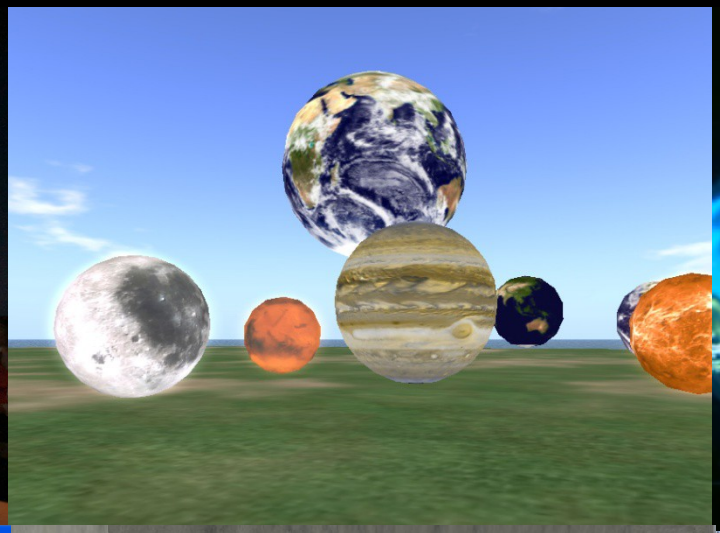
FabLab Demo Reel

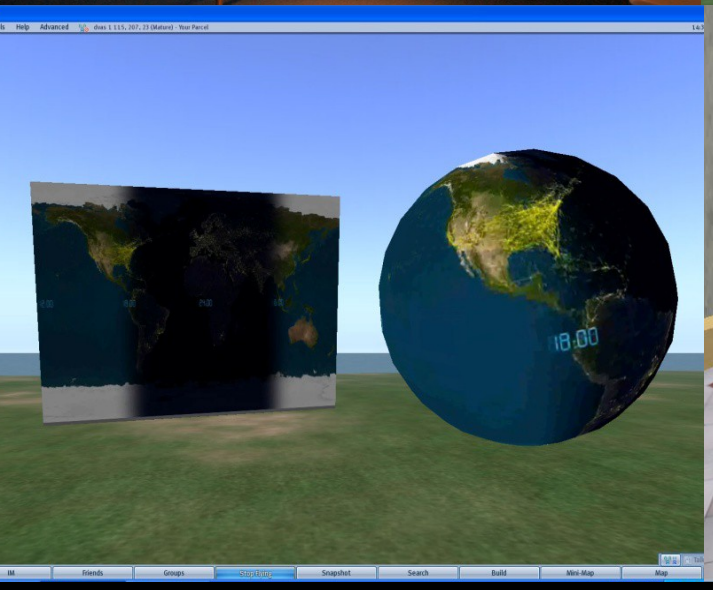
Scacchi, W. (2010). Game-Based Virtual Worlds as Decentralized Virtual Activity Systems , in W.S. Bainbridge (Ed.), *Online Worlds: Convergence of the Real and the Virtual*, Springer, New York, 225-236.

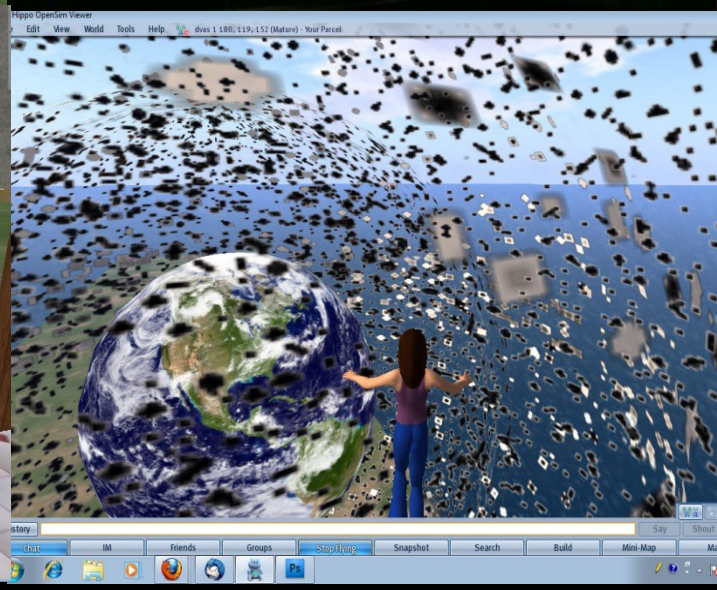
Semiconductor/nanotechology fabrication training game



