

Sudheer Bulusu (he/him)

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EDUCATION

University of Massachusetts Amherst

Master of Science in Computer Science

Amherst, MA

May 2027 (Expected)

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

Indian Institute of Technology Bhubaneswar

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

Bhubaneswar, India

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 a configurable **workflow** orchestration platform using Temporal, supporting event-driven DAG workflows with retries and conditional branching, handling over **1M+** workflow executions within 6 months
- Spearheaded bidirectional **Intercom**-Thena sync using webhook ingestion and **SQS**-based event pipelines for reliable cross-platform state synchronization
- Engineered cross-service **data aggregator** resolving entity relations across microservices for fast, unified retrieval
- Developed Accounts **CRM** module enabling auto-contact identification and accurate ticket-to-account association
- Built **SLA** and **auto-responder** systems enabling automated ticket handling and proactive responses to customers
- Designed real-time **notification system** delivering **2M+** monthly events with auto subscription on ticket activity
- Owned **CI/CD** pipelines for **9** gRPC/HTTP services on AWS ECS with Cloud Map-based service discovery, routing

Software Engineer - Unacademy, Ed-tech

Jun 2022 - Jun 2024

- Redesigned question recommendation system by replacing SQL stored procedures with Redis **Bloom Filters**, reducing latency by **60%**, and decoupling it into a dedicated **microservice** and database to improve scalability
- Built ELO rating system and **real-time leaderboard** for Compete, a 1v1 quiz platform handling **10M+** matches and **1.7M+** users annually
- Led backend development for Airlearn's **subscription** flows, integrating Google and Apple auto-renewable billing
- Gamified UnacademyX with Streak & XP features, significantly improving learner engagement across the platform
- Built **A/B experimentation** system that enabled controlled feature rollouts and data-driven content optimization
- Implemented near real-time MySQL to Redshift **replication** using **AWS DMS** to power key analytics and reporting
- Leveraged **AWS Lambda** to dynamically generate shareable user rating cards, achieving over **10K** monthly shares

PROJECTS

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

- Developed PINNs to model head-on vehicle crash dynamics predicting stress, velocity, displacement during impact
- Reduced simulation turnaround time by replacing **25-hr** Finite Element Method (FEM) runs with near instant results, achieving $\leq 18\%$ error compared to analytical and FEM baselines
- Applied **transfer learning** to adapt PINN models across structural variants reducing retraining efforts significantly

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

- Built full-stack web application to find compatible roommates based on **10+** users' lifestyle preferences and habits
- Implemented fast retrieval of top 20 compatible matches using Redis **ZSET**, enabling near real-time ranked results
- Designed background jobs that trigger on user preference updates to recompute compatibility scores and rankings

Wissenaire'21 - Node.js, Express, EJS, MongoDB

- Engineered web application for college fest handling event registrations, file submissions and payment workflows
- Processed **200+** registrations and **100K+** INR transactions via Instamojo APIs, ensuring secure payment handling
- Implemented campus ambassador system using Facebook Graph API to track shares and award engagement points

TECHNICAL SKILLS

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

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

Frameworks & Tools: Django, Express.js, Nest.js, Echo, TensorFlow, gRPC, Temporal

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