MARKO RITACHKA

Software Developer • Full-Stack Engineer • Strategic Product Innovator
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Career Summary

- Full Stack Developer with 6+ years of experience in spearheading the engineering of complex software solutions, demonstrating expertise in full lifecycle project management, from ideation to deployment, and proficient with modern technologies such as Vue/React, NodeJS, GCP and AWS
- Exceptional ability in architecting and scaling cloud-based applications and microservices, improving operational efficiencies, and pioneering the transformation of in-house tools into marketable SaaS products, significantly contributing to revenue growth and operational scalability.
- Proven leadership in navigating projects through the entire software development process, including requirement analysis, architecture design, UI/UX development, and integration with external services, ensuring the delivery of high-quality, user-centered solutions.
- Skilled communicator and problem-solver, adept at cross-functional collaboration, customer engagement, and navigating complex regulatory environments, ensuring product compliance and driving continuous innovation to meet market demands and customer needs.

Areas of Expertise

Full-stack Development · Software Engineering · Project Management · HTML/CSS/Javascript/Typescript · Cloud Infrastructure/Microservices · UI/UX · Agile Methodologies · Front-end / Back-end · Machine Learning / AI / LLMs · Automated Unit / Integration Testing · CI/CD · Performance Optimization

Professional Experience

INCEPT 3D — San Diego, CA

Lead Software Developer, Full Stack Engineer — 10/2018 - Present

Joined as an engineer with initial focus on 3D printer operations, swiftly transitioning to spearhead full-stack development of FormFactories, an in-house project management software that evolved into a marketable SaaS product. As the sole developer, I was pivotal in transforming company operations, enhancing productivity, and establishing new revenue streams.

Key Contributions:

- **Comprehensive Platform Development:** Spearheaded the development of FormFactories, a cloud-based 3D printing order management software, resulting in a more than 400% revenue increase. Oversaw all development stages, from architecture and UI/UX design to legal and customer support frameworks, transforming an in-house project into a profitable SaaS offering adopted by external clients, including a Fortune 500 company.
- **Advanced Feature Engineering:** Introduced an instant quoting system utilizing a TensorFlow-based neural network for immediate 3D model analysis, significantly enhancing quoting accuracy and reducing process time from days to seconds. Developed a remote monitoring/control system for 3D printers, facilitating an 8000% speed-up in job file delivery and a 40% increase in daily production output.
- **Operational Efficiency Tools:** Crafted robust tracking and management tools for comprehensive oversight of the manufacturing process, from design through post-processing. Implemented a machine health dashboard, significantly improving fleet uptime from 63% to 96% by enabling data-driven maintenance and repair strategies.
- **Strategic Leadership and Compliance:** Guided software compliance with stringent industry standards and regulations, ensuring robust data security and privacy. As FormFactories' primary liaison, I fostered cross-functional collaboration to heighten customer satisfaction and steer product evolution, addressing client needs and strategic objectives.
- **Innovative Hardware Development:** Led the design and production of state-of-the-art large-format 3D printers, introducing groundbreaking features for high-temperature materials and multi-material printing. Trained staff and established a new engineering team to sustain hardware innovation and leadership.
- **Seamless System Integration:** Architected seamless integrations with various RESTful APIs, streamlining invoicing, logistics, and manufacturing processes. Automated complex workflows, enhancing operational efficiency and customer engagement.

UCSD Projects and Consulting — San Diego, CA / Weaverville, CA

Software Developer / Consultant

Contributed significantly to diverse software initiatives and community projects, leveraging academic knowledge and self-taught skills to drive innovation, usability, and community impact.

- **App Development:** Developed and launched 'Bizepi,' an iOS app facilitating local freelance services, from gardening to jewelry making. This app significantly eased service discovery and management, enriching the community by boosting financial opportunities for local service providers.
- **Web Development:** Demonstrated extensive web development skills, crafting multiple client websites using React, Vue, and vanilla HTML/CSS/JavaScript. Projects included dynamic real estate platforms with MLS data integration, focusing on dynamic, user-centric solutions.
- **Community Consulting:** Provided consultancy services enhancing technology use in education and local businesses. Established 3D printing at Trinity Alps Unified School District, supported Trinity Alps Performing Arts as a technical director, and supplied IT services for Trinity Theatre.

Education

University of California, San Diego

Bachelor of Science, Computer Science — 2015 - 2019

Projects

Web and Mobile Apps

- Independently developed Plava, a Vue.js/Node.js web application, leveraging LIDAR dataset analysis to dynamically identify and map hidden bodies of water in mountainous regions, uncovering uncharted swimming and fishing spots in areas like the Trinity Alps.
- Developed Octofleet, a React/Node.js web dashboard, enabling parallel management and control of multiple web-connected 3D printers through Octoprint. Features a strategic network scanning strategy to automatically connect to printers via MAC addresses, bypassing the need to track changing IP addresses. This significantly boosts operational efficiency and user experience in extensive 3D printing setups.
- Developed "Etsy Print Manager", a web dashboard designed for shop owners selling 3D-printed items on Etsy. This solution integrates seamlessly with Etsy to consolidate outstanding orders into organized lists, detailing models that require printing or post-processing, thereby optimizing the production workflow and enhancing efficiency for small business operations.
- Designed and implemented Hexterra, an experimental augmented reality game built with React, Next.JS, and AWS. This game leverages Three.JS and Cesium for a unique hexagonal tiling of earth that integrates real-world exploration with strategic resource management, drawing inspiration from Settlers of Catan and Factorio, to encourage outdoor activity and sandbox-style gameplay.

Hardware and IOT

- Engineered a unique platform capable of real-time, wireless rendering of motion capture data onto animatronics. This utilized iOS facial tracking APIs for capturing expressions and transmitting them, along with modulated audio, via Bluetooth to a custom Arduino-powered animatronic supporting multiple servo channels. Demonstrated through a Sorting Hat animatronic at themed events, it accurately mimicked the voice and facial expressions of a concealed actor, showcasing the system's ability to create expressive and interactive displays. This project underlines the potential to revolutionize animatronics, moving beyond traditional repetitive programming to more engaging, responsive experiences.
- Organized several large-scale UCSD events, notably the "Yule Ball" (which annually attracted over 300 attendees). Launched the "Make-a-thon" hackathon, coordinating logistics, finances, and team management. I further showcased technical skills by creating the Triton 3D app, enabling interactive participation through RC car races, successfully published on iOS and Google Play Stores, demonstrating a blend of leadership and innovative tech application.
- Developed a Python-based 3D model slicer prototype for experimental filament-blending extruders, aimed at enabling full-color printing capabilities on consumer-level FDM 3D printers. This project leveraged the CMYKW color space to blend traditional plastic filaments, converting model textures into voxelized spaces for enhanced color representation. While pushing the boundaries of accessible 3D printing technologies, this project represents an ongoing effort to bridge the gap between consumer and high-end printing capabilities.