

Adeline Cook.



Senior Software Engineer · Technical Lead · Full-Stack Development

Auckland, New Zealand · +64 21 2700 222 · adeline@skull.co.nz ·
github.com/antidamage · unrealengine.com/marketplace/profile/Skull · NZ citizen — full work
rights ·
Auckland hybrid · available remotely worldwide

PROFILE

Senior software engineer and technical lead with more than 20 years of shipped work across backend platforms, real-time 3D, production systems and independent products. Recent work includes Java/Spring services and geometry processing for construction design, the Nova Smart Home Control Surface, and a bilingual children's title spanning print and digital. Previously led Unreal Engine development for broadcast productions, built editorial tooling for national news platforms, developed the Octane renderer plugin for Unreal, and originated the real-time outline technique later acquired by **Epic Games**. Comfortable owning difficult features from design and implementation through testing, release and production diagnosis.

TECHNICAL SKILLS

SOFTWARE & PLATFORM	Java, Spring, JavaScript, TypeScript, React, Next.js, PHP, Symfony, Laravel, MySQL, MongoDB, Elasticsearch, AWS (S3), DigitalOcean, Linux, Ansible, Nginx, Cloudflare, clean architecture, scalable backend services. Go — currently adopting
TESTING & RELIABILITY	TDD, BDD, unit and automated testing, maintainable well-tested code, production debugging, logging, monitoring, performance tuning
3D & PIPELINES	Unreal Engine 4/5, Unity, Babylon.js, C++, C#, WebGL/GLSL, geometry processing, virtual production, AR/VR, content pipelines
DEVELOPER EXPERIENCE	Internal tooling, CI/CD, test infrastructure, developer environments, internal platforms, documentation, workflow automation and standardisation, observability, release support
AI-ASSISTED DELIVERY	Coding agents, agent orchestration, local LLM tooling, Ollama, ChromaDB, tool calling, model routing, MCP, browser-use, Playwright, code review and verification loops
DESIGN & MEDIA	Photoshop, Illustrator, Cinema 4D, 3ds Max, Maya, Substance Suite, DaVinci Resolve

SELECTED PROJECTS

Nova — Smart Home Control Surface · ongoing personal project, used at home

- Designed and built a Next.js/React control surface for lighting, climate, reminders, energy and media, sharing a versioned configuration schema with a native tvOS client.
- Built a distributed, local voice pipeline with adaptive speaker profiles across rooms and microphones, interruption-aware conversational turns, noise suppression, echo cancellation and cross-room arbitration.
- Tuned the full conversational stack to run together in 7 GB of VRAM on a 2018-era GPU, with no cloud inference.
- Designed the open framework for agent-led installation and extension, allowing device-specific controls and multi-host roles to be built around the household rather than selected from a fixed panel catalogue.
- Created automated deployment, golden-snapshot verification and monitoring with NATS, VictoriaMetrics and Grafana.

Local coding-agent toolchain · 2026

- Built a local coding-agent stack for file, shell, web, browser, memory and skill workflows.
- Added sandboxing, progress monitoring, malformed tool-call handling and host-side verification after file changes.
- Integrated vector-store memory, browser-use/Playwright automation and task-specific model routing.

Advanced Cel Shader · Unreal Engine Marketplace

- Originated the real-time edge-detection and outline technique behind the shader, developed independently and now in widespread industry use.
- Shipped it as a production-ready Unreal package, adopted broadly by Unreal teams and maintained as a developer-facing product over several years.
- Acquired by Epic Games.

Poppy and Buddy · cross-medium children's publishing

- A bilingual children's title delivered across print and digital: published books paired with a companion app carrying original animation and narration.
- Designed the QR-linked read-along system connecting printed pages to their audio recordings, and the content pipeline that keeps both mediums in step.

PROFESSIONAL EXPERIENCE

Senior Developer & Researcher — Donovan Group / uTecture

Jan 2025 - May 2026

- Developed and maintained construction-design and building-automation software within a large Java/Spring platform.
- Built backend services for building modelling, floor-plan generation and construction workflows.
- Implemented geometry processing: polygon triangulation, 3D shape handling, floor-plan generation.
- Made practical architecture decisions supporting scalability, performance and reliability; optimised algorithms across complex generation pipelines.
- Debugged production issues and maintained automated tests; worked with engineers and product stakeholders to deliver platform improvements.

Founder & Lead Developer — Poppy and Buddy

2019 - present

- Own full lifecycle development for a bilingual children's title spanning published books and a companion app.
- Build app features, original animation, narration audio, design assets, content pipelines and multi-platform release workflows.
- Designed the QR-linked read-along system connecting printed pages to their audio recordings, and the research-driven educational concepts behind the series.
- Use AI-assisted engineering workflows to plan, implement, test and ship improvements.

Technical Director — Haven XR

Aug - Dec 2023 · contract

- Trained custom models to solve VR motion-capture and avatar problems that conventional techniques could not.
- Designed networks, physical installations and motion-simulator experiences; led technical hiring.

Lead Developer & Unreal Team Supervisor — Fika Entertainment

Dec 2021 - Mar 2023

- Led Unreal development for *Teletubbies Let's Go* and the American Girl YouTube series.
- Designed virtual production pipelines and AR/VR experiences; supported a distributed team of artists and developers.

Senior Developer — Bit.Country

Apr 2021 - Apr 2022

- Built real-time 3D for a large multiplayer world across Babylon.js and Unreal Engine; created a dynamic voxel grid handling spatial data under live simulation load.

Game Developer & Engineer — Exsurgo

Sep 2020 - Apr 2021

- Built mobile and low-end Unity and Unreal mini-games for stroke rehabilitation and neuroregulation training.
- Integrated Bluetooth hardware drivers for connected therapy workflows.

Plugin Developer — Otoy Inc.

Jun 2015 - Mar 2017

- Developed the Octane renderer plugin for Unreal Engine for gaming, architectural visualisation and VR workflows.

Senior Web Developer — APN Digital / NZME

Dec 2012 - Jun 2015

- Developed The Listener and NZ Herald online platforms.
- Built editorial tools and rules-based automated news curation systems.

Senior Developer — Sella

Jan 2010 - Dec 2012

- Managed large-scale data migrations and optimised complex query performance.

Programming & design roles

1999 - 2012

- Worked across programming, design, web development, production support and digital content delivery.

EDUCATION

Taranaki Polytechnic — Certificate in Commercial Computer Design

1996 - 1997