

SUDHEER BULUSU (he/him)

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EDUCATION

University of Massachusetts Amherst

Amherst, MA

Master of Science in Computer Science, *GPA: 4.0/4.0*

December 2027 (Expected)

Coursework: Distributed & Operating Systems, Software Engineering, Machine Learning, Cryptography, Neural Networks, Data Science Fundamentals

Indian Institute of Technology Bhubaneswar

Bhubaneswar, India

Bachelor of Technology in Mechanical Engineering, *GPA: 8.01/10*

May 2022

Coursework: Data Structures & Algorithms, Robotics, Calculus, Linear Algebra & Complex Analysis

WORK EXPERIENCE

Software Development Engineer II – Thena (B2B SaaS for customer support)

Jun 2024 - Nov 2025

- Architected configurable, fault-tolerant **workflow orchestration platform** using **Temporal**, executing **1M+** event-driven workflows supporting retries, compensation, conditional branching, fan-out/fan-in execution
- Delivered **2M+** monthly real-time & batched **notifications** across push, email, Slack through **event-driven** system
- Eliminated cross-service data-fetching complexity by building centralized **data aggregation** service that orchestrated API calls while preserving service ownership boundaries
- Synchronized tickets, messages, users, customers and accounts in real time by building a bidirectional Thena-**Intercom** integration via webhooks and SQS with **idempotent** event processing
- Tracked response & resolution **SLA** compliance via configurable policy engine flagging delayed and breached SLAs
- Streamlined **CI/CD** for **9** gRPC/HTTP microservices with GitHub Actions on AWS ECS using Cloud Map discovery

Software Engineer – Unacademy (Consumer EdTech Platform)

Jun 2022 - Jun 2024

- Reduced latency by **60%** and improved scalability by redesigning SQL stored procedure based question recommendation system with **Redis Bloom Filters** and decoupling as a dedicated microservice
- Engineered **ELO** rating system with real-time **leaderboard** for Compete, a 1v1 quiz platform, supporting **10M+** matches and **1.7M+** users annually
- Enabled controlled, data-driven feature rollouts and experiments by architecting **A/B experimentation platform**
- Implemented **auto-renewable subscriptions** for AirLearn & UnacademyX using Google Play, Apple IAP, Razorpay
- Drove 10K+ monthly organic shares by leveraging **AWS Lambda** to instantly generate shareable user rating cards
- Powered analytics and business reporting via near real-time MySQL-to-Redshift data **replication** using **AWS DMS**

PROJECTS

Distributed Trading Post: Replication, Caching & Fault Tolerance - Python, TCP Sockets, Multiprocessing

- Built distributed marketplace where buyers & sellers trade via **replicated trader nodes** over a **shared warehouse**
- Maintained **40** goods/s throughput through a trader failure via heartbeat-based failover and **idempotent retries**
- Reduced warehouse RPC traffic by **5.8x** (188 to 32req/s) through **eventually consistent replicated** ledger cache
- Ensured fair, deterministic **ordering** of concurrent buy requests across **6** distributed processes using **Bully leader election**, vector clocks and deterministic tie-breaking

Physics Informed Neural Networks (PINNs) for Crash Dynamics - Python, TensorFlow

- Predicted stress, velocity, displacement during head-on vehicle impact by developing PINNs for car crash dynamics
- Reduced 25 hour FEM simulations to **near instant** inference with $\leq 18\%$ error against analytical & FEM baselines
- Reduced retraining effort significantly across structural variants by using **transfer learning** to adapt PINN models

RoomMatch - Node.js, Express.js, React.js, PostgreSQL, Redis

- Matched roommates based on 10+ users' lifestyle preferences and habits by building a full-stack web application
- Delivered near real-time top 20 most compatible roommate recommendations using **Redis ZSET** for fast retrieval
- Maintained up-to-date compatibility rankings via asynchronous background **jobs** triggered by preference updates

TECHNICAL SKILLS

Programming Languages: C++, Python, JavaScript, TypeScript, Go, SQL

Databases: MySQL, PostgreSQL, Supabase, Redis, MongoDB, DynamoDB, Elasticsearch, Redshift

Frameworks & Tools: Django, Node.js, Express.js, NestJS, React.js, Echo, Airflow, TensorFlow, gRPC, Temporal

Cloud & DevOps: AWS (SQS, SNS, Lambda, ECS, ECR, Cloud Map, S3, DMS, IAM), Docker, GitHub Actions