

# UDAY VALLABHANENI

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## Education

### M.S. in Computer Science

Indiana University Bloomington | Bloomington, IN

GPA: 3.77 / 4.00

August 2024 – Present

### B.Tech. in Computer Science and Engineering

VIT-AP University | Amaravati, India

GPA: 3.71 / 4.00

August 2020 – May 2024

## Work Experience

### Full Stack Developer; Founding Team

RiAI Capital Ltd

June 2025 – Present

San Francisco, California, Remote

- Pioneered an Amazon Bedrock risk/reporting system using AWS Lambda and Step Functions; drove down quality-control effort by 38% for RIA operations.
- Architected and launched onboarding microservices in Node.js and Java on Amazon EKS with Kafka and Postgres; sustained about 22,000 requests per minute using back pressure, retries, and circuit breakers, enabling same-day proposals.
- Established engineering standards linting, schema and contract validation, and testing; stabilized CI/CD pipelines and drove rollback incidents down by about 40%.
- Automated advisor onboarding across React and Node with Step Functions and EventBridge; shortened end-to-end time from 2.5 hours to 35 minutes using the Saga pattern.
- Led design reviews and pair-debugging sessions with three engineers; strengthened code reliability and cut post-deployment errors by 25%.
- Collaborated with compliance officers, AI/ML engineer interns, and the CEO to align system design with FINRA and SEC requirements; accelerated product approvals and reduced review turnaround by about 25%.

## Projects

### Personalized Commerce Platform (Angular Full Stack)

- Built an Angular (TypeScript) frontend with server-side rendering (SSR) and NestJS/Node.js APIs; in offline A/B on about 48,000 replayed sessions, increased add-to-cart by about 12% and checkout completion rate by about 5%.
- Pioneered data optimization through cache-aside with PostgreSQL and Redis, elevating data consistency across microservices, reducing related incidents by 2 per week, and improving on call escalations by 30%.
- Shipped Trie-based search auto-complete improving product discovery click-through by 15 percent.

### Ride-Sharing Dispatch Platform (Real Time)

- Developed a real-time React map with WebSockets and gRPC; in staged surge tests, brought 99th-percentile latency down by about 35%.
- Engineered consistent hashing and geospatial indexing (Redis GEO + PostGIS GiST); in staged load of about 30,000 requests per day, controlled failed requests by 18 percent and improved session stability.
- Built a priority-queue dispatch matching engine (min-heap with travel-time cost); lowered pickup ETA mean absolute error by about 12 percent on replayed trip traces.

### Enterprise AI Knowledge Assistant (Multi-Tenant SaaS)

- Delivered a Next.js frontend with role-based dashboards and Node + Go back-end with GraphQL; used Kafka-based Saga orchestration to cut time-to-knowledge by 70%.
- Designed multi-tenant storage on PostgreSQL + Amazon S3 with inverted indexes and Bloom filters; hardened release stability through observability and automated rollback, reducing deployment incidents by 35 %.
- Established role-based access control with OAuth2 and OpenID Connect (OIDC) using JWT and AWS KMS field-level encryption; passed internal audits with no critical findings.

### JIRA Software Clone (Angular)

- Refactored into lazy-loaded modules (Auth, Projects, Board) with route preloading; cut initial JavaScript by 38% (610 KB → 380 KB, gzipped) and improved FCP from 2.1 s to 1.3 s (Chrome 140, Lighthouse Slow 4G, 4× CPU, cold cache).
- Built a Kanban board with Angular CDK drag-and-drop and Akita; held 60 fps ( $\geq 92\%$  frames  $\leq 16$  ms) and kept p95 task create/update at 140 ms end-to-end with 150 ms RTT simulated; search/filter median 70 ms on 1,000 seeded tasks using memoised selectors and a 250 ms debounce.

## Technical Skills

**Programming Languages:** Python, Java, SQL, JavaScript, TypeScript, C, C++

**Frontend:** Angular, React, Next.js, HTML, CSS/SCSS, Bootstrap, Chart.js, D3.js

**Backend:** Node.js, Spring Boot, .NET, REST APIs, GraphQL, Apache Kafka

**Cloud & DevOps:** AWS (Amazon EKS, Step Functions, EventBridge, CloudFormation), Kubernetes, Docker, Terraform, BigQuery, CI/CD, Git, GitHub Actions, Vercel, Snakemake, Prometheus, Grafana

**Databases & Analytics:** SQL Server, PostgreSQL, MySQL, Redis, Snowflake, Pinecone, Tableau, Power BI

**AI/ML:** LLMs, RAG, Multi-Agent Systems, Transformers, RLHF, TensorFlow, PyTorch, JAX, Hugging Face

## Certifications

AWS Certified Solutions Architect

AWS Certified Developer Associate

Microsoft Azure AI Engineer Associate