

Troy Lawlor

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cell: web resume

Profile

Life-long programmer, recently battle-tested performing massive optimizations for the first open-world Unreal engine game and extensive Natal R&D.

Experience

Surreal Software / Warner Brothers Interactive Entertainment ~ Seattle, WA *2007-Present*

April 2010 - Present: Concept phase of an unannounced WBIE title.

Dec. 2009 - April 2010: Natal R&D that included:

- Transforming player's in-place walk motion into an avatar's forward-carrying walk through careful animation blending and triggering
- Left/right head orientation tracking using depth and segmentation data
- Full game prototype based on a from-scratch engine - the player used a height-map constructed from their depth/segmentation data to herd Lua-controlled creatures with bouncy physics around obstacles

2007-2009: Worked on *This is Vegas!*, the first open-world Unreal engine game. Started as an associate programmer working on UI and was shortly tasked with sprawling low-level optimizations to a 4+ million line code base (while also maintaining compatibility with 20+gb of content and not blocking 120+ developers).

- Wrote a new serialization system that was used to transform game-logic consisting of thousands of interdependent dynamically allocated objects into a single contiguous allocation with the application of a few keywords to the metadata
- Halved the size of Unreal's over 60 byte base object class while maintaining almost all functionality
- Improved the garbage collector
- Maintained Kynapse pathing engine integration
- Maintained Scaleform UI integration

NorthWest Research Associates, inc.

~ Gakona, AK *2002-2006*

Student Programming Intern at the **High Frequency Active Auroral Research Project** (HAARP), a world-class ionospheric research station located in Gakona, Alaska. Wrote software in a variety of languages for several operating systems and scientific instruments. Projects were specified, supervised, and used by atmospheric scientists from around the world.

- Designed and implemented a complete software platform for the HAARP spectrum monitor.
- Multithreaded C++ and Python software to drive a motorized photometer platform, automatically rotating to track stars during night-long experiments.
- A web-based Java keogram browser capable of organizing and enhancing images with an easy-to-use interface.
- CGI Perl data browser for the Advanced Modular Incoherent Scatter Radar (AMISR).

Education

University of Alaska Fairbanks

2003-2007

Bachelor of Science in Computer Science

Bachelor of Science in Mathematics

Two degrees, four years, 3.76 Cumulative GPA

Outstanding Undergraduate of the Year in Computer Science 2006-2007

Outstanding Undergraduate of the Year in Mathematics 2006-2007

Meritorious rating in 2006 COMAP Mathematical Contest in Modeling

Skills & Interests

- C++ used professionally for nearly 8 years.
- Extensive PIX and ProDG profiling experience.
- Excellent high-level and low-level understanding of modern game engine design. Always excited to discuss metadata, deferred rendering, pathfinding, serialization, etc.
- Computer graphics expert. See my web page for demos with large-scale terrain, interactive water, several shadow techniques, procedural trees, skies with realistic atmospheric scattering, and much more.
- Cross-platform programming expert. Equally comfortable with Mac OS X, Windows, Linux, X-Box, and PS3.
- Strong mathematics background. Differential equations, linear algebra, and complex analysis are old friends.