

Bonsung Koo, Senior Software Engineer

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A Senior Software Engineer building software professionally since 2016, from an international reference implementation of an image standard to an app used by 300,000 people across 15 countries. I was a lead engineer for three years, and more recently I have engineered a full web product, from its React front end to its .NET backend on Azure. I do agentic AI engineering, building the development environment our coding agents work in.

Key Strengths & Achievements

- **Web and .NET Development:** React, TypeScript and JavaScript, a C# .NET backend on Azure SQL with Azure infrastructure written in Bicep, and a Node.js REST API on Firestore.
- **Architectural Modernisation:** Modular Architecture that made builds **7.5 times faster**, and Clean Architecture with MVVM that lifted team productivity by over **50%** through code reuse.
- **Delivery & Testing:** A company's first CI/CD pipeline, cutting release time from **2 hours to 20 minutes**, and its first automated testing strategy, taking coverage from **0% to 30%**.
- **Agentic AI Engineering:** Built the environment our coding agents develop in, where each repository carries its own instructions for them and work starts from a written specification rather than a prompt. Production work ships through it every day, and Sentinel extends the same approach. Tools include Claude Code, Codex and GitHub Copilot.
- **Ownership & Leadership:** Working closely with the CEO and CTO on a full product today, and before that leading three software engineers and developing a junior engineer who reached **intermediate within two years**.

Work Experience

airie | Wellington, New Zealand

Senior Software Engineer | July 2025 - Present (part-time to December 2025, full-time since)

- Engineered a customer-facing web platform for immigrants with React, TypeScript and Vite, then took on its .NET backend and built its design system and the Figma workflow around it.
- Designed and executed a multi-phase migration of the entire product onto Azure, retiring the previous platform's data layer, API and front-end integration in staged releases with **no interruption to service**.
- Wrote **unit, component and integration tests**, including end-to-end tests that run against a real database and API, with Vitest, React Testing Library, Playwright and xUnit.
- Defined the Azure infrastructure for a background notification service as code in **Bicep**, and deploy the product through GitHub Actions to separate development, staging and production environments.
- Moved Azure OpenAI access from API keys to Entra ID managed identities, and rebuilt the previous platform's row-level permissions as **role-based access control** in the API.
- Built the **agent-operated development environment** that production work ships through every day, with per-repository agent instructions, a specification-first workflow, and a categorised knowledge base that makes previously solved problems retrievable.
- Mentored an intern developer through an 8-week programme that ended with **a production-ready feature they shipped themselves**.

Shopl and Company | Seoul, South Korea
Lead & Senior iOS Engineer | August 2021 - June 2024

- Engineered and scaled a native iOS app (Shopl) for task management, serving **300,000+ employees** in 60,000 workplaces across 15 countries.
- Introduced Modular and Clean Architecture to the codebase, led the team's move to a new UI framework, and led the migration of a **critical legacy system** everyone considered untouchable, retiring it completely.
- Built the company's first CI/CD pipeline with GitHub Actions and its first automated test suite, moving QA **from monthly to weekly cycles** with every production crash traceable to its line of code. Optimised app performance with profiling tools.
- Built and led a team of three software engineers in two-week Agile sprints, **ran code reviews** with them, mentored two engineers, and co-authored the team's iOS coding standards.
- Represented engineering in **weekly leadership meetings**, showing the expected outcomes of technical improvements with data so non-technical stakeholders could weigh the trade-offs.

PJ FACTORY | Seoul, South Korea
Intermediate iOS Engineer (October 2018 - June 2021)
Junior iOS Engineer (October 2016 - September 2018)

- Developed an iOS app (Detail) to create and manipulate images in the new DTL (JLINK / JPEG Systems Part 7) format, serving as **the official reference software for the standard**.
- Applied **functional and reactive programming** alongside MVC and MVVM, and owned the end-to-end iOS lifecycle, including every App Store submission and release.

Selected Projects

Sentinel | usesentinel.tools | npmjs.com/package/sentinel-mcp
AI-powered GitHub issue fixer, issues in and pull requests out (2026)

- **Designed and built the whole system solo** in TypeScript. A Cloudflare Worker receives GitHub App webhooks and relays them through a Durable Object to a local MCP server running inside Claude Code, which spawns headless Claude sessions to investigate issues, implement fixes and open pull requests.
- **Built to run unattended**, which meant scoping each task narrowly enough for a session to finish it without supervision, and handling the failures rather than watching for them.
- **Test-driven by rule**, with no production code written before a failing test and every bug fix shipping alongside the regression test that catches it.

Surcharges | Front-end | Back-end
Solo-built consumer product, iOS plus web plus API (2025)

- Designed, built and shipped an iOS app to the App Store, together with its Node.js API (Express on Firebase Functions, with Firestore, a NoSQL database) and TypeScript web front-end, **all three tiers single-handedly**. Service retired in 2026, source remains public.

Education

Master of Information Technology

Whitireia and WelTec, Wellington, New Zealand | July 2024 - October 2025

Bachelor of Engineering in Computer Science

University of Suwon, South Korea | March 2006 - February 2015