Ankit Kumar

AWS Certified Developer - Associate | Machine Learning Engineer

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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.
- **Enhanced** platform performance by optimizing **MEAN stack** architecture and ML pipeline integrations, resulting in **30% faster** response times. **Led** technical mentorship initiatives and established best practices for code quality, testing, and deployment strategies.

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.
- **Architecting** end-to-end ML pipeline using **Python**, **NLP**, and **LLMs** to process university data, implementing web scraping for data collection, and developing scalable infrastructure for natural language query processing.
- **Developing** full-stack application using **MEAN stack**, focusing on intuitive UI/UX while integrating robust backend services. **Leading** MVP development and establishing partnerships with multiple universities and local businesses.

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%**.