# Prajwal Venugopal

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## Education

**Master of Science in Computer Science** — Aug 2024 – May 2026
*Indiana University Bloomington* — *Bloomington, IN*

## Work Experience

**Graduate Research Assistant** — Feb 2025 – Present
*Indiana University Bloomington* — *Bloomington, IN*

- Benchmarked distributed graph processing engines (Neo4j, TigerGraph, PuppyGraph, GraphFrames) across 5 real-world datasets containing 700M–1B+ edges by deploying and tuning clusters on Hadoop and HDFS
- Formulated and executed 20+ complex graph workloads, including multi-hop traversals, PageRank, and shortest-path queries, to evaluate system scalability, latency, and throughput
- Analyzed performance on graphs up to 255 GB and used data visualization to compare latency, throughput, and scalability trends supporting fraud detection, recommendation systems, and knowledge graph applications

**Software Engineer Intern** — Feb 2024 – Jul 2024
*Celstream Technologies* — *Bangalore, KA*

- Reengineered the Buckman web app using React, cutting page load times by 35% and enhancing responsiveness for 1,000+ daily users while ensuring cross-browser compatibility
- Coordinated with 5+ QA engineers and 2 product teams to automate testing, reducing regression issues by 30% and detecting 5+ performance bottlenecks
- Resolved 10+ critical bugs in live projects, decreasing error rates by 20% and improving user satisfaction scores

**DevOps Engineer Intern** — Aug 2023 – Oct 2023
*Verana Networks* — *Bangalore, KA*

- Accelerated CU service deployments by 40% by building CI/CD pipelines with GitHub Actions and shell scripting
- Integrated automated testing and monitoring into CI/CD workflows, improving deployment stability and uptime
- Executed integration and contract tests with PyTest in CI pipelines, improving validation accuracy by 30%

## Technical Skills & Certifications

**Languages**: Python, C, JavaScript, Typescript, HTML, CSS, SQL, NoSQL, Gremlin, Cypher
**AI/Machine Learning**: TensorFlow, PyTorch, Scikit-learn, Pandas, LangChain, AWS Sagemaker, Amazon Bedrock
**Big Data & Cloud**: Spark, Hadoop, HDFS, Delta Lake, AWS, Azure
**Databases**: PostgreSQL, MySQL, MongoDB, Neo4j
**DevOps & Web**: Docker, Kubernetes, GitHub Actions, CI/CD, Git, FastAPI, Flask, Node.js, Express.js, React.js
**Certifications**: AWS Certified AI Practitioner, Microsoft Certified Azure Fundamentals & Azure AI Fundamentals

## Projects

**AI Voice Agent** | *Python, PyTorch, FastAPI, LangChain, ChromaDB, BERT, OpenAI* — Oct 2025 – Dec 2025

- Built production-grade RAG-powered conversational AI for real estate acquisitions using LangChain, ChromaDB vector search, and fine-tuned DistilBERT, achieving 92% F1-score for intent classification while reducing inference costs by 97% compared to GPT-4
- Architected hybrid database system with PostgreSQL for analytics and MongoDB for transcripts, handling 100+ concurrent calls with sub-2s latency and real-time React dashboard tracking conversion rates and model drift

**Study Mate** | *React.js, Next.js, Node.js, Express.js, PostgreSQL, Postman* — Feb 2025 – May 2025

- Led an agile team to build a full-stack, cloud-native LMS with course creation, enrollment, resource sharing, and real-time chat dashboards, tested by 100+ users
- Implemented using React.js/Next.js, Node.js/Express.js + Socket.io, PostgreSQL, and Cloudinary with JWT auth, Postman tested APIs, and CI/CD on Render & Vercel

**Smoke Detection Pipeline** | *AWS, PySpark, SageMaker, Lambda, QuickSight* — Nov 2024 – Dec 2024

- Created a near-real-time smoke detection pipeline using AWS (S3, EC2, Lambda, SNS) and PySpark for ETL, anomaly detection, and IoT trend analysis, with operational metrics visualized through QuickSight dashboards
- Refined fire alarm prediction using SageMaker Autopilot, achieving high recall above 95% on held-out validation data while balancing false positives, and automating end-to-end deployment with S3 triggers and AWS Lambda