

Luis A. Rodriguez Condit

Software Architect – Frontend & Embedded Systems

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Professional Summary

- Software architect with 20+ years designing and building systems spanning embedded hardware, web platforms, and desktop applications
- Specialized expertise in bridging low-level systems (hardware emulation, C/native code) with modern web architectures (Angular/TypeScript)
- Technical leadership: architect full-stack solutions, lead cross-functional teams, mentor engineers, set technical direction
- Core strengths: systems-level design, WebAssembly integration, performance optimization, Linux/cross-platform development
- Proven track record: 70% build time reduction, accessibility-first design, production platforms serving millions of users
- Elected to Texas Instruments' Technical Ladder for technical excellence

Skills

- **Architecture & Systems:** Hardware emulation (Z80, eZ80, T4, Lapis MCU), systems-level design, cross-platform development, Linux, communication protocols
- **Frontend & Web:** SPA architecture (Angular), TypeScript, JavaScript, responsive web design, cross-browser development, WebUSB/WebSerial, accessibility (WCAG)
- **WebAssembly & Native Integration:** Emscripten, JavaScript/C glue layers, cross-compilation, JNI, WebAssembly
- **DevOps & Build Systems:** Jenkins, Gulp, CMake, build automation, CI/CD, Git
- **Testing & Quality:** Unit testing (Mocha/Chai/Jasmine/Jest), e2e testing (Selenium), test-driven development, code review
- **Leadership:** Technical architecture decisions, team leadership, Agile/Scrum, mentorship, cross-functional collaboration

Professional Experience

Texas Instruments -- Software Architect -- *(Nov 2010 - Sep 2025, Dallas, TX)*

Built desktop and web applications bridging low-level hardware emulation and proprietary communication protocols, bringing embedded calculator systems to millions of students and educators. Led technical planning and project execution for multiple development teams. Recognized with election to TI's Technical Ladder for technical excellence.

Frontend Development & Architecture

- Architected and led development of multiple SPAs using TypeScript and Angular, serving millions of users globally.
- Designed and implemented license activation system with Angular frontend, RESTful middleware (Java/Spring Boot), and Oracle database backend.
- Defined front-end architecture and component-based design patterns across calculator application iterations, ensuring responsive web design and cross-platform user experiences.
- Implemented OAuth single-sign-on authentication and third-party license validation for online calculator applications.
- Owned full development lifecycle, translated business requirements into technical specifications and Jira epics, led Scrum execution, coordinated across QA and product teams.

Hardware Emulation & Integration

- Built high-performance calculator emulators for the browser, implementing Z80, eZ80, Toshiba T4, and Lapis MCU architectures in pure JavaScript for maximum browser compatibility.
- Led WebAssembly adoption for major calculator platform, architecting cross-compilation of C code to make embedded libraries available in the browser via Emscripten.

- Designed and architected WebUSB and WebSerial integration into web applications, enabling direct browser-to-hardware communication without native drivers or plugins.
- Designed JavaScript/C glue layers and host interfaces for cross-compiling embedded libraries with Emscripten, establishing ABI boundaries for seamless native integration.

Accessibility & User Experience

- Implemented screen reader support across Z80 assembly and JavaScript layers, enabling vision-impaired users to interact with calculator emulators.
- Partnered with product management and UX designers to translate complex requirements into user-centric interfaces.

Technical Leadership & Architecture

- Architected and optimized build systems: designed Gulp-based workflow that reduced build times by 70% through intelligent task parallelization and Jenkins job restructuring.
- Established testing architecture and infrastructure: designed WebSocket-driven harness for automated testing, prototyped Node.js-based test orchestration framework with Mocha/Selenium.
- Set code quality standards across teams through mandatory code reviews, unit testing practices (Mocha/Chai/Jasmine/Jest), and static analysis adoption.
- Mentored and developed engineering talent through technical deep-dives, code reviews, and hands-on architectural guidance, fostering culture of excellence and continuous learning.
- Championed technology adoption by delivering rapid prototypes demonstrating feasibility and de-risking architectural decisions.

Digital Chocolate -- Game Engineering Manager -- (Jun 2009 - Oct 2010, Mexicali, Mexico)

- Managed teams responsible for porting mobile games across various US carrier devices, focusing on technical quality and resource allocation. Mentored the engineering team through hands-on tutorials and code deep-dives, directly contributing to team skill development.
- Created a client module for Qualcomm's Application Value Billing API (C/C++) to enable in-app purchases and promote code reuse across future game titles.

LemonQuest -- iPhone Programmer -- (Apr 2008 - Jun 2009, Salamanca, Spain)

- Ported games from DirectX to iPhone's OpenGL ES, optimizing the user experience by translating desktop inputs for touch and accelerometer use.

Gameloft -- Lead Game Programmer -- (Aug 2005 - Mar 2008, Mexicali, Mexico)

- Led the team that developed the first successful iPhone game prototype for the studio, demonstrating rapid feature development and adaptability to emerging mobile/browser platforms.
- Led the technical effort to port multiple game titles to resource-limited, 3D-capable mobile devices using Java/J2ME and OpenGL ES, focusing on maintaining graphic fidelity and stability within strict memory constraints.
- Directed and participated in team efforts for porting games to severely space-constrained devices (Virgin Mobile catalog). This required strategic scope reduction, asset compression, and intensive micro-optimizations to ensure acceptable performance and quality within limited runtime memory.

Education

Coursework for Master's in Electronics and Telecommunications

Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE)

Bachelor of Science in Electronics Systems Engineering

Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM)