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**SUMMARY**

I recognize problems before they bite and design remedies that address the entire category. What was an invisible problem becomes a solution that feels inevitable in hindsight. I'm a cross-platform generalist with specialist skills in interactive 3D graphics and system programming. I absorb large code bases rapidly to deliver on immediate and over-the-horizon needs.

**TECHNICAL**

- C++, Vulkan, GLSL, Python, Swift, Kotlin, C#, NodeJS, Unity, Blender
- Windows, macOS, Linux, Docker, Game Consoles, XR headsets, Android, iOS

**PROJECT HISTORY****Geomagical Labs / INGKA, Mountain View, CA**

Makers of [Ikea Kreativ](#) virtual home decoration commerce platform

*Oct 2020 to Oct 2025 - Senior Staff Software Engineer*

- Delivered a 4-star rated home decoration and purchasing experience to millions on iOS and Android by building a 5 platform C++ interaction engine & Vulkan renderer.
  - An embedded server provided an HTML API for dev control on all 5 platforms. JavaScript generated a page of controls from metadata. A python library provided easily scriptable automation.
  - The API powered integration tests, interaction simulation tests, tooling for model and scene validation, render fidelity comparisons, and R&D team visualization for feature development
- Identified shortcomings of custom 3D formats and led transition to standards-based (GLTF) formats
  - Built alignment with group and individual presentations across 5 tech teams plus product management
  - Collaborated on design, documented formats & testing strategy, broke inertia by writing initial implementation
  - Broke the single data source & consumer debugging deadlock by allowing use of rich set of 3rd party tools and viewers
  - Led to rapid development of cloud based 'beauty shot' rendering via Blender path tracing
- Invented and documented techniques to overcome source data limitations
  - Photo to AR rendering exposure matching

- Environment cube generation from source photo
- Camera animation and movement system to provide scene navigation, allowing easier product manipulation
- Identified asset pipeline team as most heavily loaded on the hot path and volunteered to join
  - Documented and handed off decoration engine to new owner
  - Performed fresh-eyes audit of existing systems, finding known problems and pain points normalized to invisibility
  - Revamped container construction and introduced build-time testing, improving reliability (DOA deployments dropped ~90%) and runtime speed (8X in one case) across multiple modules (C++, Python, NodeJS, Blender)
  - Revitalized 12-month stalled transition from high maintenance Dagster + Celery system to Temporal and drove it to completion by contribution, coordination, cussedness over a 2 month period. It cut key staff interruptions from near-daily to near-never and enabled critical capabilities like non-prod deployed testing of module branches.

### **Reification Incorporated, Oakland, CA**

Startup that generated multi-user XR experiences from geodata and architectural models

*Mar 2018 to Oct 2020 - Software Architect*

- Major contributor to multiuser XR app template (Unity, C++/C#, Windows/Android/Linux/macOS)
- Architected and implemented pipeline that synthesized app template with geodata and structure models to produce site-specific shared XR experiences
  - The design abstracted geodata and model inputs to flexibly support varied data sources (Revit, Rhino, FBX, OBJ, Unity for models. GPS coords, LIDAR maps, raw height maps for geo) enabling quick exploitation of novel data (e.g. NASA LOLA)
- Identified [NASA LOLA lunar height map](#) as opportunity for captivating user experience
  - Designed and built multi-user VR “moon base party”
  - Deployed for use with investors and investment candidates

### **Linden Lab, San Francisco, CA**

Makers of Sansar and Second Life

*Aug 2016 to Mar 2018 - Engineering Lead, Senior Engine Programmer*

- Multi-team lead and direct contributor on Sansar social VR product
- Implemented internals and user features on VR editor, engine, and server
- Coordinated with QA, UX, and Product while coding features and fixes

