JEREMY BRIDON

jbridon.com
jgbridon@gmail.com
Bay Area, California, USA

Technical Skills
15+ years: C, C++, Objective-C. *10+ years*: Metal, HLSL, GLSL. *Comfortable*: Swift, Bash, Python, JavaScript, Ruby-on-Rails, SQL, PHP, C#, x86_64, aarch64, AVR.

Strong background in CPU design, modern GPU architecture, shader optimizations. Strong knowledge of operating system and application design & development.

Graphics & UI
Metal, DirectX, OpenGL, Text Rendering, 2D Vector Graphics, Color Management, Video Processing, UIKit, AppKit, SwiftUI, Win32 Forms

Tools & Platforms
macOS, iOS, visionOS internals, Photoshop, Illustrator, Fusion360, KiCad, Git, CVS, SVN, Perforce, Microsoft Office Suite, Apple iWork Suite, AppKit, UIKit, SwiftUI, QT, GDK UI Frameworks

Cross-Disciplinary
Performance investigation, bug triage, mentorship, public speaking

Jeremy is a passionate software engineer with deep experience in computer graphics, systems engineering, and performance optimizations. He works across the stack, from debugging low-level hardware bottlenecks, to building production-ready features and rapid prototypes. He bridges design and engineering teams, delivering expressive, human-centered interfaces!

Senior Software Architect — Apple, Inc, 2024 - Present

- Serving as a senior software architect for VPG (Vision Products Group), balancing emergency response, prototyping, and performance optimization for current and next-generation products.
- Implemented novel frame-skipping for system renderer to improve performance and battery life.
- Created tool for synthetic image generation for visual acuity experiments, future display stack analysis, and leadership demos.
- Implemented hardware-accelerated video upscaler for improved user-perceived quality with minimal battery impact.
- Shipped Mac Virtual Display. Productized fovea upscaler across macOS and visionOS network & rendering stacks. Developed smooth curvature transitions, pixel-perfect gaze intersection, and screen session management under tight deadlines.

Senior Software Engineer — Apple, Inc, 2019 - 2024

- Founded and led the CoreAnimation in RealityKit team, creating the UI rendering technology for Apple's Vision Pro spatial computing platform.
- Created the initial UI rendering stack for Vision Pro, leading it from prototype to production.
- Ported Apple's existing UI rendering technology (CoreAnimation, CoreGraphics) to spatial compute platform.
- Created "separated layer" feature, allowing 2D UI to pop-out and be presented as 3D layered content.
- Delivered Perspective-Correct Text algorithm, delivering platform defining text rendering quality. Led adoption across highly technically challenging components: iWorks, WebKit, existing published public applications.
- Direct Responsible Individual for improving UI rendering performance to fit within SoC power limits. Reduced several megacycles per simulation and rendering frames.
- Created a novel approach at improving video playback embedded within user interfaces; back-ported to support unchanged application code bases.
- Investigated and triaged high-visibility GPU memory exploit unique to platform's GPU architecture.
- Designed and delivered key fixes across cross-functional teams, diagnosing issues outside the owned component.
- Supported continuous education by leading book discussions and recording technical deep dives into company's tools and triage data.
- Mentored a dozen new hires and junior engineers across multiple teams.
- Created and deployed high-impact visual debugging tool that records and plays back all interactions and rendered elements on platform.
- Developed deep expertise in shared memory, multi-process communication, security hardening
- Resolved over 100+ bugs per year; top three contributor to RealityKit code changes per year.

Performance Tiger Team — Apple, Inc, 2018

- Joined 6-month "tiger team" effort at resolving critical performance and multi-threading issues for iOS 12 and macOS Mojave releases.
- Became deep expert in multi-threading and multi-process communication on Apple platforms.
- Learned kernel-level scheduler optimizations and profiling tools.
- Extensive work with profiling tool and CPU tracing of many components across the company.
- Improved app launch speeds by 100s of milliseconds, Messages app load time, Telephony component design.

Technical Lead - CoreGraphics & PDF Technology — Apple, Inc, 2015 - 2019

- Technical lead for Apple's PDF technology and 2D rendering systems. Responsible for art asset management across multiple platform user interfaces (iOS, macOS, tvOS, watchOS).
- Updated Apple's PDF rendering technology to benefit from async GPU rendering. Scrolling documents in Preview no longer stuttering and blocking main thread; stalls reduced from 100s of milliseconds to less than 10 milliseconds.
- Authored CoreSVG - foundation of Apple's SF Symbols icon suite.
- Fuzzed various 2D graphics technology components for security; guarded and fixed identified exploits.
- Led accessibility features under intense deadline.
- Out-of-process rendering implementation for WebKit.
- 2D rasterization API development for CPU and GPU.
- Built Continuous Integration system for CoreGraphics for initial unit-testing support.
- Ported PDF processing & rendering UI framework from macOS to iOS.
- WWDC 2017 Speaker

Software Engineer — Sony Online Entertainment (Daybreak Studios), 2013 - 2015

- Developed gameplay and graphics features for EverQuest Landmark and EverQuest Next. Focused on volumetric rendering and MMORPG networking.
- Volumetric shaders development in HLSL to visually attribute voxel-level ownership.
- Artist authoring tools and gameplay features, including environmental destruction.
- Implemented visual effects for various editing tools.
- Improved achievement and progression systems.
- Developed procedural placement of content as function of biome; authored database for designers to tweak and improve generation.

Software Engineer — Sony Online Entertainment (Daybreak Studios), 2013 - 2015

- Founded and led multiple software projects, published technical book, and developed commercial applications across platforms.
- Authored TrackAttack iPhone App - Enterprise race tracking application.
- Self-published "3D Computer Graphics: Software Revealed" (159 pages, Amazon).
- Daily Programmer - Community management for thousands of programmers on Reddit.
- WindowSnaps - macOS window management extension.
- GLUI2 - open-source graphical user-interface library for OpenGL.
- Multiple open-source projects and libraries.

Patents, Awards, Education

- WWDC 2017: Speaker at Apple's Worldwide Developers Conference
- 4 public patents: Dynamic Scale for Vector Graphics Rendering, Edge Contribution Techniques for Vector Graphics Rendering, Perspective Correct Vector Graphics with Foveated Rendering, Managing Multi-Modal Rendering of Application Content
- 2006-2011: Pennsylvania State University, 2008: ACM Competitive Programming Regional - 3rd Place 2007: ACM Competitive Programming Regional - 1st Place