Dipen Kumar Maheshwari

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EDUCATION

University of Alberta   Edmonton, AB
Bachelor of Science Honors in Computer Science   Expected: May 2027

Relevant Coursework: Software Engineering, Data Structures & Algorithms, Relational Database Management, Machine Learning, Artificial Intelligence

EXPERIENCE

Machine Learning Engineer Intern   Jan 2025 – Present
SAP   Vancouver, BC

- Engineered a data pipeline in Python and Azure Databricks to process 38,000+ partner tickets, implementing fuzzy entity resolution to achieve over 95% sender identification accuracy.
- Cut initial ticket review volume by 85% by developing a semantic deduplication and sender frequency analysis system using Python and FAISS.
- Designed LLM-powered ticket categorization with GPT-4o/Gemini, LangChain, and Pydantic, combining with BERTopic modeling, projected to cut triage time by 60%.
- Architected Map-Reduce RAG pipeline using hybrid Python/LLM approach for document summarization, increasing summary accuracy by over 70%.
- Improved RAG retrieval precision by prototyping a multi-index ColBERT late-interaction search pipeline, increasing relevance on nuanced queries by 10-30%.

Software and Research Intern   May 2024 – June 2024
University of Alberta   Edmonton, AB

- Reduced development environment setup time by 50% by containerizing autonomous systems with Docker and Linux.
- Improved code maintainability and stability by refactoring core navigation systems in Python, C++, and ROS.
- Implemented Git and GitHub version control workflows, improving team collaboration and code quality.

PROJECTS

Hooked/ai | *FastAPI, TypeScript, Next.js, Python, Cohere API, Modal GPU, AWS S3, Inngest, SQLite* | **GitHub**

- Developed an automated podcast-to-short-form video conversion full-stack platform in Next.js and TypeScript, reducing video editing time by 95%.
- Architected a multi-stage AI pipeline for viral moment detection using Python, Cohere API, and WhisperX.
- Built serverless backend with Python, FastAPI, and Modal for GPU-accelerated video processing.
- Deployed an event-driven architecture using Inngest and AWS S3 for scalable storage and asset management.

Slacked - CI/CD Notifier | *Go, AWS (Lambda, API Gateway, SQS), AWS CDK, Jenkins* | **GitHub**

- Built a decoupled CI/CD notification microservice to automate real-time build status updates in Go.
- Deployed the serverless architecture by integrating AWS SQS between API Gateway and Lambda, ensuring zero notification loss through an automated Dead-Letter Queue (DLQ) retry mechanism.
- Provisioned cloud infrastructure using AWS CDK (Infrastructure as Code) and securely managed credentials with AWS Secrets Manager.

SpotLotto - Event Lottery System | *Java, Android Studio, Firebase, JUnit, Git, GitHub, XML, MVC* | **GitHub**

- Engineered a multi-role (user/organizer) Android application for a lottery-based event system using Java and Firebase.
- Led a 6-member Agile team, implementing real-time push notifications with FCM and achieving 50% test coverage with JUnit through TDD.
- Integrated Google ML Kit QR scanning with geolocation-based event registration to prioritize nearby attendees.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, Go, Java, C, SQL, HTML/CSS
Frameworks/Libraries: Next.js, React, Node.js, LangChain, Pandas, NumPy, Flask, PyTorch
Cloud & Tools: Git, GitHub, Docker, Azure Databricks, AWS, Firebase, PostgreSQL, MongoDB, Linux, GitHub Copilot, Jira
Concepts: Full-Stack Development, Backend Development, Frontend Development, RAG, Machine Learning, CI/CD, Cloud Computing, Agile, API Design