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



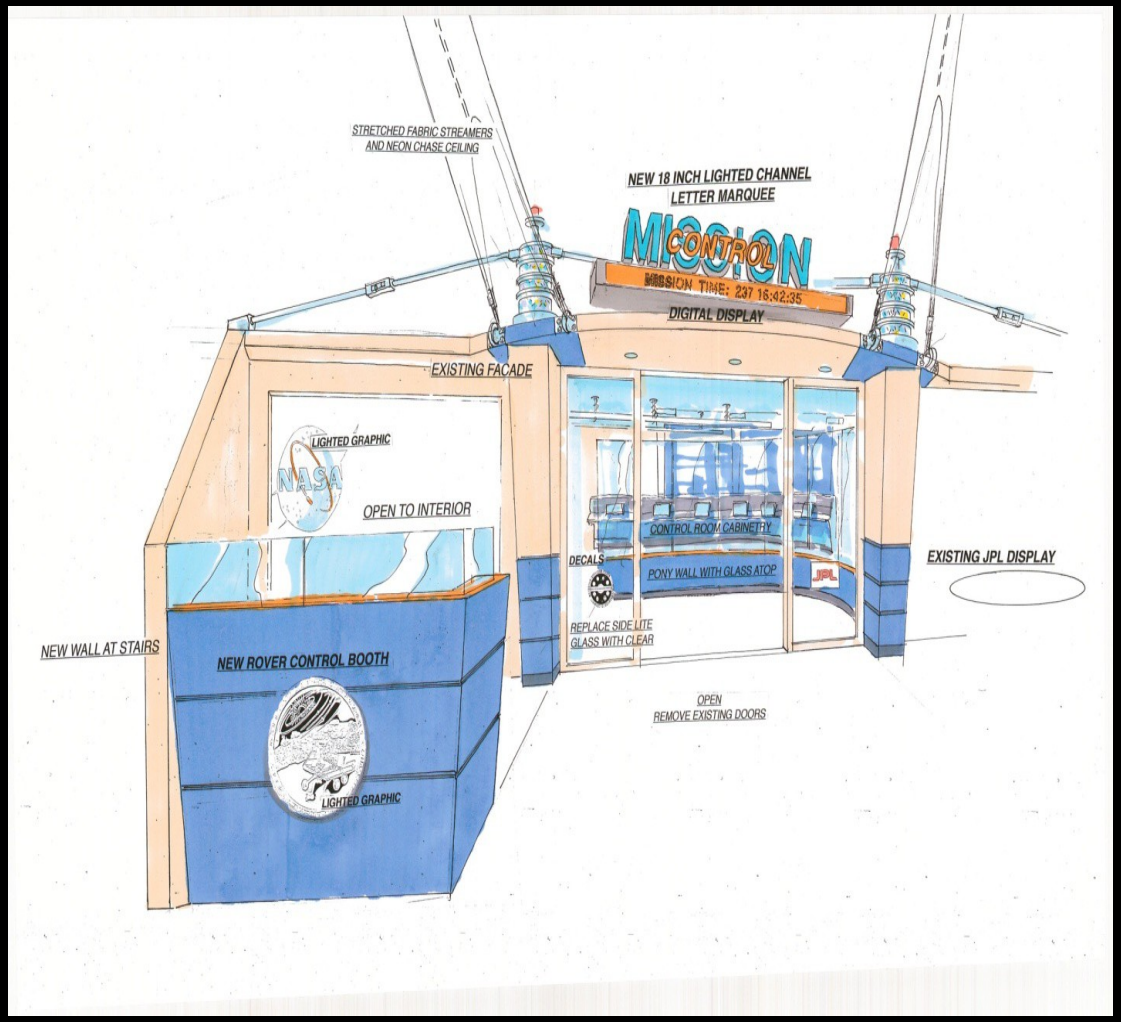


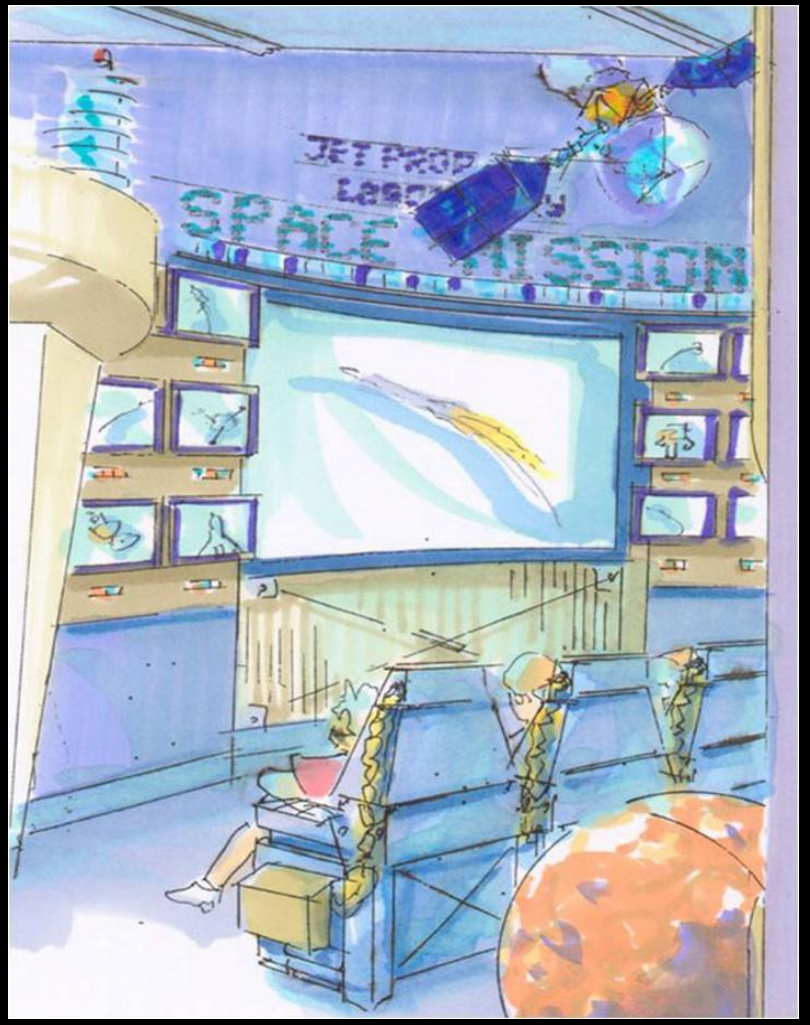


Supporting exploration of planets, earth systems (ocean, climate) and near-earth objects (space debris, small satellites, near-earth asteroids)

