Lee Fowler

Java Engineer

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Profile

- **Material physicist** with advanced Java skills (math/physics modeling) transitioned to software development, bringing unique analytical strength to large-scale systems.
- Seeking a challenging role as a Java Developer in a company where I can grow, learn and mentor.
- Using Java since 2007 for math and physics, and have 3 years experience developing flagship **physics software.**
- Built a custom **Orchestrator** (like Kubernetes) written in Go - **link**
- Contributor to open source **Dapr** Distributed System (with Go). I write concurrent specs in TLA+ for projects like DMAIL (Internet Computer).
- **Recurse Center** alumnus - Winter 2025 - a retreat to program at the edge of your abilities - **link**
- **KestrelDB** is a Rust HTAP database I build in OSS based on a Buffer Pool Manager and uses MVCC with LRU-K caching.

Experience

Private — January 2023 - Present
Open source developer — Remote

Contracted contributor to Blockchain and Social media software:

- Automated data analysis, reducing manual analysis time by 95% (38 hours/week) - **Python**
- Built the betting odds features for Vaultbet, a blockchain betting platform - **Rust and Javascript**

Thermo-Calc Software AB — May 2021 - May 2024
Software Developer — Solna, Sweden

Development of physics calculations for materials simulation - **Java, Python, Jenkins, Docker**

- I fixed memory leaks and concurrency errors in the app from 15 years ago to reduce memory requirements on the user and the app.
- I put mocking tests on the startup and shutdown sequence of the app to ensure correct behaviour and catch developer errors early.
- Developed probability distribution calculations for particle size predictions and melted metal physics in materials for 3D printing calculations. This helps users test materials before manufacturing.
- I wrote well tested code that catches many developer errors early, and I advocated for TDD, especially in concurrent code.

Uppsala University — Sept 2015 - Dec 2019
Researcher and Lecturer/Tutor — Uppsala, Sweden

Completed my Phd research on Biomaterials and created a novel material class - **Java, Mathematics, Physics**

- Used Java for calculations of material properties (equilibrium and nucleations physics) before manufacturing. This allowed rapid prototyping and simulation, saving development time. The purpose of calculations is to simulate material, then only melt the most promising alloys for implants.

Mediclinic Private Hospital Group — March 2015 - Aug 2015
Technical Specialist — Stellenbosch, South Africa

Supervisor role handling massive hospital datasets to optimise engineering processes (data eg. machine maintenance, staff levels, electrical and water consumption etc) across 54 hospitals.

Education

Kungliga Tekniska Högskola — Sept 2020 - Dec 2020
Software Engineering — Diploma
Pass

Studied intensive 550 hour course equivalent to Bachelors to up-skill in web development:

Key skills: **Java, Spring,** PostgreSQL, Docker and built apps in scrum teams.

Uppsala University — Sept 2015 - Dec 2019
Materials Science — PhD
Pass (4.0 GPA)

Developed a new class of titanium alloys from design, then manufacture, to characterisation and finally biological testing with cells and bacteria.

Key skills: Atomic-, Electron- Physics. **Java in Math and Physics**.

- Got 5 scholarships for my Phd research with grant writing.

Projects

DMAIL
Internet Computer Blockchain Email

Wrote the design specification for the smtp server and blockchain smart contract to be fail safe. I tested the system to prove no messages would be lost. The value is that the whole system was designed and proven before development started.

TLA+

Dapr
Side-Car pattern

Contributed to the rich error handling for Dapr in accordance with Google recommendations for error handling.

Golang

Symphy Blockchain NFTs
Musical Instruments on Blockchain

Built the binary file storage and UI uploads to the blockchain for the project. In this project I was both front and backend developer.

Rust, Motoko, Javascript

VaultBet
Sport Betting

As co-founder and Rust Developer, I wrote the betting odds features for betting on football matches with accompanying unit-tests using async crates.

Rust, Javascript, Blockchain

Relevant Skills

Languages
Java, Go, Rust, TLA+

Frameworks
Spring6, SpringBoot, React, Flask

Tools / Libraries
Pandas, SkLearn, Docker, RPC

Systems
Zookeeper, Kafka, Kubernetes