

Ka'i Kau

Senior Full Stack Product Engineer

Location: San Francisco, CA

Portfolio: <https://kaikauux.com>

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Professional Summary

Senior Full Stack Product Engineer with 10+ years of experience in XR, AI, and consumer software development. Proven track record of shipping groundbreaking products from concept to market, including industry-standard Unity assets and pioneering XR applications. Expert in Unity, Three.js, WebGL, and modern web technologies with deep experience in AI/ML integration and spatial computing. Cofounder of two successful startups with demonstrated ability to operate effectively in fast-paced startup environments.

Core Competencies: XR Development, AI/ML Integration, Full-Stack Engineering, Product Development, Startup Leadership

Technical Skills

Core Technologies

- Unity | three.js | WebGL | React | Node.js | TypeScript | Python | Java

XR & 3D Graphics

- WebXR | OpenXR | Shader Development | Blender | 3D Modeling | VR/AR | GeckoView

AI & Machine Learning

- Stable Diffusion | ControlNet | Generative AI | LLMs | Computer Vision | ElevenLabs | Cartesia

Cloud & DevOps

- AWS | Azure | Docker | Kubernetes | Android | WebRTC | DevOps | Cloud Computing
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Professional Experience

Product Engineer

Fluid XR | San Francisco, CA | 2023 - Present

- Led development of **SmartTV in XR** - comprehensive XR television solution integrating YouTube streams and local media files within Fluid's immersive computing environment, featuring spatial UI and gesture controls
- Built **VR Agent Jessica** - advanced AI agent with speech-to-speech capabilities using ElevenLabs and Cartesia APIs, featuring web interaction via Aria Labels, agentic framework with planning/executing loops, and complex task automation (recipe searches, chat messaging, etc.)
- Implemented stereoscopic 3D support and off-axis stereo rendering in Fluid's embedded web browser, creating a Unity-three.js bridge for grounded 3D portal effects using real-time headset position/rotation data
- Developed WebRTC-based screen sharing with compositor-level streaming enabling direct device-to-device communication without server-based virtual desktop infrastructure

Technologies: Unity, WebRTC, AI/ML, WebXR, ElevenLabs, Cartesia, Aria Labels

UX Developer

Blockade Labs | Contract | 2023

- Led development of **Sketch-to-360** image generation feature using ControlNet paired with fine-tuned Stable Diffusion models, winning hackathons and shipping to production users
- Built comprehensive UX and frontend with three.js including VR support, rapid prototyping that derisked the feature before full implementation
- Collaborated on monetization strategy and designed consumer subscription pricing models, including key discussions around pricing and business model optimization
- Made strategic introductions to VR industry players that led to mutually beneficial partnerships and collaborations

Technologies: three.js, Stable Diffusion, ControlNet, React, WebXR

Founder & Lead Developer

VRCHIVE / 360 Panorama Capture (Unity Asset) | 2015 - 2022

- Developed industry-standard Unity asset for capturing highest quality 360° images in virtual worlds, featured as the first recommended tool on Google VR developer pages
- Created open-source solution used by thousands of developers worldwide for VR content creation and game showcases
- Pioneered 360° image embeds on Reddit and Twitter platforms, expanding social media capabilities for immersive content
- Implemented autostereoscopic display support and 6DOF viewer with depth map synthesis from stereo disparity, enabling advanced VR viewing experiences

Technologies: Unity, Shaders, WebGL, three.js, Open Source

Notable Projects

AI Avatar Generation

Custom AI pipeline generating highly detailed 3D avatars from 5 photos using Rodin AI generation enhanced with Blender refinement and Unity shader integration. Addresses diffusion models' inherent front-to-back quality degradation by combining multiple viewpoint outputs with intelligent texture blending, creating seamless 360-degree consistency. Features automatic rigging, animation-ready models, custom hologram shader effects, and real-time optimization for all target platforms.

Technologies: AI/ML, Blender, Unity, Shader Development, 3D Modeling

Tracked Gamepad Emulation

Comprehensive XR input system that brings the familiarity of traditional game controllers into virtual reality environments. Features full 6DOF positional tracking, precise input simulation, and natural hand tracking mapping that enhances immersion while maintaining the tactile feedback users expect from physical controllers.

Technologies: Unity, XR, Input Systems, VR/AR

WebXR Browser Extensions

Reimagined browser extension interfaces for extended reality environments, bridging the gap between 2D web experiences and spatial computing. Built on Android architecture using GeckoView engine, featuring Java and web technologies to create better UX in XR with enhanced spatial interactions and immersive extension experiences.

Technologies: WebXR, WebGL, Java, Android, GeckoView

Off-Axis Stereo Rendering

3D rendering technique enabling grounded, realistic stereoscopic web content in VR by bridging Unity's headset tracking with Three.js WebGL rendering. Solves the limitation where WebXR cannot embed 3D content from webpages into existing VR applications without fully taking over the scene, enabling seamless integration of web-based 3D experiences into spatial computing environments.

Technologies: three.js, Unity, WebGL, VR Headsets, 3D Rendering

Education & Professional Development

Equivalent to Bachelor's Degree in Computer Science - 15+ Years Professional Experience

Self-Taught Developer | 2000s - Present

- 15+ years of hands-on software engineering experience shipping production applications
- Started programming in middle school during Web 2.0 era, building real-world applications
- Continuous professional development through shipping products, solving complex technical challenges, and mastering emerging technologies
- Deep expertise equivalent to and exceeding traditional Computer Science curriculum through practical application

Certifications:

- UX Design Certificate, University of Washington

Key Achievements

- **Startup Leadership:** Cofounded two successful startups in XR and consumer software space
- **Technical Leadership:** Early adopter of cutting-edge technologies (Oculus Kickstarter, Stable Diffusion, etc.)
- **Industry Impact:** Developed 360 Panorama Capture Unity asset featured on Google VR developer pages and used by thousands of developers worldwide
- **Infrastructure:** Extensive DevOps experience across AWS, IBM Cloud, DigitalOcean, Azure, Vultr, and Hetzner
- **Accelerator Programs:** Participated in Blue Startups and BoostVC accelerator programs
- **Entrepreneurial Network:** Cofounded studio company with Founders, Inc. for startup development and resources