VW for experimental studies in decentralized command and control centers

DSC Mission Control Room: *Vision*

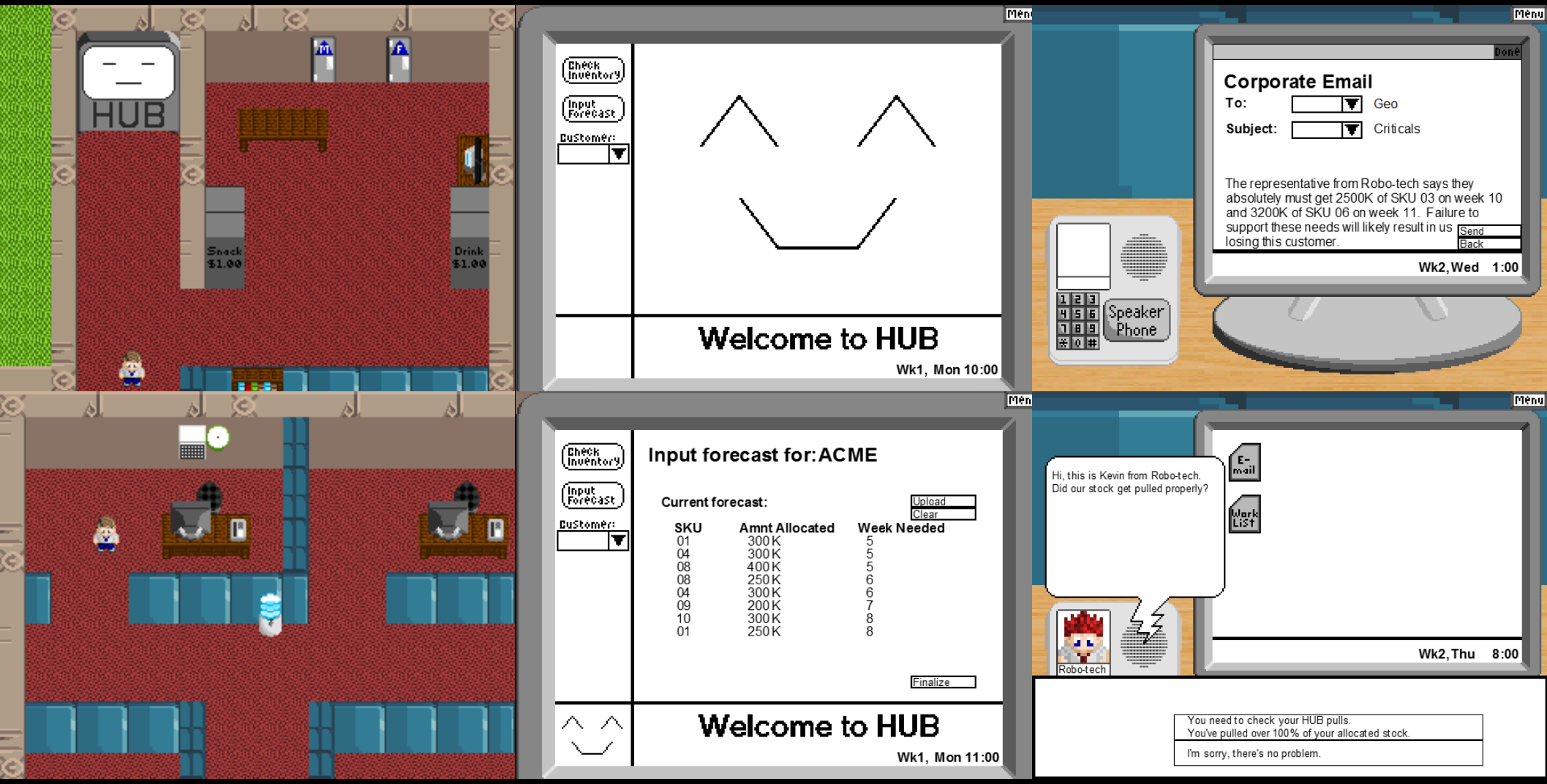




Envisioning a virtual social computing world

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

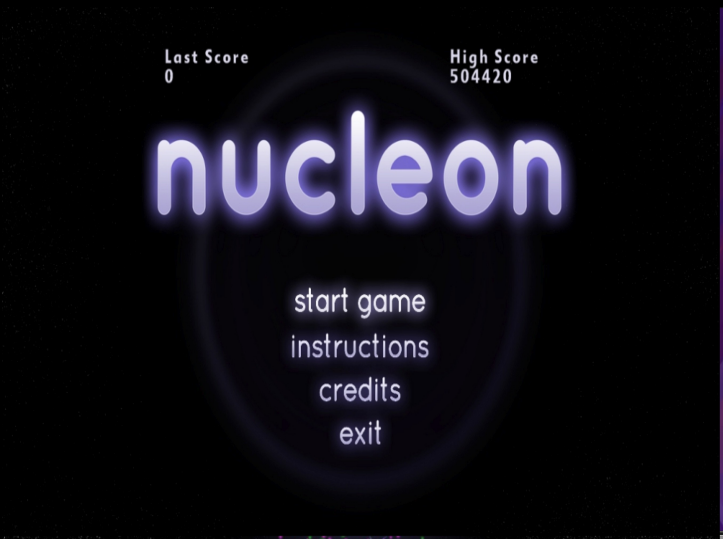
Game-based VW incorporating real-world news feeds and geopolitically located Twitter feeds

