

# Mitul Dhawan

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## EXPERIENCE

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### Senior Software Engineer

Sept 2025 – May 2026

*Eden*

*Remote*

- Co-authored **FastTelemetry** (open source), a high-performance **Rust** metrics library replacing OpenTelemetry on Eden's proxy after the OTEL SDK became a bottleneck — thread-local increment in **~2 ns** vs **~40–400 ns** for contended atomics on 16 cores.
- Architected the platform's **OpenTelemetry** rollout (94+ metrics) and authored a suite of **Datadog** dashboards and alerts powering production monitoring and on-call response.
- Built a custom internal logging framework in **Rust** that is **3x faster** than `env_logger`, optimizing for low-latency production workloads.
- Developed a metrics batching system with **Criterion** benchmarking to determine optimal batch sizes, minimizing observability overhead on critical paths.
- Contributed to a database migration pipeline with **Redis** integration, helping deliver **100MB/s** throughput with zero data loss guarantees.
- Conducted code reviews, onboarded new engineers, and authored codebase documentation; analyzed performance reports and shipped code-quality improvements across the platform.

### Co-Founder & Backend Developer

Apr 2025 – Present

*ZeroBlock*

*Remote*

- Co-founded and architected **ZeroBlock**, an ultra-fast trading extension for Axiom.trade, delivering blazingly fast execution speeds for professional traders.
- Built the entire backend infrastructure from scratch using **Rust** and **Actix Web**, achieving high-throughput, low-latency trading operations.
- Designed and implemented a distributed data architecture with **ScyllaDB** for persistent storage and **Valkey/Redis** for real-time caching and session management.
- Optimized critical buy function performance from **500ms to 7ms** (98.6% improvement), enabling high-frequency trading capabilities and handling thousands of concurrent requests.

### Backend Engineer (Contract)

May 2025 – Jul 2025

*DexCelerate*

*Remote*

- Contracted to improve backend performance and feature set of a decentralized exchange platform.
- Optimized scanner to be **~150% faster**, reducing scan latency and increasing throughput.
- Implemented essential backend features and refactored **Redis** key structures for higher cache hit rates and lower latency.
- Resolved critical bug fixes across microservices, improving stability and reducing failure rates in production.

### Bitwyre

Dec 2023 – May 2025

*Software Developer → Quantitative Developer → Blockchain Developer*

*Remote*

- Promoted twice in 18 months across three engineering teams, shipping reliable backend services and earning trust through code reviews and mentorship.
- Designed and led development of **Canggu**, a layer-1 blockchain reaching **50,000+ TPS** — core primitives included a dual-paradigm **Rust + CUDA** virtual machine, a DAG-based mempool, Leader-Verified Tower BFT consensus with Proof of History, and **ZK-SNARKs** for privacy-preserving transactions.
- Built high-frequency trading and market-making systems for exchanges including Binance using **C++**, **Python**, WebSockets, **KDB+** for time-series market data, and **LibTorch** predictive models.
- Improved trading engine latency, introduced stop-loss functionality, and integrated **Apache Kafka** for asynchronous inter-service messaging across distributed services.
- Maintained reliability through **TDD**, unit and integration testing (Google Test), and structured logging as team standards.

## PERSONAL PROJECTS

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- Intel 8080 Emulator** — *C++, CMake, Assembly, Google Test* 🔄 Apr 2023
- Developed a software-based emulator for the Intel 8080 microprocessor, enabling experimentation with 8080 assembly on modern hardware.
  - Leveraged **Google Test** for unit testing and continuous integration.
- Lift Feed** — *Next.js, TypeScript, Tailwind, Firebase, Prisma ORM* 🔄🌐 Apr 2023
- Built a dynamic platform for gym enthusiasts to share fitness progress and diet plans.
  - Implemented secure authentication flows, real-time data sync, and user posts with personalized dashboards.
- Stack.CLI** — *Python, BeautifulSoup, Rich library* 🔄 Oct 2023
- Command-line interface tool to query StackOverflow directly from the terminal.
  - Incorporated best practices in **TDD** and user-friendly design for in-terminal results.
- Time Flora** — *C#, AvaloniaUI, XAML, SQLite, NUnit Testing* 🔄 Feb 2023
- Cross-platform productivity app inspired by Pomodoro technique, fostering focus and productivity.
  - Integrated **NUnit** for automated tests and built a local database with **SQLite**.

## TECHNICAL SKILLS

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**Languages:** Rust, C++, Python, TypeScript/JavaScript, C#, Go, Java, SQL, 8080 Assembly  
**Backend & APIs:** Actix Web, Node.js, Express.js, Django, .NET, REST APIs, microservices, WebSockets  
**Frontend:** React, Next.js, Tailwind CSS, browser extensions  
**Distributed Systems & Messaging:** Apache Kafka, Redis Pub/Sub, event-driven architecture, high-throughput pipelines (50,000+ TPS, 100MB/s)  
**Databases:** PostgreSQL, MySQL, Oracle, SQLite, MongoDB, Redis/Valkey, ScyllaDB, KDB+ (q)  
**Observability & DevOps:** Datadog, OpenTelemetry, Prometheus, Grafana, Docker, Linux, AWS, Git, GitHub Actions, CI/CD  
**AI Dev Tools:** Claude Code, Cursor, GitHub Copilot — used daily for code generation, refactors, reviews, and documentation  
**Testing & Practices:** TDD, unit & integration testing (Google Test, NUnit), Agile/Scrum, code reviews, mentoring

## EDUCATION

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**Southern Alberta Institute of Technology**  
*Diploma in Software Development, GPA: 3.94/4.0*

Calgary, AB  
*Dec 2023 – Aug 2024*