JORGE L. RODRÍGUEZ

Video Game Designer and Programmer

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EXPERIENCE

Amazon Game Studios *Lead Test Engineer.*   Nov 2017 - Present

Product owner of the Crucible automated regression testing framework, CrucibleTest.
Created initial technical design. Owned backlog, roadmap, prioritization of new features.
Oversaw a team of three individual contributors building three major deliverables.
Drove testing processes and adoption. Evangelized and fostered a culture of automated testing.
Delivered CrucibleTest to 15 gameplay engineers, who wrote >500 tests in 6 months.
CrucibleTest recognized by directors as increasing build stability by an order of magnitude.
Training and mentoring SDET/QA teammates to take over maintenance and future feature work.

Amazon Game Studios *Gameplay Engineer.*   Jan 2016 - Nov 2017

Titles: *Crucible*

Engineering and technical design for Crucible in C++ and Lua.
Worked closely with designers to implement and maintain game systems.
Developed gameplay systems in C++ for Crucible on Amazon Lumberyard, a fork of CryEngine.
Owned the spectator experience, built for e-sports broadcasting and tournaments. Engaged external
        customers (professional broadcasters) to drive improvements.
Designed the architecture for and implemented the Game Master system and interactive objects.
Created the Debug Overlay, used by all disciplines across the studio for debug and development.
Created systems and math libraries that simplified gameplay code and reduced bugs.
Coordinated with external teams to identify and remove pain points in the designer editor workflow.
Part of the 'transition' team responsible for building core systems ahead of a major code migration.

Double Action Factory *Designer, Software Engineer.*   Apr 2011 - Dec 2015

Titles: *Double Action: Boogaloo*

Designed and implemented game mechanics: multiplayer slowmo, mini-objectives, stunt system.
Project management in a team of 4-6 cross-disciplinary developers.
Implemented a scalable (up to a million players) leaderboard across all servers.
Developed a gameplay data telemetry system to guide design decisions.
Conducted usability tests to improve player experience.
Added new shader effects such as SSAO, depth of field, slowmo effects.
Built on Valve's Source Engine in C++. Designed and wrote user interface with VGUI.
Supported artists and art pipeline, integrated assets from artists.
Contributed player and view model animations, sound designs, and level designs.

Lunar Workshop *Designer, Software Engineer.*   Mar 2010 - Mar 2014

Titles: *Digitanks, Digitanks: Artillery Update*

Digitanks:

Shipped a 3D artillery-based strategy game, three game modes, online/hotseat multiplayer.
Designed the game's systems: unit types, tech tree, combat mechanics.
Built the Tinker game engine in C++: physics, scene management, renderer, UI, networking, level

editor.
Developed and coordinated the "Socks" indie game bundle.
Conducted usability tests to improve the player's experience and the game's intuitiveness.
Profiled game code and implemented numerous optimizations.
Co-composer of the musical score.

SMAK:
Designed and sold the AO/Normal map generator SMAK! with realtime 3D preview.
Optimized the raytracer SMAK used to generate ambient occlusion and normal maps.
Implemented a GPU-accelerated AO algorithm capable of generating maps in seconds.

Viewback:
A game design tool that shows realtime debug data on a wireless device.
Users can interact with their designs and change game design parameters without recompiling.
Wrote server component in C to be extremely memory conservative and support all major platforms.
Wrote backwards compatible network code based on Google Protobuf to allow for future additions.
Wrote multithreaded monitor app on Windows/Linux/Android to analyze and control a running game.

Matreya Studios *Designer, Software Engineer.*   Dec 2006 - Feb 2010
Titles: *Calamity Fuse [canceled]*
Designed and implemented game mechanics like sword-fighting, magic system, game modes, and novel movement systems.
Designed and implemented the game's user interface and heads-up display.
Built on Valve's Source Engine in C++ and VGUI.
Contributed to environment art, level design, character designs, story, and musical score.
Produced most of the game's sound design.

Providence Software Solutions *Software Engineer.*   Nov 2004 - Dec 2009
Developed new version of SAP's IPRO procurement tool in C++.
Developed, packaged, released and supported XVT, a cross-platform GUI toolkit, using C/C++.

ADDITIONAL WORK

The Specialists, 2004-07. Multiplayer action shooter, Half-Life engine. Programming, design.
Talk - "Understanding Quaternions through Geometric Algebra", Online, 2017. An introduction to Geometric Algebra and an explanation of quaternions that actually makes sense.
Talk - "Debugging Optimized x64 Code", Online, 2016. Debugging optimized code by understanding how C++ maps to assembler through an optimizer.
Talk - "Enumerative Combinatorics", Online, 2016. A software engineer's introduction to Enumerative Combinatorics.
Talk - "Visual Vectors: An Intuitive 3D Math Tutorial", Nodevember, 2015. An introduction to 3D math in Javascript using interactive slides written in WebGL.
Talk - "Defense against the threat of a rogue artificial intelligence", BahFest, 2015. A short comedy-science talk.
Talk - "Double Action: Postmortem (How I Built A Successful Game For Zero Dollars)", East Coast Game Conference, 2015. On differentiating a design in a crowded market by iteration towards guiding principles.
Lamplighters, 2014-2017. Manager of approx. 1000 volunteers in a yearly community art project.
stb_image_resize, 2014. An image resizing library with emphasis on usability and speed.
docs.gl, 2014. A better documentation website for OpenGL and OpenGL ES.

Math for Game Developers, 2013-Present. Online video series on the math required for video game development. 20k subscriptions, over one million views.

Google Summer of Code, 2012. Improving the user interface and usability of Blender.

Half-Quake: Sunrise, 2009. Thematic first person puzzler, Half-Life engine. Music, voice.

Education: UCLA Mathematics of Computation, Bachelors of Science.