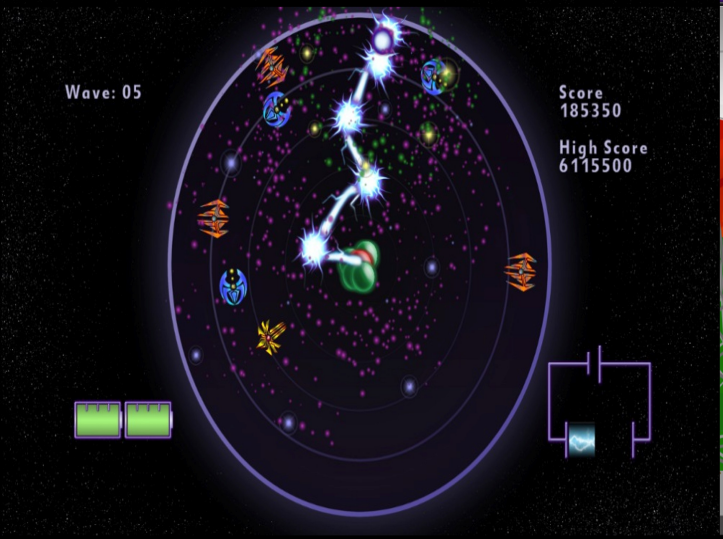
Game-based VW simulator you can actually drive in physical world! -- *OutRun* @ UCI

http://www.conceptlab.com/outrun

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

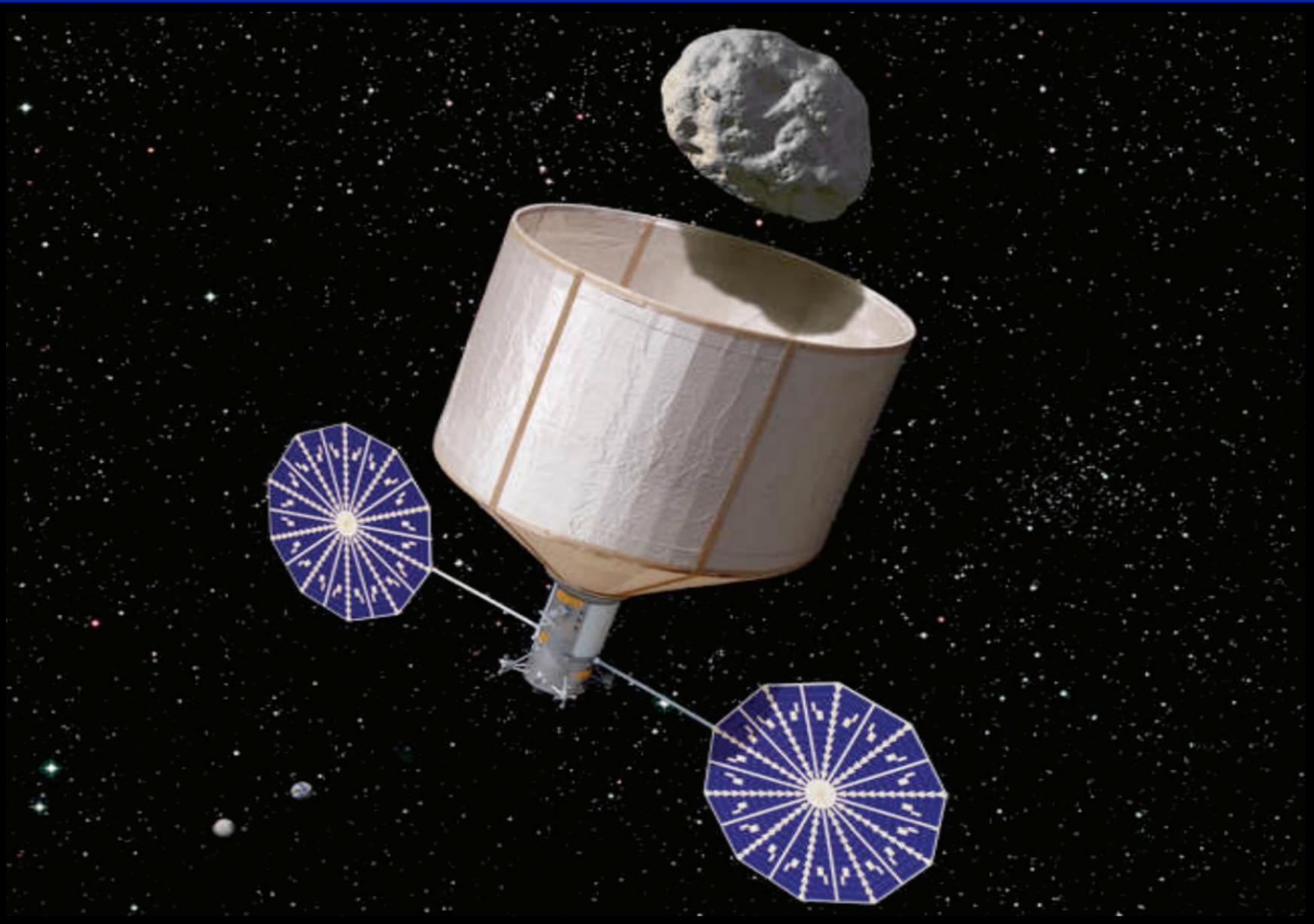
Community development concept: Supporting UCI video game developers club projects (sample)





