

Akash Sivanandan

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Technical Skills

Languages: Python, Go, Rust, SQL, JavaScript/TypeScript **Backend/Data:** Node.js, Prisma, FastAPI, REST, OpenTelemetry, PostgreSQL, MySQL, SQLite, Polars, Pandas

Systems: Linux, Kafka, Docker, Kubernetes, distributed systems, profiling, benchmarking, observability, CI/CD

Experience

Boston University Spark! — *Programmer* Jul 2026 – Present

- Own engineering of a new e-learning platform for Boston University's Chemistry Department, driving application architecture and implementation while collaborating with a UI designer and project stakeholders.
- Build full-stack learning, assessment, quiz-management, content, and instructor workflows using Node.js, TypeScript, Prisma, and a relational database; independently drive features through implementation, testing, and delivery.

PriceLabs — *Software Developer* Jul 2023 – Aug 2025

- Designed and owned a shared FastAPI platform used to migrate Bookings Report and Portfolio Analytics from monolithic Plotly Dash applications to API-backed products; built OpenTelemetry logging, validation, caching, and optimized Polars/MySQL data access.
- Re-architected Bookings Report for customers with up to 10,000 listings by moving aggregation into optimized MySQL queries and minimizing Python-side processing, reducing large-account load times to a few seconds.
- Served as principal engineer for Portfolio Analytics and rewrote its backend from Pandas to Polars LazyFrames; combined lazy optimization, streaming execution, caching, and GPU acceleration to cut median processing latency from approximately 20 seconds to under 1 second while supporting larger-than-memory workloads.
- Led major framework/dataframe migrations across the application estate, resolving breaking Dash and Polars changes and validating production behavior across approximately six applications.
- Drove Docker adoption for the data-science team and designed Kubernetes-based canary-release and automated-rollback workflows to replace manual Gunicorn/Nginx/system-service deployments.
- Defined REST contracts and API documentation, coordinated with an external frontend team, and remediated external penetration-test findings before production release.

PriceLabs — *Software Developer Intern* Jul 2022 – Jun 2023

- Built a reusable YAML-backed localization framework adopted across internal data-science applications and preserved through the later Next.js migration.
- Reworked scheduled KPI pipelines, reducing runtime by 50% through profiling, algorithmic improvements, and parallel execution.

Research & Open Source

Boston University CASP Systems Lab — *Research Contributor* 2026 – Present

- Build distributed benchmarking infrastructure and Kafka-backed workloads across CloudLab clusters to evaluate stream-processing systems under controlled load, scaling, and reconfiguration scenarios; diagnose throughput, latency, scheduling, networking, memory, and recovery behavior from traces, logs, and system metrics.

Pyrefly — **Meta Open Source** — *Open Source Contributor* 2026 – Present

- Contribute production code to Meta's open-source Python type checker, implementing correctness fixes across type inference, control-flow narrowing, semantic analysis, AST transformations, and regression testing.

Projects

Rahu — **Python Language Server** Go

- Built a Go-based Python language server with lexical analysis, parsing, semantic analysis, symbol resolution, inheritance-aware type resolution, diagnostics, cross-file analysis, and automated tests.

Education & Publications

Boston University — M.S. Computer Science Expected Dec 2026

Pune University — B.Tech. Information Technology

Co-author of 4 peer-reviewed publications in speech recognition, machine learning, and virtual reality; Google Scholar.