Daivik Purani

daivikpurani1@gmail.com
LinkedIn GitHub
Mobile: +1-628-298-6040

3+ years as a Backend Engineer — Built Kafka pipeline (150K+ events/day)
infra saving $360K/year, and now working @ AWS TimestreamDB on Distributed Systems.

Professional Experience

- **Amazon Web Services (AWS)** — *Sept 2025 - Present*
  Software Engineer - TimeStream DB — *Internship*
  Tech Stack: Java, Distributed Systems, Databases
  - Developed and enhanced distributed subsystems for Amazon's time-series database (Timestream), focusing on scalability, performance, and fault tolerance in large-scale production clusters.
  - Contributed to internal query execution logic and storage layer optimizations, leveraging deep understanding of time-series data workloads.
- **MediBuddy** — *Aug 2021 - June 2023*
  Software Engineer II - Core Platform Team — *Full Time*
  Tech Stack: Java, JavaScript, Apache Kafka, TypeScript, React, Node.js, SQL, Redis, Docker, AWS, Kubernetes
  - Led the end-to-end development of a distributed **Kafka-based event pipeline** processing over 150,000 events per day replacing four legacy services; implemented safe retries, idempotency controls, and structured observability across services, achieving 99.99% system uptime and significantly improving traceability in workflows.
  - Architected and deployed a high-throughput document ingestion microservice using **Java**, AWS S3 (pre-signed URLs), and Lambda; scaled to 1,500+ uploads/min under load while reducing backend load by 80% and cutting infrastructure costs by $360,000/year.
  - Re-engineered monolithic lab booking systems into Redis-backed Node.js microservices, tuning PostgreSQL indexes and SQL joins to reduce booking latency from **4s to 70ms** and improve bookings throughput by 200%, directly impacting 70,000+ monthly users.
  - Led the **AngularJS-to-React migration** by introducing modular components and optimized build pipelines; improved scalability and maintainability across 1,000+ diagnostic labs, reduced rendering overhead, and delivered a faster, more consistent user experience for customer labs.
  - Boosted backend API performance by 30% via deep SQL profiling, PostgreSQL query plan analysis, and strategic index optimizations; ensured consistent stability under concurrent requests in high-traffic production environments.
  - Designed and integrated a comprehensive monitoring and real-time alerting stack using Amazon CloudWatch, Grafana, and log instrumentation; led on-call triage for 30+ P1/P2 production incidents, conducting root-cause analysis and coordinating immediate and long-term fixes.
- **San Francisco State University** — *Jan 2025 - Present*
  Research Assistant - CS Dept — *Full Time*
  Tech Stack: Python, AWS, Vector Databases (Pinecone), OpenAI APIs, LangChain, RAG, Embedding Models
  - Designed and deployed a production-grade semantic search engine indexing over 5,000 academic papers using RAG pipelines and Pinecone vector databases; exposed horizontally scalable, GPU-backed APIs supporting sub-second latency for 25+ concurrent users in live test environments.
  - Built an AI-assisted grading system integrating static analysis, plagiarism detection, and ML-based scoring for automated evaluation of exams, and code; implemented instructor-in-the-loop review workflows, with real-time dashboards for cohort-level learning gaps and grading trends.
- **Wheebox** — *Aug 2020 - Dec 2020*
  Software Engineer - New Projects — *Full Time*
  Tech Stack: Java, Python, PostgreSQL, MongoDB, AWS Lambda, RDS, CloudWatch, WebSocket, REST APIs
  - Created and deployed a distributed online coding platform in **Java** (Spring Boot, REST APIs) capable of supporting 1,000+ concurrent users with sub-second feedback latency; optimized request flow, asynchronous execution, and lambdas to sustain real-time assessments under load.
  - Automated hibernation of idle **PostgreSQL RDS** instances using AWS Lambda and CloudWatch cron triggers, reducing staging infrastructure costs by approximately $300/month while ensuring resources were automatically reactivated on demand.

Education

- **San Francisco State University** — *San Francisco, CA*
  Master of Science - Computer Science - GPA: 3.60/4.00 — *Aug 2023 - Dec 2025*
  Courses: Distributed Systems, Advanced Database Systems, Software Architecture, Advanced Networks, Generative AI
  Teaching Assistant: Advanced Algorithms | Generative AI
- **Birla Institute of Technology and Science** — *Pilani, IN*
  Bachelor of Engineering (Hons.) - Computer Science — *Aug 2017 - May 2021*
  Courses: Database Systems, Operating Systems, Object Oriented Design Patterns, Data Structures & Algorithms, Computer Networks
  Research Assistant: Software Engineering

Selected Projects

Distributed SQL Query Engine — GitHub

- Designed and implemented a simplified distributed SQL engine in Java with gRPC-based coordinator and execution nodes; supported basic **SELECT**, `WHERE`, and `JOIN` queries across partitioned datasets using parallel execution and rule-based query planning.
- Simulated fault tolerance using check pointing and retry logic for failed worker nodes; added instrumentation hooks for tracing query lifecycle, execution trees, and node-level timing to showcase understanding of distributed data processing and optimization internals.

Visual SQL Query Plan Explorer — GitHub

- Built a web-based visualization tool for PostgreSQL `EXPLAIN ANALYZE` output, rendering execution plans with operator cost, row estimates, timing data, and bottleneck highlighting; designed for developers and DBAs optimizing large SQL queries.
- Implemented a backend parser in Python and interactive React frontend for plan tree navigation, with an "Index Advisor" feature that recommends missing indexes based on query plan heuristics and schema metadata.

Technical Skills

- **Languages:** Java, Python, TypeScript, C, C++, JavaScript, SQL, Bash, Node.js, Shell Scripting
- **Frameworks & APIs:** Spring Boot, Express.js, React, WebSockets, gRPC, REST, OpenAPI, FastAPI, LangChain
- **Databases & Storage:** PostgreSQL, MySQL, MongoDB, DynamoDB, Redis, RocksDB, InfluxDB, Pinecone, HDFS, Amazon S3
- **Cloud & Infra:** AWS (EC2, Lambda, S3, RDS, IAM, CloudWatch), Docker, Kubernetes, Prometheus, Grafana, GitHub Actions, Terraform, Linux, CI/CD, Distributed Systems, Microservices, Concurrency, Query Optimization, Fault Tolerance