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

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

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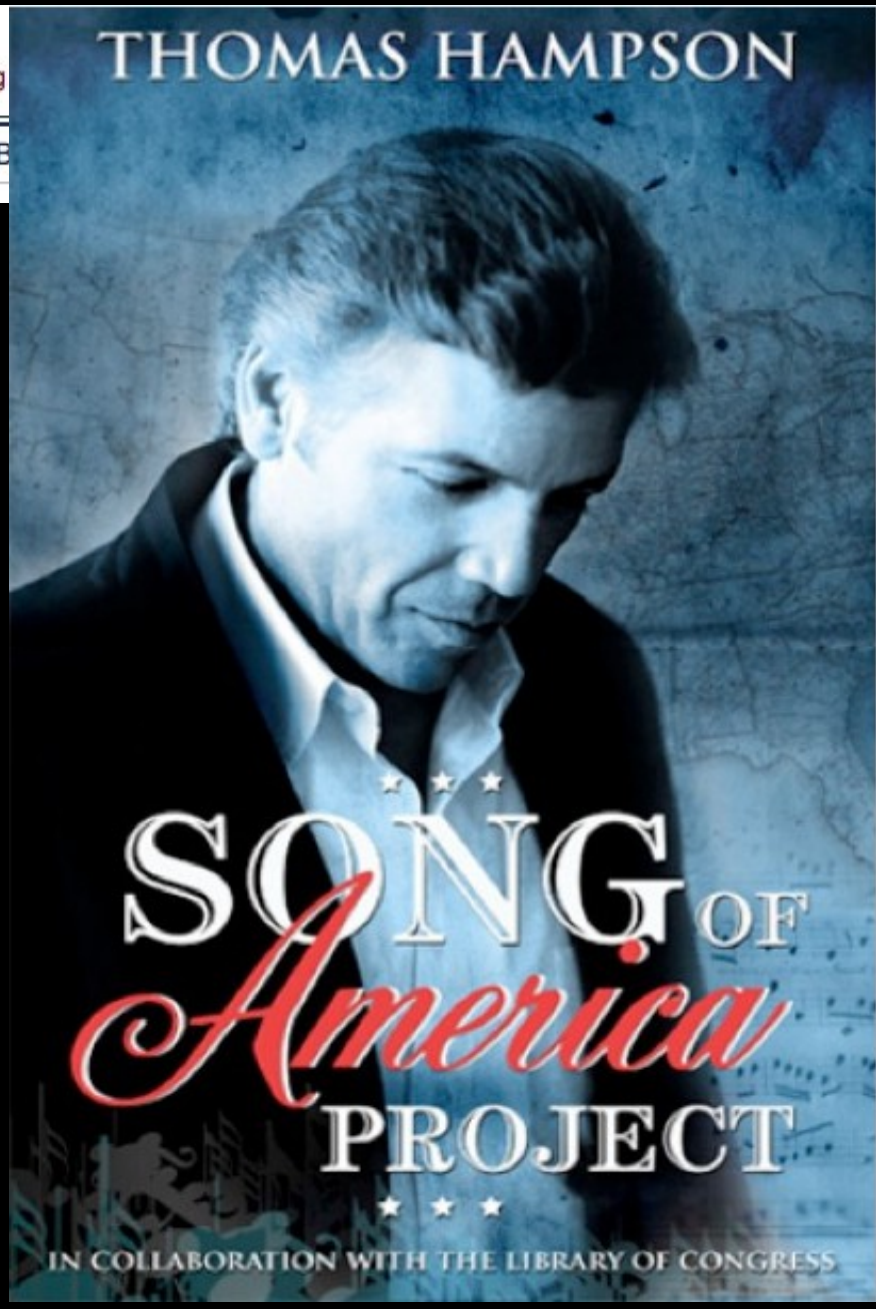
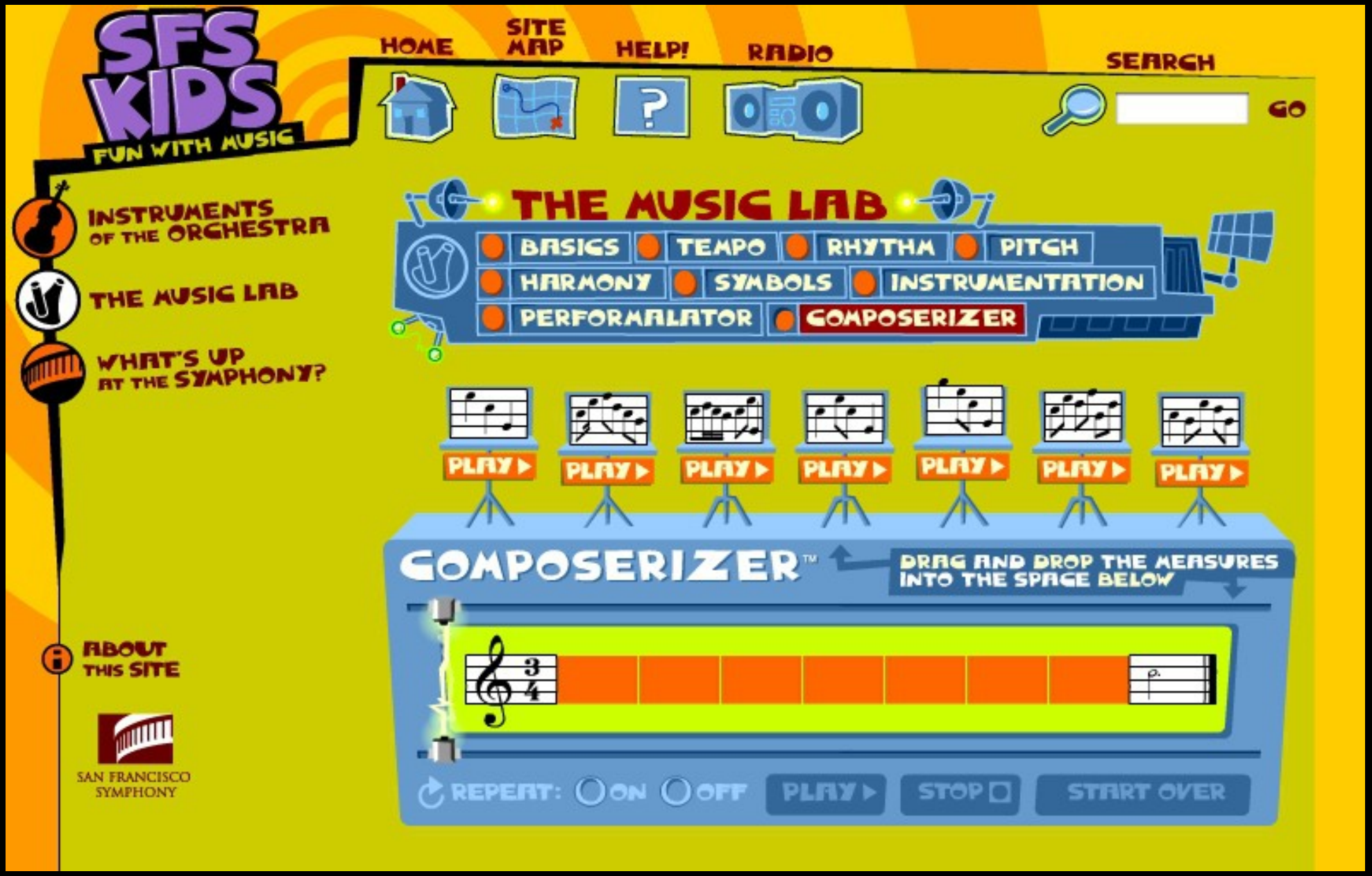
The Hampsong Foundation is pleased to introduce "Song of America," a 13-week radio series that reveals American classic song – poetry set to music by American composers – as a vibrant diary of the American experience.

