

# EVAN R. EUBANKS

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## Engine Programmer

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### Game Experience - The Guildhall at SMU

*Monster Mafia*, Unreal Development Kit

August 2010 - Present

Team Lead, Programmer | team of 13

- Created the co-op camera, drop-in/drop-out and health.
  - Restricted player movement to camera space quad, which dynamically changed with number of players
  - Created a system that allowed players to leave and join whenever they want, with scaled difficulty
- Presented the game for the team on milestone dates.
- Led the team using SCRUM development

*Tiamat*, Unreal Development Kit

January - May 2010

Team Lead, Programmer | team of 10

- Created the boss damage and reaction system, which communicates the status of the boss with visual cues, such as model degeneration
- Integrated the player health and HUD system, which included a red haze post-process effect for imminent death
- Led the team using SCRUM development
- Presented the game for the team on milestone dates

*Tankopolis*, Torque X 2D

October - December 2010

Team Lead, sole Programmer | team of 5

- Created 2D platformer using component based gameplay which is changed via the Torque Editor and XML config
- Debugged The Guildhall's Platformer Starter Kit extensively
- Led the team using SCRUM development
- Presented the game for the team on milestone dates

### Game Experience - Gearbox Software

*Borderlands*, Xbox360 / Playstation 3 / PC

February - August 2009

Certification Lead, Senior QA | team of 45

- Led the Certification Team
- Tested for Microsoft Technical Certification Requirements and Sony Technical Requirements Checklist violations
- Recommended solutions for passing any violations on all platforms
- Reported all certification progress to producers and QA management

*Brothers in Arms: Hell's Highway*, Xbox 360, Playstation 3, PC

August 07 - September 2008

Certification Expert, Senior QA | team of 45

- Tested Technical Certification Requirements (TCR) on the Xbox360
- Created and managed all tasks related to TCR violations
- Reported all Xbox360 violations to QA mgmt

*Brothers in Arms: Double Time*, Wii

October - December 2010

Quality Assurance | team of 20

- Tested, reported, and regressed bugs related to AI, Level Design, Art, Controls, etc.

### Education

*The Guildhall at Southern Methodist University*

August 2009 - December 2010

Masters in Interactive Technology specializing in Software Development

*The University of Texas at Dallas*

August 2004 - July 2009

Bachelor of Science in Software Engineering

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## Engine Programmer

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### Game Technology

#### Rendering Engine - 3D

December 2009 - December 2010

- Supports a DirectX10/11 and OpenGL multi-threaded dual-renderer. Selectable from a config file
- Implemented graphics features such as parallax mapping, tangent-space lighting, bump-mapping, specular highlights, geometry shader stream-in/stream-out
- Created concurrent lockless queue which ensures atomic operations with volatile data types
- Loaded QuakeIII BSP maps with multi-texturing, per-pixel lighting, collision, and culling

#### DirectX 11 Tessellation

May - September 2010

- Created a tessellated real-time water simulation using Inverse Fast Fourier Transforms and a Phillips Spectrum model for generating dynamic heightmaps
- Created a "Bunny-To-Quad" demo where a quad is morphed into a bunny using Hoppe's Geometry Images.
- Created tessellated, realistic hair using a geometry shader output Runge-Katta integration method

#### Physics and Games

August - December 2009

- Created a FreeCell game with the same features as Windows FreeCell, including auto-movement
- Created a cloth and mass-spring damper simulation using verlet integration and particle constraint system
- Create particle system implementations which include fire, smoke, debris, and a tornado

#### Multi-Threaded Terrain Renderer

May - June 2010

- Dynamic normal map based on imported Hawaii heightmap
- Dynamic UV coordinate generation in the vertex shader
- Concurrently generated, loaded, and rendered different terrain level of detail
- Rendered terrain with camera-based dynamic level of detail using stitching and quad-tree frustum culling

#### 3DS Max Importer and Exporter

June - July 2010

- Created custom 3DS Max exporter plugin which supports exporting tangent, binormal, bone and bone weight information. This also includes scene graph information and external texture files.
- Created 3DS Max importer which supports loading and rendering animated skinned meshes and scene-graph entities

#### Scripting Language

May - June 2010

- Designed and developed my own scripting language that uses weakly-typed variables and integrates with my rendering engine. It supports arrays, floats, ints, strings, functions, recursion checks, etc.
- Developed my own Lexical Analyzer which parses word tokens to create strings, arrays, and float data types.
- Created a virtual machine that runs compiled scripting language code. It also integrates with my 3D engine classes.

### Related Experience

#### *Opango, Incorporated*

October 2008 - February 2009

Developed an educational website with a C# and SQL backend

#### *Innovative Card Scanning, LLC.*

February 2005 - May 2007

Helped maintain customer ticket system and managed all technical responses

### Skills

C/C++, Java, C#, DirectX9, DirectX10, DirectX11, OpenGL, HLSL, GLSL, UnrealScript, Debugging, Visual Studio, Windows GDI, PHP, JavaScript, HTML, UnrealEngine, Source, TorqueX, ASP.NET, XAML, Silverlight, Perforce, TortoiseVN, JIRA, SCRUM, CSS, XML, BSP, 3DS Max, Quad-Trees/October-Trees, Bugzilla, Assembly (MASM), Networking, Adobe Photoshop, Multi-Threading, Linear Algebra, Quaternions, Rigid-Body Dynamics, Skinned Mesh Animation, Particle Systems, Numerical Integration, Scene Graphs, Pathfinding, Microsoft Office 2007/2010