


Nigel Baillie

Software Engineer

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<https://nigelbaillie.me>
<https://github.com/Resonious>

Nationality: USA
Residence: Japan

Languages: 
C, C++, C#, Java, Ruby, SQL,
Rust, Verilog, Zig, Kotlin

HTML, CSS, Javascript,
Typescript, Vue, React

English (Native) 
Japanese (JLPT N2)

Technologies:
Linux, Windows, macOS (a little),
Unity3D, Unreal Engine, Godot,
Visual Studio, GNU Make, Git,
Docker, GitHub Codespaces,
Rails, Nginx, AWS,
MySQL, Redis, Sidekiq,
Wireguard, OpenVPN,
GitHub Actions, Webpack,
GDB, valgrind, binding.pry,
emscripten, WASM

Education

Computer Science BSE – GPA: 3.2
University of Michigan Ann Arbor, May 2019

Computer Architecture (superscaler, out-of-order execution)
Operating Systems (threading, memory pager, filesystem)
Video Game Development (Unity3D)
Artificial Intelligence (A*, constraint satisfaction, neural networks)
Computer Security (application, network, web security)

Experience

Senior Software Engineer Tokyo, Japan
株式会社 DEGICA Aug 2019 – Present

Full-stack engineer on payments API called KOMOJU
Team size: 20-30 engineers
Made auto-generated OpenAPI 3.1 export for all API endpoints
Built system for routing between upstream providers
Reduced fees by 1/3rd by choosing best provider per card brand
Reduced timeout errors under load by distributing traffic
Wrote *load tests*, fixed bottleneck to handle *10× flash sale traffic*
Architected modular monolith system with *testable module separation*
Standardized dev environment with *GitHub Codespaces + Docker*
Work with product team to prioritize goals, evaluate feasibility
Identified and fixed security vulnerabilities, ensured no live incidents

Software Engineer Michigan, US
The Ann Arbor T-Shirt Company Feb 2014 – Sept 2018

Built and maintained several internal sales/productivity apps in Rails
Wrote internal mobile app for quick pricing in React Native
Improved t-shirt mockup generation performance 1.5× in C++ w/ libpng
Set up AWS Virtual Private Cloud w/ CloudFront CDN
Implemented single-sign-on authentication across apps

Hobby Projects

This is not an exhaustive list. I waste a lot of time on silly projects! These are the ones I'm most proud of.

- [Flutter, Zig] Simple cash register app for wife's restaurant biz – Flutter frontend + custom data backend in Zig
- [Ruby, C] Dev tool, analyzes running Ruby code to provide accurate variable/return type information in text editor
- [C] Some work on Wine's (<https://winehq.org>) shell notification system – fixed bug in receiving external changes
- [Kotlin] Android app to scan Japanese text, then let me look up individual words in dictionary
- [Rust, C] (very incomplete) Real-time multiplayer sidescrolling web game – anyone can join via URL
- [Scala, Java] Minecraft mod – used JVM bytecode injection to allow certain players to phase through walls

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Software Engineer

AATC = Ann Arbor T-shirt Company

Ruby, Rails

Experience: 9 years (pro)

Usage: **high**

Confidence: **high**

Used in: KOMOJU payments monolith, AATC custom CRM,
AATC warehouse production tracker, AATC online store

HTML, Javascript

Experience: 9 years (pro)

Usage: **high**

Confidence: **high**

Used in: KOMOJU payments processor monolith, AATC custom CRM,
AATC production tracker, AATC online store

VueJS

Experience: 4 years (pro)

Usage: **medium**

Confidence: **medium**

Used in: KOMOJU admin dashboard, KOMOJU hosted payment form

Typescript

Experience: 4 years (pro + hobby)

Usage: **high**

Confidence: **high**

Used in: KOMOJU merchant onboarding form, KOMOJU payment fields library,
experimental email client, Webauthn on Cloudflare Workers

AWS

Experience: 9 years (pro)

Usage: **low**

Confidence: **low**

Used in: AATC all apps w/ EC2+Capistrano, KOMOJU w/ ECS
+ in-house CloudFormation wrapper

Docker

Experience: 7 years (pro + hobby)

Usage: **high**

Confidence: **medium**

Used in: dev containers for almost all development I do,
AWS CloudFormation, GitHub Codespaces

C, C++

Experience: 10 years (pro + hobby)

Usage: **low**

Confidence: **medium**

Used in: AATC t-shirt mockup image generator,
Ruby runtime type tracer, misc game projects

Rust

Experience: 7 years (pro + hobby)

Usage: **medium**

Confidence: **high**

Used in: a few unfinished game projects (client + server),
reminder chat bot, web tool for viewing screenshots from CI,
experimental fast payments backend