

SHOVAEN BHASKER PATEL

SOFTWARE ENGINEER, U.S. CITIZEN

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7116 Libby Road, Apt 4353

Plano, TX 75024

GAME EXPERIENCE

MAGLEV (UNREAL DEVELOPMENT KIT) – Plano, TX December 2009 – May 2010

Lead Programmer (15 person team, 3 programmers)

- Implemented magnet pickup, drop and throw mechanics using rigid body handles.
- Implemented Magray, a turret style enemy that fires a magnetic beam which all surrounding magnetism can affect. Damages both enemies and the player.
- Implemented player input, third person camera, and pickups.
- Performed software configuration management, including source control, bug management, build processes and testing processes. Wrote the technical design document.
- Performed task management and organization, including communication among departments.
- Worked with game designer and level designers to ensure they had tools for tweaking the game.

COLOSSAL TAKEOVER (UNREAL TOURNAMENT 3 PROJECT) – Plano, TX August – December 2009

Lead Programmer (8 person team, 1 programmer)

- Implemented building destruction, soda machine destruction, colossus health, player kills, base health, and the stock price system affected by the aforementioned mechanics.
- Implemented four weapons with primary and alt fires, including damage over time mines, multiple rocket launcher, heal / acid (extra damage to metal), super jump, flamethrower, vampire gravity mines, and seeking bombs.
- Implemented infinite ammo, heads up display, and mesh, particle, and sound replacement for characters and weapons.
- Ensured all gameplay replicated over network.
- Performed software configuration management, task management, organization, build and testing processes, and technical support. Wrote the technical design document.

SCUM AND MAGLEV (TORQUE 2D, PROPRIETARY 2D ENGINES) – Plano, TX March – May 2009

Programmer and Associate Producer (4 person team, 2 programmers)

- Wrote magnetism based game (Maglev 2D) with main character that can switch polarities and reacts to polarity of objects in the environment using assets provided by the artist.
- Implemented mechanic allowing the player to aim and throw a magnet to metal surfaces in my 2D engine.
- Implemented main menu, pause, and scoring systems in my 2D engine.
- Wrote Torque 2D components in C# for a simple bot, a turret, magnetism, gravity, throwing magnets, and player camera, input, and changing sprites based on magnetic state.
- Managed three 2D game productions in three different engines.

INVERSION (TORQUE 2D) – Plano, TX October – December 2009

Producer (5 person team)

- Oversaw production of a 2D puzzle game, providing testing, feedback, support, and advice.
- Ventured through the process of publishing on XBOX Creator's Club.

GAME TECHNOLOGY

RANDOM CITY GENERATOR (IN PROGRESS, UNITY) – Plano, TX October 2009 – May 2010

- Writing a road network generation algorithm using agents that extend the network.
- Writing A* pathfinding with cost based on distance and a terrain heightmap generated from Perlin noise. Roads that are traversed more often are straightened and widened, whereas those that are not used at all or become redundant are culled.
- Writing a zoning algorithm in which street density and terrain are used to determine which areas should be city centers, residential districts, business districts, parks and lakes.
- Writing a building placement algorithm based on zoning using terrain and road density.

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OGL / DX AGNOSTIC 3D RENDERING ENGINE (PROPRIETARY) – Plano, TX June 2009 – March 2010

- Employed controller and component system for augmenting behaviors.
- Implemented particle system with velocity verlet integration, including cloth simulation.
- Wrote custom memory manager with heap support for enhanced usage and debugging.

SCRIPTING LANGUAGE (PROPRIETARY) – Plano, TX August – September 2009

- Created grammar for a typeless scripting language (ShovScript).
- Wrote lexical analyzer, parser, interpreter, and virtual machine for ShovScript.
- Provided support for recursion, multidimensional arrays, conditionals, functions, native calls (integrated with my engine), strings, floats, math and comparison operators, and more.
- Provided debugging support (error, file and line number) for, among other things, invalid tokens, undeclared or redeclared variables and functions, incorrect number of arguments, mismatched mathematical or comparison types, failed native calls, and array index out of bounds.

MULTI-THREADED RTS SIMULATION (PROPRIETARY) – Plano, TX October – December 2009

- Wrote lockless FIFO (first in first out queue) implemented with a linked list and spin count.
- Wrote Spinlock using interlocked functions and memory barriers.
- Wrote RTS game class that maintains the queue of units (FIFO) and assigns work to threads for simulation, with drawing occurring on the main thread.
- Wrote RTS unit class protected by spinlocks and replication. Included model, team, health, location, and ability to shoot, take damage, and explode.

EDUCATION

MASTER OF INTERACTIVE TECHNOLOGY (SOFTWARE DEVELOPMENT) – PLANO, TX May 2010

- The Guildhall at Southern Methodist University
- ESA Foundation Computer and Videogame Scholarship Program

BACHELOR OF SCIENCE (COMPUTER SCIENCE) – ATLANTA, GA May 2007

- Georgia Institute of Technology, College of Computing
- Dean's List majority of semesters

RELATED EXPERIENCE

ARIBA, INC. – Atlanta, GA May 2007 – January 2008
Associate Consultant

STING RACING – Atlanta, GA January – May 2007
DARPA (Defense Advanced Research Projects Agency) Grand Challenge Programmer

GEORGIA INSTITUTE OF TECHNOLOGY – Atlanta, GA January – May 2007
Football Player Tracking Researcher

SKILLS

C++, C#, Unrealscript, Java, C, XML, Squeak/Smalltalk, SQL, HTML, PHP, Java Script, Assembly, Lisp, Ant, lua, Win32, DirectX 9, OpenGL, HLSL, GL assembly, FMOD, DevIL, TCP, UDP, WinSock, Visual Studio, nFringe, Unreal Engine 3 / Unreal Development Kit, Torque2D, Eclipse, Microsoft Office (Word, Excel, Outlook, PowerPoint, Visio, Project, Access, OneNote), SVN (Tortoise and Ankh), CVS, Perforce, Matlab, Adobe Photoshop Creative Suite 4, object oriented programming, procedural programming, debugging, computer vision, multithreading, path finding, compilers, linear algebra, calculus, particle systems, collisions, lighting, binary space partitioning, shaders, scene graphs, level of detail, quaternions, rigid body physics, cloth simulation, numerical integration, networking, database systems, digital video special effects, artificial intelligence