### **Telltale Games, San Rafael, CA**

Game studio that pioneered the narrative-first game genre

*June 2014 to Aug 2016 - Engineering Lead, Senior Engineer*

- Lead Engineer on Minecraft: Story Mode
  - Pre-onboarded QA, audio, and FX teams during prototyping phase, eliminating production ramp-up lag
  - Extended debug tooling coverage to entire runtime lifecycle, closing gaps where bugs could hide
- Key engine feature work on PS4, Xbox One ports, lead on Windows 10 Universal port
- Shipped 12 multiplatform products played by millions on PS3, PS4, X360, XB1, PC, Mac, iOS, Android

### **Leap Motion, San Francisco, CA**

Startup that built the first real-time full hand tracking device for consumers

*November 2012 to June 2014 - Senior Engineer, Production Manager*

- Transformed a broken release process to reliable practices with empirical consensus building by demonstrating causation in back to back releases.
- Took on role of production manager and shipped 5 major releases plus 3 critical, unslippable releases backstopped by the holidays
- Contributed to Leap application, SDK, examples library and built CI system

### **Nihilistic Software, Novato, CA**

Independent game studio

*August 2011 to November 2012 - Senior Engineer*

- Resistance: Burning Skies - Final boss lead, mini boss lead, game play, systems (PSP)
- Call of Duty: Black Ops Declassified - Game play, systems, engine (PSP2)

### **Backbone Entertainment, Emeryville, CA**

Independent game studio

*May 2010 to August 2011 - Senior Engineer, Tools & Tech Lead*

- Rock Band 3 - Gameplay, systems, engine programmer (Wii)
- Zombie Apocalypse 2, Ugly Americans - Tools & tech lead (XBox 360, PS3)
- Wrote DLC system for Spigot proprietary engine

### **Secret Level/Sega Studios, San Francisco, CA**

Sega affiliated game studio

*September 2009 to May 2010 - Senior Game Engineer*

- Iron Man 2 - Gameplay, boss AI (XBox 360, PS3)
- Systems, engine fixes

### **Maxis Studios, Emeryville, CA**

EA affiliated game studio

*March 2009 to August 2009 - Senior Game Engineer*

- Spore Creature Keeper - Game play, GUI, Client/Server communications (PC)
- Internal tools and utilities

### **Totally Games, Novato, CA**

Independent game studio

*January 2007 to November 2008 - Senior Game Engineer*

- Alien Syndrome - Engine and gameplay programmer (Wii, PSP)
- Cisco Mind Share - Wrote custom 2D engine and game code (PC learning game)

### **Backbone Entertainment, Emeryville, CA**

Independent game studio

*January 2006 to January 2007 - Game Engineer*

- Death Jr. II - Gameplay & systems programmer, mini-boss lead (PSP)
- Designed and wrote script hook generator tool
- Network programmer for arcade emulator title

### **Mind Control Software, ICPU Software San Rafael, CA**

Independent game studio

*May 2005 to May 2006 - Game Engineer*

- Engine programmer for Orbital proprietary game engine
- Gameplay programmer for multiple Sony PSP and PC titles

### **Panscopic Corporation, Zero G Software, San Francisco, CA**

Business software startups

*February 2002 to May 2005 - Senior Software Engineer*

- B2B Web-based software and technologies utilizing XML DOM, JSP, Java
- Wrote scratch SQL parser replacing insufficient 3rd party library
- Developed method of embedding images in self-contained HTML
- Skunkworked a build system during onboarding that was used for CI and production delivery thereafter

### **Resolution Sciences Corporation, Corte Madera, CA**

Startup that developed volumetric microscopy systems and software

*November 1998 to February 2002 - Senior Software Architect and Engineer*

- Designed and implemented re-architecture of pure software interactive volumetric renderer for PC
- Developed interactive 4D time varying volumetric rendering tech for PC

- Created tools and automation for manipulation of large volumetric datasets
- Co-inventor on U.S. Patent 6,295,451 covering the simulated staining of digitized microscopic images

## ***LINKS***

[How the Software Is Made](#) - Principles of software development for a young dev team plus a 2026 postscript

[Kreativ Engine Architecture](#) - cross-platform C++ engine behind IKEA Kreativ for mobile delivered to millions of users

[Projects](#) - current and past projects

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