

# Ankit Kumar

AWS Certified Developer - Associate | Machine Learning Engineer

[akumar37@gmu.edu](mailto:akumar37@gmu.edu) | [Linkedin](#) | [Github](#) | [Portfolio](#)

**2+ years** of experience in **architecting end-to-end ML systems** and transforming complex challenges into scalable AI solutions. Demonstrated success in architecting **end-to-end ML systems** that drive efficiency and innovation, while **leading technical communities** and consistently delivering production-ready solutions that exceed performance benchmarks.

## EDUCATION

### George Mason University

Fairfax, VA

*Masters in Computer Science, Machine Learning Concentration*

August 2023 - May 2025

*Courses: Mining Massive Datasets with MapReduce, Advanced NLP, Machine Learning, Data Mining, Artificial Intelligence*

*Honors detail: GPA: 3.93/4.0*

## TECHNICAL SKILLS

**Machine Learning & AI:** PyTorch, TensorFlow, Scikit-learn, LangChain, Topic Modeling, NLP, LLMs, RAG, CUDA

**Data Engineering:** Python, SQL, Pandas, NumPy, Apache Spark, Data Preprocessing, ETL Pipelines

**MLOps & Cloud:** Docker, AWS, CI/CD, Git, Model Monitoring, Distributed Training

**Development:** TypeScript, React, REST APIs, Software Design Patterns

## EXPERIENCE

### George Mason University: Shehu Laboratory

July 2024 – Present

*Research Assistant*

Fairfax, VA

- **Developed** an advanced document analysis system using **PyTorch**, and custom **LLMs** to analyze international AI strategies, implementing **topic modeling (LDA)** and **KNN clustering** for strategic influence detection with **85% accuracy** while reducing analysis time by **40%** through optimized ML pipelines

### George Mason University Fiscal Services

August 2024 – January 2025

*Business Automation Developer*

Fairfax, VA

- **Designed and developed** an automated solution to handle deposit transactions, **saving 504 hours annually** by automating the data retrieval and placement. **Collaborated with business systems analysts** to analyze the daily transactions, identified key repetitive tasks, and **implemented an RPA solution** to streamline the process, thereby **enhancing operational efficiency** within the Student Account Office.
- Worked on **end-to-end development**, from **requirement gathering**, **preliminary risk analysis**, **business process redesign**, **development**, **UAT**, **deployment**, ensuring seamless integration and implementation of automation solutions across financial services.

### Accenture Pvt. Ltd

February 2021 – July 2023

*Packaged App Development Analyst*

Bangalore, India

- **Architected and deployed** end-to-end ML solutions for the "Value Insights Platform", implementing **regression models** and **predictive analytics** using **TensorFlow** and **PyTorch**. **Engineered robust data preprocessing pipelines** for large-scale financial datasets, improving data accuracy by **35%** and reducing processing time by **20%** while maintaining model performance at scale.
- **Drove** technology stack decisions by conducting in-depth **POCs** using modern frameworks (Ionic, Angular). **Implemented** custom financial analytics dashboards with **Chart.js**, achieving **35% improvement** in data interpretation accuracy and enabling data-driven decision making for Fortune 500 clients.

## PROJECTS

### Pylinguist | Python, NLP, Google Cloud Translation API, GPT-4, NLTK

November 2024

- **Developed** a multi-stage translation pipeline combining **keyword mapping**, **Google Translate API**, and **GPT-4**, **Claude AI** and **DeepseekAI** for translating Python code while preserving functionality, achieving **85% BLEU score** and **98% semantic similarity** through robust evaluation framework and syntax validation.

### Pattern-Exploiting Training (PET) Reproducibility Study | PyTorch, RoBERTa, Few-shot Learning, NLP

October 2024

- **Implemented and validated** Pattern-Exploiting Training (PET) for few-shot text classification, achieving **88% accuracy** on AG News dataset with only 100 training examples, matching original paper's results while introducing additional robustness analysis and model evaluation metrics.
- **Enhanced** the original implementation with **pattern contextualization** and **domain-specific optimizations**, conducting comprehensive error analysis and robustness testing showing model vulnerabilities under different perturbation types.

## ENTREPRENEURSHIP

### UniConnect (Startup Founder)

February 2024 - Present

*AI-Powered University Resource Platform*

*Mason Innovation Exchange*

- **Founded and leading development** of an AI-driven platform that revolutionizes university resource access, **selected** for Mason's Student Innovator Mastermind accelerator program from a competitive pool of startups.

## EXTRA-CURRICULARS

### Google Developer Group at George Mason University

August 2024 - Present

*Co-Lead*

Fairfax, VA

- **Founded and established** the first GDG chapter at GMU, **growing membership to 100+ students** through strategic outreach and engaging content focused on **ML/AI technologies**. **Led technical workshops** on RAG, LLMs, and emerging ML frameworks, achieving **90% positive feedback** and increasing student participation in ML projects by **40%**.