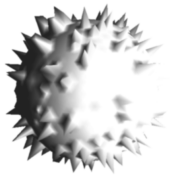

JAY LEMMON

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GAME SOFTWARE ENGINEER
Physics ♦ Gameplay ♦ Graphics

Generalist game developer with emphasis in physics, graphics, and mathematically intensive subjects. Quick learner and adaptive. Extensive work in Artificial Life and User Experience, including GUI design. Major skills include:

- Test Driven Development
- GUI Development
- Physics Simulations
- Artificial Life
- Multithreading
- 3D Graphics

TECHNICAL SKILLS

LANGUAGES:	C++ (9 years), Visual Basic 6 (2 years), C# (1 year),
TOOLS:	MS Visual Studio 2005 and 6.0, Smart SVN, Maple, Photoshop, Maya, Sound Forge, Vegas
MIDDLEWARE:	Ogre/Mogre (1 year), FoxGUI (1 year), UnitTest++, NUnit
API:	OpenGL (2 years), .NET(1 year)

PROJECTS

SUCCESSION (2006-Present)

A simulation of a deformable spherical planet in 3D using Ogre. Users modify terrain from space, then view the results in first-person.

►**Unique Representation**– Successfully designed and implemented a novel data structure for tessellating the surface of a sphere based on descriptions from climate modeling literature.

►**Real-Time Terrain Deformation**– Designed system to dynamically change terrain height based on user and algorithmic input in fixed-function pipeline to allow execution on older hardware.

►**First-Person Planetary Camera**– Implemented camera for planet's surface that properly rotates frame of reference and compensates for the Coriolis Effect.

►**Chunked LOD**– Implemented chunked LOD system to minimize costs associated with dynamic terrain while maximizing performance and scope.

►**Multithreaded Architecture**– Divided graphics, user input, and core game logic into separate threads to maximize responsiveness and minimize graphics' impact on simulation speed.

►**GUI Library**
- Skinnable with scripts.
- Test Driven development cycles– fully unit tested using UnitTest++.
- Implemented abstract pluggable factory to register new widgets at run time.

Continued...

DARWINBOTS (2005-Present)

An Artificial Life simulator **http://www.darwinbots.com** (Download available). Using a custom DNA computer language, authored and evolved bots compete for resources, demonstrating natural selection and evolution.

►**Leadership**
- Assumed leadership role as previous developers departed.
- Lead programmer working with six additional programmers.
- Introduced source control and unit testing for program's next generation.

►**Design**
- Redesigned combat system to better balance competing strategies.
- Redesigned DNA to increase resiliency to random mutations and alternate program structures.
- Increased feature integration to reduce ad hoc design.
- Designed GUI to more naturally present controls to existing users without alienating new ones.

►**Physics Engine**– Implemented spring-based and rigid body 2D physics engines as program's needs grew.

EDUCATION

Attended Murray State University to study Mathematics and Computer Science (2003-2006)

RELEVANT COURSEWORK

- Computer Algorithms: Design and Analysis
- Introduction to Numerical Analysis
- Operating Systems
- Mechanics, Heat, and Wave Motion
- Calculus and Analytical Geometry III
- Matrix Theory and Linear Algebra
- Ordinary Differential Equations
- Mathematical Statistics

AWARDS AND RECOGNITIONS

NATIONAL AP SCHOLAR

►Earned 64 semester hours through Advanced Placement in High School. Started college with junior standing.

BIOTA INTERVIEW ON *DARWINBOTS*

►Interviewed by Biota.org, an Artificial Life organization, on my work with *Darwinbots* and the Wikipedia page on Artificial Life. See http://www.biota.org/podcast/

EMPLOYMENT

WALGREENS (2006-2007)
Louisville, Kentucky

►**Photo Technician**– Processed film, maintained machines, and answered customers' questions.

LOUISVILLE BALLET (Summer 2006)
Louisville, Kentucky

►**Computer Technician**– Orchestrated office-wide software and hardware upgrade.