

Maxime Himeno

(+33) 6 68 40 26 12 | maxime.himeno@gmail.com | linkedin.com/in/maxime-himeno | github.com/MaximeCorp
Low-Latency C++ · Core Infrastructure · French, Japanese, English · Internships from Feb 2027 · Full-time from June 2027

PROJECTS

Naoto Exchange – Low-Latency Exchange System

Solo Project

Personal R&D

July 2025 – Present

C++20 · DPDK · SSE2/SSE4 intrinsics · epoll (ET) · lock-free SPSC · UDP multicast · etcd · Linux

Three services that join and leave the cluster at runtime, built on one rule: nothing enters the hot path unless it must, and what does is single-writer, allocation-free and cache-conscious. Consistency work is settled off the hot path, asynchronously by sequence number.

- **Order hot path:** no heap allocation, no locks and no syscall per message, socket to fill. epoll (ET) receives into a pooled batch, risk clears in line, SPSC hands off to matching, then out over DPDK; consumers drain opportunistically, threads pin to dedicated cores, and per-connection resend buffers stop one blocked socket stalling a batch. **P99 600 ns in matching and 1.1 µs to gateway ack at 40k msg/s.** Four timestamps split gateway internal (risk + ack), shared-memory SPSC handoff to matching and tick to trade, each at min/P50/mean/P95/P99/max, with live order book and latency views.
- **Matching engine:** allocation-free, single-threaded per asset, no book operation above $O(\log n)$. Dual-view book pairs a hand-written **SIMD Robin Hood hash map** (SSE2 16-slot probing, Fibonacci hashing, backward-shift deletion) for $O(1)$ price-level lookup with a **prefetch-accelerated skiplist** for $O(\log n)$ best-price traversal; intrusive doubly-linked price levels give $O(1)$ insert and cancel. Limit, market, marketable-limit and cancel under price-time priority; fills out over DPDK on two multicast channels in a custom fixed-size binary format: no length-prefix parsing, predictable batch sizing, directly mappable.
- **Risk and client state:** never waits on confirmed state or rejects on staleness. A thread-local reserved-balance counter covers in-flight exposure and merges against the SPSC-fed confirmed balance; client state is **triple-buffered per client**, batching writes and confining cache misses to the client that caused them, keeping the order path clear of market-data writes.
- **Cross-service consistency and elasticity:** a slower update can never overwrite fresher state. Snapshots carry a **sequence id, not a timestamp**; the receiving gateway replays its buffered deltas forward before accepting one; a gap past the replay window forces explicit resync, not a silent accept. Services join and leave at runtime under etcd TTL leases, at a hot-path cost of one 64-bit atomic load of a packed fd and generation counter; one CRTP library backs every service with C++20 concepts and zero virtual dispatch.

CNP – Cloud-Native Platform

Team of six

SIGL Major Project · Kubernetes, Crossplane, Terraform, ArgoCD

Feb – Dec 2026

- **Owned the Crossplane layer** of an internal developer platform: teams create projects under IAM-scoped access and declare non-pod resources (managed databases and the like) as Crossplane claims, provisioned onto EKS. Integrated provisioning end to end, across the front end and the API.
- **Proposed and built topology-based resource requests**, letting teams compose a project as a dependency graph rather than a flat list, with graph traversal detecting resources unreachable from any entry point and flagging them as unused. Front end shipped; backend integration in progress.
- **Worked across the full six-person system** rather than one slice, contributing to architecture decisions on the GitOps model: a repo generated per resource, reconciled onto the cluster by ArgoCD under the app-of-apps pattern.

EDUCATION

EPITA – Graduate School of Computer Science

Paris, France

Engineering Degree (Diplôme d'Ingénieur, M.S. equivalent), SIGL Major

Sept 2022 – Dec 2027

- Core: C and Unix systems programming, compiler construction, OS internals, algorithms. SIGL Major: software architecture, distributed systems, databases, CI/CD, DevOps. Final semester is a full-time engineering placement; available to start full-time from June 2027.

Indian Institute of Technology (IIT) Jodhpur

Rajasthan, India

International Exchange Semester

Jan 2024 – July 2024

- Computer Architecture (pipelining, memory hierarchy, ILP) and Computer Networks (TCP/UDP, NAT, firewalls).

EXPERIENCE

Fotonower – Computer Vision & AI

Paris, France

Software Engineering Intern

July 2023 – Sept 2023

- Deployed Raspberry Pi edge devices for on-site AI monitoring; built per-center, per-day client data statistics and visualization (Python, MySQL).

TECHNICAL SKILLS

Programming Systems	C++20 (templates, CRTP, concepts, move semantics, constexpr), C, x86-64 Assembly, Python, SQL DPDK (EAL, mempools, lcores), kernel bypass, raw packet construction, SIMD (SSE2/SSE4), lock-free concurrency, memory ordering, epoll (ET), core pinning, cache/NUMA optimization, custom allocators
Tools	AddressSanitizer, GDB, GoogleTest, etcd, gRPC/Protobuf, Docker, CMake, GCC, Bash
Additional	French (native), Japanese (fluent, schooled in Japanese from age 4 to 18), English (fluent) · Open to European and APAC offices · Judo, 14 years