Ansh Riyal

Machine Learning Engineer | LLM Systems | Real-Time Agentic AI | Python | AWS

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Technical Proficiency

Languages: Python (Primary), C++, Java, R
ML/AI Frameworks: TensorFlow, PyTorch, Keras, Scikit-Learn, Hugging Face, LangChain
LLM Technologies: Prompt Engineering, Fine-Tuning (PEFT, Distillation, RLHF), RAG Pipelines, Generative AI
Infrastructure: AWS (SageMaker, EC2, S3), Azure, Docker, Flask, Django
Data Engineering: SQL, Spark, Hadoop, Dask, EDA, Statistical Modeling
Specialized: STT/TTS Systems, Multi-modal AI, Causal Inference, Time Series Analysis
Finance Tools: Bloomberg Terminal, Alpaca, PyAlgoTrade

Professional Experience

Machine Learning Engineer (Team Lead) | METY Technology, Virginia (Remote) | May 2024 - Present

- Engineer and refine core ML systems for prediction modeling using TensorFlow and PyTorch for production deployment
- Manage and streamline production environments on AWS EC2 and SageMaker, integrating S3 storage and SQL databases
- Host APIs with Flask and Django, achieving 80% reduction in processing time and 50% decrease in latency
- Develop and maintain agentic LLM-based systems for personalized health guidance using structured prompts and RAG pipelines
- Interpret and synthesize user log data to measure compliance with user plans and biological/psychological effects in partnership with top US and Canada Universities
- Oversee and coordinate three cross-functional teams on API management and product enhancements

GenAI Engineer | MyEdMaster LLC, Virginia (Remote) | Jan 2023 - April 2024

- Engineered agentic chatbot system for student testing, assessment and learning feedback - Virtual Adaptive Learning Assistant (VALA)
- Implemented Reinforcement Learning based prompt tweaking for changing technical depth, difficulty and subject matter alignment
- Customized learning plans for every user based on repetitive learning and testing patterns
- Beta tested with 50 students from grades 6-8 in MyEdMaster tuition services
- Platform being prepared for implementation in charter schools in California and Texas (projected 600+ students in 2 years)

Teaching Assistant + Grader | New York University, New York | Sept 2023 - Present

- Develop and facilitate multiple graduate and undergraduate courses for 450+ students at NYU Center for Data Science
- Subjects: Introduction to Data Science, Big Data, Principles of Data Science

Software Intern | Roinet Solutions Pvt. Limited, Gurugram, India | June 2021 - Aug 2021

- Conceptualized and programmed software for novel blockchain-based Internet of Things infrastructure

Academic & Research Projects

Impact of Multi-Modal Input for M&A Agreement Extraction | NYU Capstone | Sept 2023 - Dec 2023

- Utilized advanced transformer architectures and fine-tuned BERT models for M&A agreement extraction
- Implemented fuzzy matching algorithms and multi-modal inputs for enhanced accuracy
- Constructed automated end-to-end data pipeline with structured prompting templates
- Transformed data from existing document structures into standardized format preserving legal structure information

Modeling the Probability of Bank Loan Defaults | NYU Research | Sept 2022 - Dec 2022

- Analyzed and processed real-world dataset containing 1.2 million company records
- Predicted probability of loan defaults achieving AUC score greater than 0.8
- Executed data cleaning, feature engineering, selection and modification
- Explored modeling approaches from XGBoost, GBM to Neural Networks

Automated Code Generation Platform for ML Applications | Independent Research | Jan 2021 - Dec 2021

- Engineered automated deep learning model generation platform using PyTorch/TensorFlow
- Created model architecture with guided architectural visualizations
- Included preliminary EDA and modeling technique suggestions

Personal Projects

Dependency Web | Live: dependency-web.onrender.com | GitHub: github.com/ansh-riyal

- Agentic requirement creator tracking Python library version evolution
- Analyzes function usage and compatibility rather than imports
- Provides comprehensive dependency mapping for complex projects

AutoGraph | GitHub: github.com/ansh-riyal

- Interactive codebase mapping tool accelerating onboarding and system understanding
- Uses AST and semantic analysis for code comprehension
- Visualizes complex codebases for faster developer onboarding

Real-Time Recommendation System

- Scalable Spark + TensorFlow pipeline for user preference prediction
- Handles millions of interactions with optimized performance

Hybrid Quantum-Classical Neural Network

- Explored quantum-inspired architectures for faster training
- Improved accuracy on specialized tasks through hybrid approach

Education

Master of Science in Data Science | New York University, Center for Data Science | 2022-2024
GPA: 3.77/4.0
Coursework: Deep Learning, Natural Language Understanding, Machine Learning, Applied ML in Finance, Big Data, Optimization and Computational Linear Algebra, Probability & Statistics for Data Science

Bachelor of Engineering, Computer Engineering | University of Delhi, NSIT | 2018-2022
GPA: 8.33/10 (4.0/4.0 equivalent)
Coursework: Machine Learning and AI, NLP, Banking Methods, Mathematical Statistics, Numerical Methods, Modeling and Simulation

Publications

- Blockchain Tree Powered Green Communication (IEEE)
- Pairing Based Cryptography (Springer)
- Internet of Things and Blockchain (CRC Press)
- Fog Data Analytics (Springer)

Certifications

- **Bloomberg Certificate** (2024): Investment Types, Risk and Reward, Portfolio Management
- **NSE Academy Certified Investment Analysis Pro** (2021): Technical Analysis, Fundamental Analysis, Portfolio Management
- **Data Science & Machine Learning Coursework** (2021): Andrew Ng, IBM certifications