

Ryan Daum

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Summary

Experienced software developer with a systems focus and 25+ years of accumulated engineering judgment. Deep Rust and C++ expertise across performance-critical infrastructure, embedded Linux, database internals, and real-time platforms. 10 years at Google shipping production systems.

Skills

Technical Fluency: Deep Rust and C++ expertise, broad language familiarity, and strong computer science fundamentals.

Domains: Performance-critical systems, embedded Linux, database internals & storage engines, real-time systems, distributed systems, vehicle autonomy, ad exchange & real-time bidding, LLM-powered agent systems

Focus: Performance measurement & tuning, bottleneck analysis, benchmarking, profiling, data structures, systems architecture, constrained/low-level environments, transactional storage, observability, technical leadership

Experience

Timbran Consulting — Independent Consultant

September 2025 – Present

- Independent consulting practice focused on systems architecture, Rust engineering, performance, and development process
- Recent primary client: [Eden](#), serving as technical lead for production Rust engineering and high-performance systems
- Set up development infrastructure and coding practices: GitHub-to-GitLab migration, Linear adoption, coding style and review guidelines, Clippy policy, and related workflow improvements
- Built a licensing server and supporting production services
- Worked extensively on performance tuning and benchmarking, including measurement tooling, bottleneck analysis, and code review for performance-sensitive paths
- Participated in Eden technical hiring: conducting interviews, evaluating candidates, and helping build out the engineering team

VitalBio — Staff Software Engineer

February 2025 – August 2025

- Developed embedded Rust software for a blood testing medical device
- Built device acceptance and testing systems for manufacturing workflows
- Integrated camera subsystem into the device software stack

Raven Industries (CNH Industrial) — Staff Software Engineer

June 2023 – February 2025

- Senior IC on an approximately 10 person team building high-level control systems for autonomous precision agriculture vehicles in Rust and C++
- Drove improvements to software architecture and development practices across the team
- Improved observability across autonomous vehicle control systems to make runtime behavior, failures, and performance bottlenecks easier to diagnose
- Brought a performance-sensitive autonomous vehicle control system to production-ready state

RelationalAI — Database Internals Engineer

November 2022 – May 2023

- Worked on storage engine internals for a graph-relational database: paging, buffer pool management, garbage collection, and low-level performance behavior (Julia)

Clockwork Labs — Contract Software Engineer

July 2022 – November 2022

- Consulted on architecture and early development of a low-latency transaction processing engine in Rust for a multiplayer game platform

Ten years across multiple product areas, progressing through embedded platforms, consumer hardware, and large-scale infrastructure:

Nest / Google Home Hub & Home Hub Max — Embedded Linux platform development for smart display products. Worked on system-level software powering millions of shipped devices. C++, embedded Linux.

Stadia & Chromecast — Platform software for Google's streaming game service and Chromecast media devices, including latency-sensitive production systems. C++, Go.

Google Fiber & Google WiFi — Systems software for consumer networking hardware and ISP infrastructure. C++, Go, embedded Linux.

Google Ad Exchange — Backend infrastructure for one of the world's largest real-time ad auction systems, where latency, throughput, measurement, and operational reliability were core product constraints. C++, Go.

Earlier Career

Admeld — Senior Software Engineer, Toronto (2009–2011). Real-time ad exchange and analytics. *Acquired by Google, 2011.* | **Chango** — Lead Software Engineer, Toronto (2008–2009). Architecture lead at early-stage ad-tech startup. Real-time bidder in Scala on Cassandra/PostgreSQL. | **Genesys / Informiam** — Staff Software Engineer, Toronto (2006–2008). Lead engineer on contact center analytics platform. | **Points.com** — Senior Software Developer, Toronto (2003–2006). Loyalty points management and partner integration. | **Kaval Software** — Software Developer, Toronto (2000–2001). In-building wireless amplification systems. Python, embedded Linux. | **Accompany / Mobshop** — Software Developer, Toronto (1999–2000). Partner integration systems.

Open Source

rart-rs (github.com/rdaum/rart-rs) — Adaptive Radix Tree data structure implementation in Rust.

micromeasure (github.com/rdaum/micromeasure) — A Rust microbenchmarking harness for systems work where timing alone is not enough information. Integrates Linux perf counters / PMU metrics, persisted sample reports, and latest-run comparisons for instruction count, branch behavior, cache misses, latency, and throughput.

fast-telemetry (github.com/eden-dev-inc/fast-telemetry) — High-performance Rust telemetry library developed with the Eden team, using cache-friendly sharded metrics and lightweight spans to keep observability out of hot-path contention while integrating with common telemetry backends.

moor (codeberg.org/timbran/moor) — A modern rewrite of LambdaMOO in Rust. Fully multithreaded multiuser language runtime with a custom transactional storage engine, compiler / virtual machine, clustering, and a web frontend.

rlm.lisp (github.com/rdaum/rlm.lisp) — Experimental Common Lisp implementation of recursive language model ideas and an agentic editing mode for Lem, with REPL-based tool use, sandboxed execution, and editor/file-system tools.