Brynjar Ingimarsson

Software Engineer

Amsterdam, Netherlands | Icelandic nationality (EEA)

Right to work in the EU/EEA and UK (Youth Mobility Visa)

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Work Experience

Software Engineer II - Low-Latency Trading Systems June 2024 – Present

Bitvavo *Amsterdam, Netherlands*

- Joined the matching engine team rebuilding Bitvavo's core exchange from a legacy Go system into a low-latency, deterministic Kotlin/JVM platform on Aeron and Raft consensus, running at 100K+ requests/sec and sub-millisecond p99 latency
- Designed and built the snapshot migration mechanism that keeps Aeron cluster memory snapshots backward- and forward-compatible across releases, and carried out cluster and related service upgrades in production
- Implemented observability tooling for the Aeron cluster, including monitoring of replication consistency across nodes
- Built the public REST gateway (Vert.x) for order flow against the new Aeron cluster, and refactored the existing WebSocket gateway to share common logic through a new shared library

Software Developer January 2021 – March 2024

Stefna ehf. *Akureyri, Iceland*

- Built features for Digital Iceland (https://island.is/en), Iceland's national digital services portal, using Next.js with a NestJS GraphQL backend and Contentful CMS / ElasticSearch
- Set up a custom build system with ESBuild, TypeScript, Babel, ESLint, and Prettier to help migrate a large monolithic web application to a React micro-frontend structure

Education

Vrije Universiteit Amsterdam 2021 – 2024

Computer Science, MSc *Amsterdam, Netherlands*

University of Iceland 2017 – 2021

Computer Science, BSc *Reykjavík, Iceland*

Personal Projects

MSc Thesis - Performance of the io_uring Kernel I/O Interface 2024

C, x86 assembly, eBPF, gdb, Linux Kernel

- Explored performance characteristics of io_uring, a new async I/O interface for the Linux Kernel
- Extended the fio storage benchmark to investigate different io_uring configurations
- Used eBPF to explore io_uring's I/O execution path within Linux block layer and effect of configuration changes
- Implemented discoveries in a database (RocksDB) to show real-world performance improvement

Reisa.is - Campsite Booking & Self-Service Platform 2023 – Present

Next.js, PHP, PostgreSQL, Solr

- Started Reisa.is, a booking and self-service platform for Icelandic campsites, based on my experience working as a campwarden multiple summers
- Built the core booking system alongside a point-of-sale module and self-service touch-screen kiosks, integrating multiple payment providers for both online checkout and physical terminals with support for automatic refunds
- Used by over 100,000 customers per year at over 20 Icelandic campsites

Awards & Honors

Participant in the International Physics Olympiad

IPhO 2017, held in Yogyakarta, Indonesia *2017*

Skills

Backend & Low-Latency: Kotlin, Java, Aeron / Aeron Cluster, Chronicle, FIX, Kafka, SBE, gRPC, Vert.x, Spring, zero-allocation programming, off-heap memory
Infrastructure: Kubernetes, Docker, AWS, Terraform, Ansible, GitOps, Redis, MySQL, Grafana, Linux
Systems Research: Linux kernel, io_uring, eBPF, GDB
Web / Other: JavaScript, TypeScript, C, PHP, React, Next.js, Nest.js, Slim PHP, Symfony
Languages: English, Icelandic