Abhishek A. Mishra

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Education

Georgia Institute of Technology
Master of Science in Computer Science — *August 2024 - Present*

The University of Texas at Dallas (Summa Cum Laude)
Bachelor of Science in Computer Science: GPA 4.0/4.0, Minor in Spanish — *August 2020 - May 2023*

Skills

Certifications: Microsoft Azure AI-900
Programming Languages: Python , Java , R , JavaScript , TypeScript , Unix.
AI/ML: LLMs (OpenAI, Anthropic, HF) , Transformers , PyTorch , TensorFlow , Scikit-Learn , MLFlow , OpenCV , XGBoost
Cloud/DevOps: Azure , Kubernetes , Docker , Grafana , Databricks , FastAPI
Data: SQL , MongoDB , Teradata , PostgreSQL
Frameworks: React , NextJS , Prisma

Work

American Airlines - Generative AI Team — Fort Worth, TX
Engineer · Python, Azure, OpenAI, FastAPI, Kubernetes, Docker — *July 2025 - Present*

- Used **FastAPI, Kubernetes, and Python** to build and deploy **scalable GenAI applications** at enterprise scale.
- **Engineered response generation** on a **generative AI** system that reduced customer support load by **12%**.
- Built and **pioneered** the use of **agents and agentic workflows** with **OpenAI** to deliver **LLM-as-a-judge** frameworks.
- **Increased** development throughput by **15%** by utilizing **ephemerals**, **DevOps pipelines**, and **Kubernetes**.
- **Introduced** cutting-edge **GenAI research** such as **GEPA** to the enterprise intiatives through **learning sessions.**
- Reduced **production issues** by **10%** by designing a modular, automated **integrated evals** that tested generation **reliability**.

American Airlines - ML and Data Platform — Fort Worth, TX
Associate Software Developer · Python, Azure, Kubernetes, Docker, MLFlow, Grafana — *July 2024 - June 2025*

- **Developed** an **Azure Key Vaults** automation increasing **ML development** by **10%** for all stakeholders.
- Enabled **ML teams** to deploy **Streamlit apps 90% faster** by building a **self-service automation**.
- Increased **monitoring by 80%** by building an **observability automation and dashboard** on **Grafana** to track compute usage on **Azure**.
- Saved the enterprise **$5,000/year** in compute savings by **optimizing** unproductive compute within **Azure**.

American Airlines - Operations Research — Fort Worth, TX
Associate Software Developer · Python, Java, Azure ML, Databricks, Teradata, SQL — *June 2023 - July 2024*

- **Developed** and deployed **NLP and LLM based models** on **Azure** for **feedback analytics** with a **90% accuracy**.
- Deployed a **NLP and LLM based model** on **Databricks** that **increased** business unit's **action rate** by **53%**.
- Trained a **BERT based topic modelling model** on **10k+ rows of data** to generate **40 actionable and unique topics** for business.
- Led the **refactoring** and **modernization** of a **commerical**, legacy ML application that **reduced** development time by **30%**.
- Worked in developing **ML-based pattern recognition** systems that helped improved **accountability metrics**.

Research (AI/ML)

Programming Assistant for Exception Handling with CodeBERT
ICSE'24 Research Publication · Research Professor: Tien Nguyen — *Jan 2024*

- Proposed **Neurex**, an exception-handling recommender that learns from complete code, accepts a given **Java code snippet**, and gives recommendations about exception handling.

Neural Exception Handling Recommender
ICSE'24 Poster · Research Professor: Tien Nguyen — *Jan 2024*

- Worked on a multi-tasking **large language model** that recommends what exception to give for a code snippet.

CS Research Lab for Professor Tien Nguyen — University of Texas at Dallas, Richardson, TX
Research Assistant · Python, Linux, MUDetect, Tmux, Maven, Ant, Java, Docker — *Jan 2023 - May 2023*

- Involved in setting up the experiments for **adaptive pre-training** for **CodeBERT** via span-based masked language modeling to enforce implicit learning of API-Usages.
- Involved in pre-training the **CodeBERT** with masked language modeling and **replaced token prediction**.
- Contributed to the research project on recovering API Fully-Qualified Names in Statically Typed Languages using **Deep Learning**