David Franz

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Summary

Full-stack software engineer focused on AI and LLM applications in Python, JVM backends, and TypeScript frontends, with interests in compilers, algorithms, and formal methods. I enjoy building reliable APIs, visual tooling, and language infrastructure. Outside of software, I enjoy hiking, piano, and 3D animation.

Skills

- **Languages:** Java, Kotlin, JavaScript, TypeScript, Python, C, C++
- **Frontend:** React, Angular, Knockout, HTML, CSS
- **Backend:** Spring, Spring Boot, Node, Express, Vert.x, FastAPI
- **ML/AI:** PyTorch, TensorFlow, Keras, scikit-learn, LoRA, HuggingFace, LangChain, NLTK
- **DevOps/Platforms:** Linux, Git, Docker, AWS, Azure
- **Databases:** PostgreSQL, MongoDB, MariaDB

Experience

Software Engineer — Servicely
July 2024 – April 2025 · Sydney
Stack: Java, Kotlin, Spring, PostgreSQL, TypeScript, Angular, Knockout, AWS

- Maintained and enhanced existing backend REST APIs.
- Developed and maintained mobile REST APIs in Java/Kotlin with Spring.
- Migrated Java APIs to Kotlin to improve maintainability and readability.
- Implemented new Angular pages and components with cross-device responsiveness.
- Migrated legacy Knockout/HTML/JS pages and renderers to modern Angular.

Software Engineer — Solnet (acquired by Accenture)
Nov 2021 – May 2024 · Wellington
Stack: Java, Vert.x, MariaDB, TypeScript, React, Docker, Azure

- Built a formal specification language with expression evaluation, type definitions, variable/object handling, subprocess management, grammar implementation, and AST generation/manipulation.

- Implemented a grammar-based natural-language system to create propositional logic.
- Integrated backend version-control features for a web IDE using JGit and Vert.x.
- Delivered complex React components, including a visualization tool for version-control histories.
- Managed WebSocket APIs for real-time client–server communication.

Research Assistant — Victoria University
Nov 2020 – Feb 2021 · Wellington
Stack: Racket, Redex

- Translated concepts from an academic paper into a working prototype.
- Implemented formal syntax and semantics of a research-defined language in Racket/Redex leveraging temporal logic for program verification.
- Gained hands-on experience with formal methods, verification, and secure system design.

Projects

Flowtomic.ai — Visual agentic workflows on the JVM; umbrella for released OSS tools below.

- Flowlang.dev — Compiler for a sandboxed-by-default JVM language (ANTLR lexer/parser → bytecode with ASM). Functional style with declarative task orchestration; features validated via examples and tests.
  Stack: Java, Spring Boot, ANTLR, ASM, React, TypeScript, Azure.

- Flowport.dev — Gateway to leading LLM models with unified APIs, adaptive routing, and evaluation workflows for production agents.
  Stack: TypeScript, Node, Azure.

- Flowknow.dev — Reusable knowledge bases that automatically build and refresh RAG-ready datasets, indexes, and embeddings.
  Stack: TypeScript, Python, Vector DBs.

- Flowgraph.dev — Lightweight TypeScript D3 wrapper with React support; reusable graph features and a visual playground for interactive templates used to build Flowtomic's visual workflows.
  Stack: React, TypeScript, Azure.

- Flowform.dev — Lightweight form library and visual builder interoperable with Flowgraph (for custom nodes); supports multiple field renderers and grouping (containers/tabs).
  Stack: React, TypeScript, Azure.

Education

- **Postgraduate Diploma in Artificial Intelligence** — Victoria University of Wellington, 2025
    - Natural Language Processing (LLMs)
    - Neural Networks and Deep Learning
    - Evolutionary Computation
    - Big Data
    - Contemporary Topics in AI
    - Mathematics of AI
    - Applications of AI
    - Automated Program Reasoning
- **BSc in Computer Science & Mathematics** — Victoria University of Wellington, 2021