Nikhila Madhunala

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Professional Summary

ML Research Engineer skilled in deep learning, NLP, and recommender systems with expertise in Python, PyTorch, and Keras. Experienced in building scalable pipelines, deploying ML models, and mentoring teams while delivering measurable AI impact.

Education

Master's in Business Analytics
University of North Texas, Denton, TX – December 2024

Bachelor of Technology in Computer Science
CMR College of Engineering and Technology, India – August 2021

Technical Skills

Programming: Python, R, Scala, Java, C++, Keras, PyTorch, SQL, TensorFlow

Data Engineering: Data pipelines, distributed systems, model training

Databases: BigQuery, Snowflake

Cloud: Amazon Web Services (EC2, SageMaker), Google Cloud Platform (BigQuery), Azure

DevOps: MLflow, MLOps, CI/CD pipelines, containerization (Docker, Kubernetes)

Analytics/ML: Machine learning, deep learning, NLP, computer vision, reinforcement learning, A/B testing, recommender systems

Practices: Collaboration, communication, critical thinking, leadership, mentoring, observability, optimization, presentation skills, problem solving

Professional Experience

Machine Learning Research Engineer Intern
Next Era Path *Feb 2025 – Present*

- Faced limitations in existing text understanding systems that blocked product innovation. Researched and developed NLP models using transformers. Improved accuracy by 30% and enabled new product features for customer-facing apps.
- Mentored junior engineers on research and coding practices. Fostered a culture of experimentation and continuous learning. Improved team capability and overall output quality.
- Conducted fairness and explainability assessments on NLP models. Built trust with business leaders and ensured compliance with ethical standards.
- Presented research findings at internal seminars and external conferences. Boosted company's visibility and reputation in the AI community.

Machine Learning Research Engineer
Infosys (Client: Westpac) *Jan 2021 – Dec 2022*

- Tasked with optimizing training workflows for recommender and image models. Built deep learning pipelines with PyTorch Lightning. Cut training time by 35% while improving reproducibility.
- Partnered with product managers to run A/B tests for recommendation engines. Validated performance gains with statistical rigor. Drove a 10% increase in click-through rates.
- Implemented explainability techniques to ensure responsible AI deployment. Provided transparency for stakeholders and enhanced user trust in recommendations.

- Shared key research insights with leadership through clear, actionable presentations. Influenced roadmap and accelerated adoption of AI-driven features.

Machine Learning Research Engineer Intern
Powersoft Global Pvt Ltd *May 2020 – Aug 2021*

- Collaborated with data engineers to address unreliable data flow issues. Built scalable pipelines with Apache Spark and Kafka. Ensured reliable, low-latency delivery of training data.
- Deployed production models with MLflow and Kubernetes to support reproducible experimentation. Delivered seamless scaling for production-ready ML services.
- Integrated CI/CD pipelines for ML lifecycle management. Automated deployment and monitoring, improving efficiency across the team.
- Provided cross-functional training on observability and optimization practices. Enhanced reliability of deployed models and operational readiness.

Projects

Capstone: Predicting Vehicle Recalls from Complaint Data Aug 2024 – Dec 2024
Inherited fragmented data pipelines across AWS, Azure, and GCP that caused duplication of effort. Consolidated infrastructure into unified pipelines for training and deployment. Delivered a single platform that improved scalability and reduced maintenance costs.
Implemented CI/CD pipelines integrating Kubeflow and MLflow for continuous training and deployment cycles. Automated testing, validation, and release approvals. Significantly shortened model release cycles and increased business agility.
Drove adoption of observability practices by integrating monitoring with Prometheus and Grafana. Enabled teams to proactively track model drift and infrastructure health. Reduced time-to-detect and resolve issues, enhancing reliability.
Acted as a mentor for engineers transitioning into MLOps roles. Provided hands-on guidance in containerization, distributed computing, and cloud cost optimization. Built a knowledge-sharing culture that elevated overall technical maturity.