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.

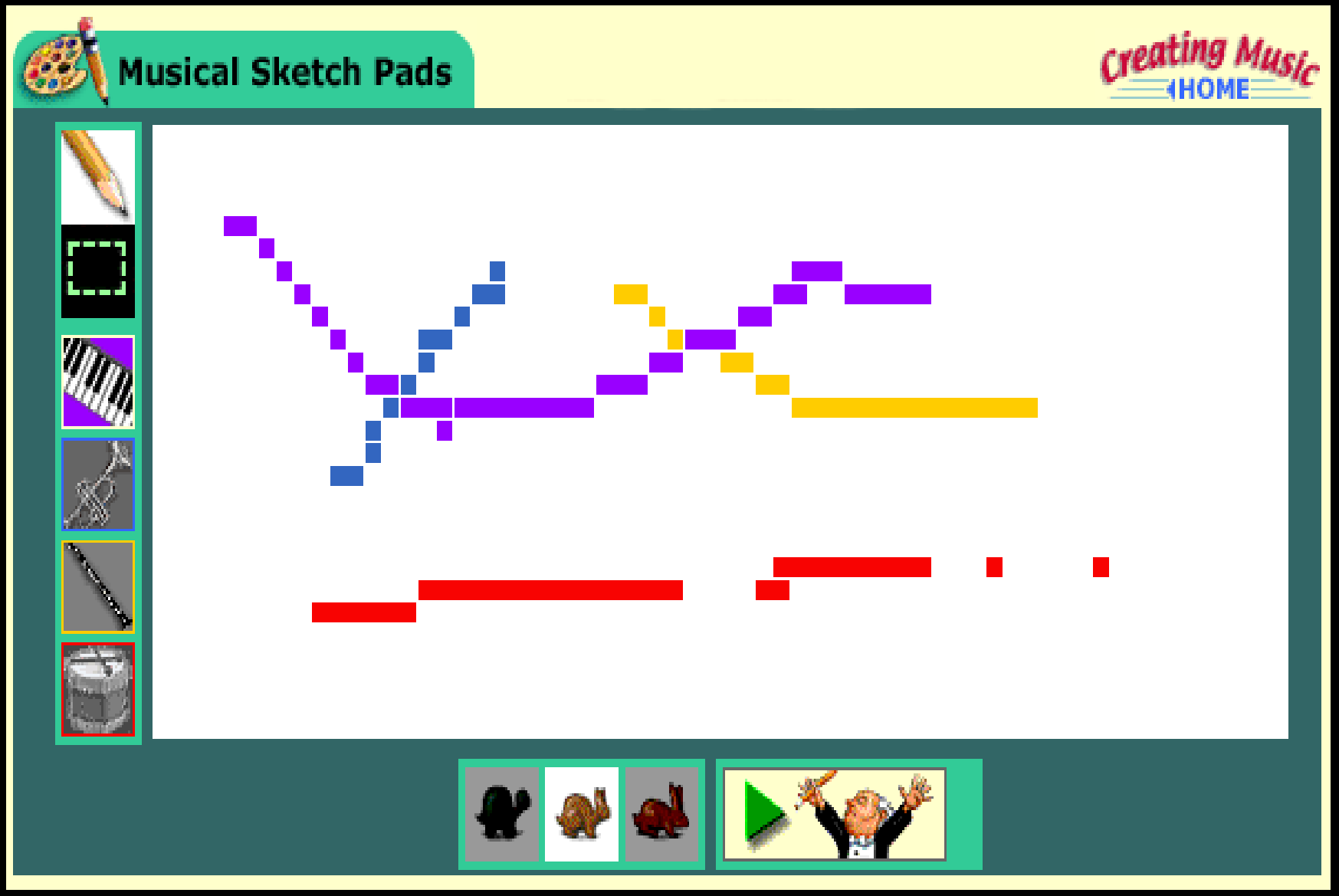


Interactive music composition application – *Composerizer*



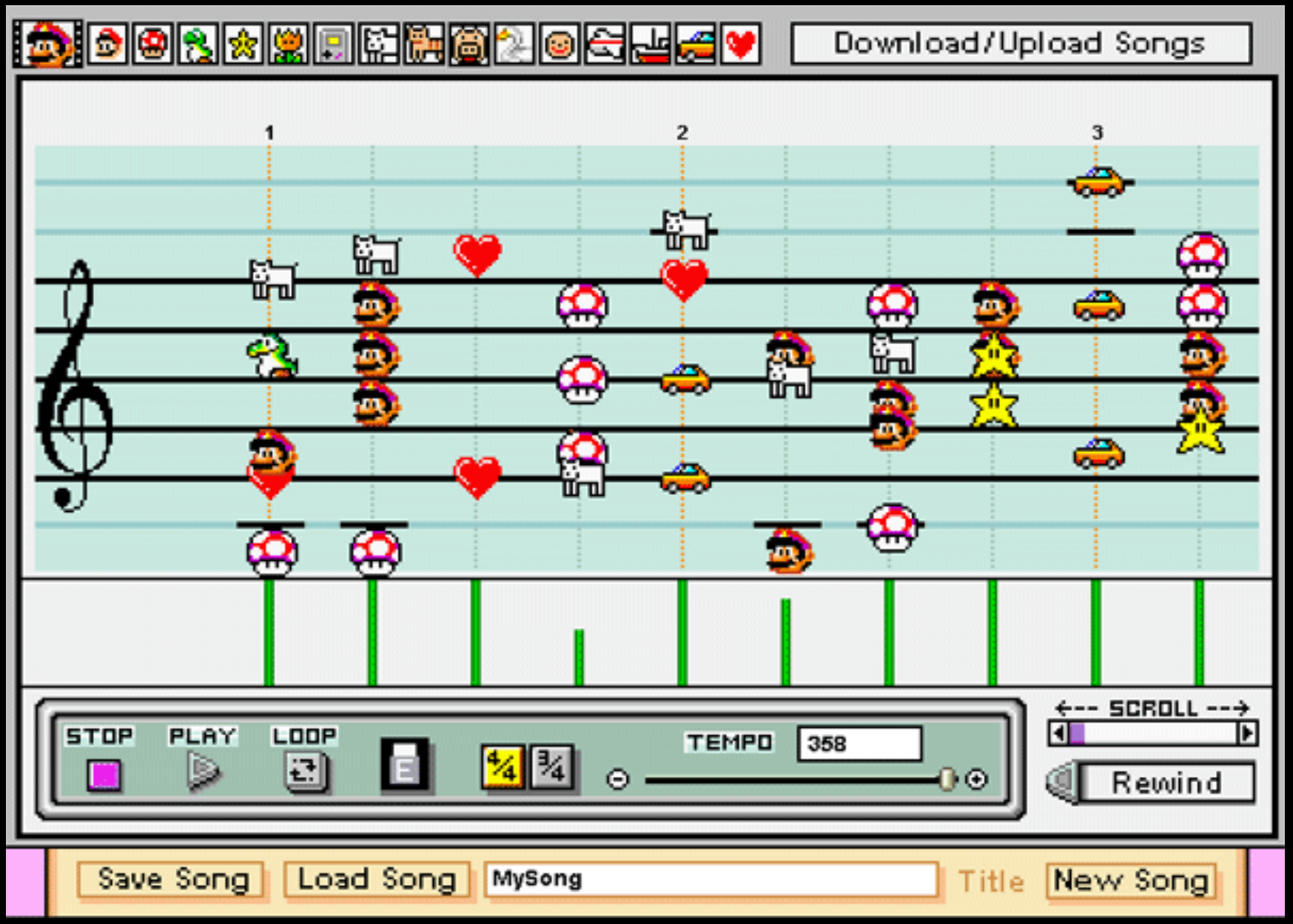
New York Philharmonic KidZone Game Room

Making Music, Morton Subotnick, Interactive CDRoms



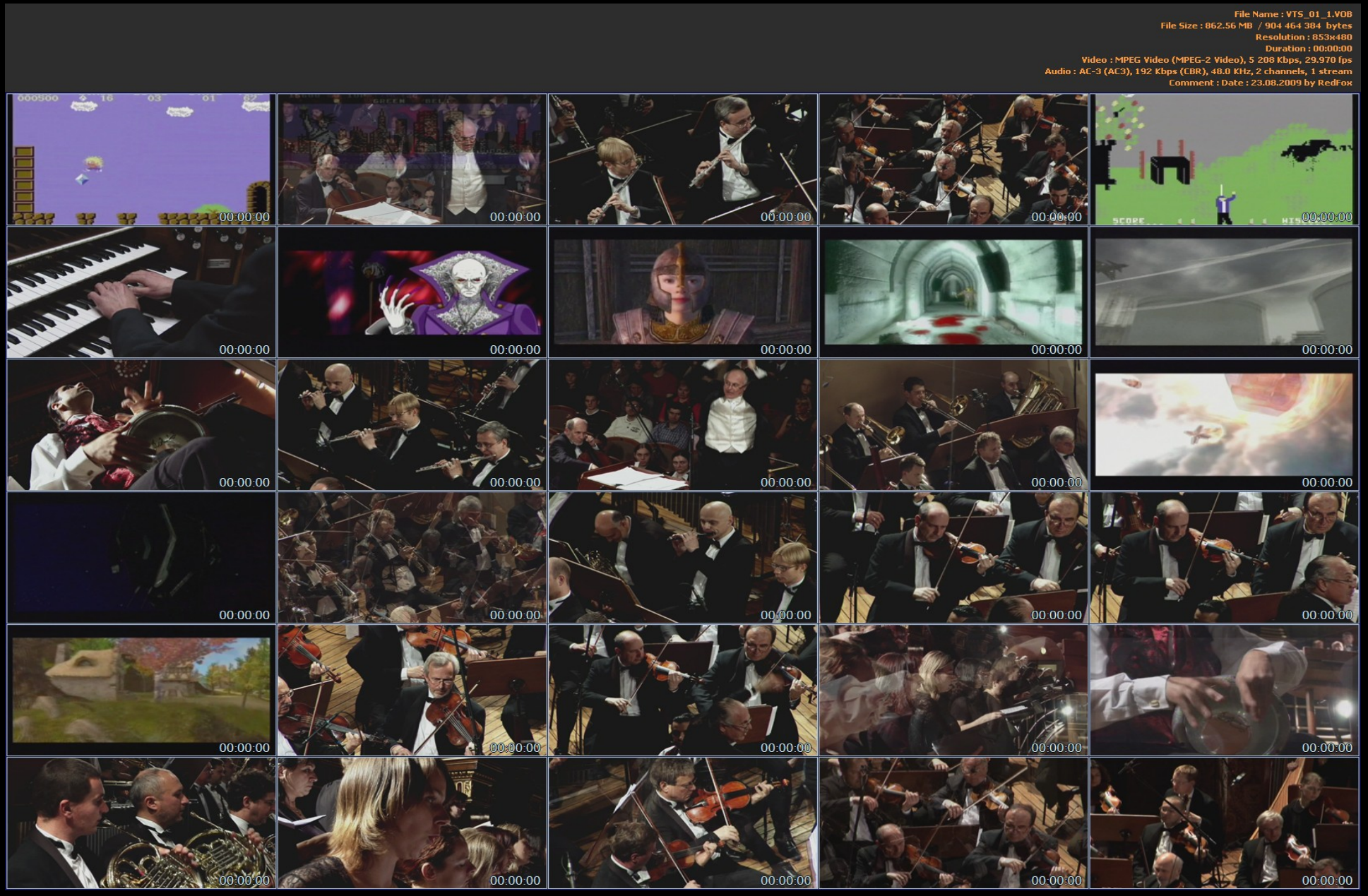
www.creatingmusic.com

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

ABOUT DONATE RESOURCES LESSONS ADVOCACY EVENTS NEWS

NATIONAL STANDARDS FOR MUSIC EDUCATION

RESOURCES
- BOOKS
- PERIODICALS
- TRI-M MUSIC HONOR SOCIETY
- ADVOCACY AND PUBLIC POLICY
- COPYRIGHT CENTER
- INFORMATION ON MUSIC EDUCATION
- NATIONAL STANDARDS

SECTIONS
- BAND
- CHORUS
- FUTURE TEACHERS
- 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

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- Digital Industry Promotion (DIP) Agency, Daegu, South Korea
- UCI Video Game Developers Club
- IEEE GameSIG

- *No review, approval, or endorsement implied*.