Anju Vilashni Nandhakumar

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Professional Summary

Machine Learning Engineer and Data Scientist with 3+ years deploying production AI systems using TensorFlow and PyTorch. Recent MS in AI graduate from Northeastern University (May 2025) specializing in Computer Vision, NLP, and Reinforcement Learning. Delivered 95%+ model accuracy, 40% performance improvements, and 30% operational efficiency gains across multiple domains.

Education

Northeastern University, Boston, MA — Sep 2023 – May 2025
Master of Science in Artificial Intelligence

SRM Institute of Science and Technology, India — Jul 2019 – May 2023
Bachelor of Technology in Computer Science and Engineering

Technical Skills

AI and ML: Machine Learning, Deep Learning, Model Training and Evaluation, Natural Language Processing, Computer Vision, Reinforcement Learning, Neural Networks, Statistical Analysis, Feature Engineering
Frameworks and Libraries: TensorFlow, PyTorch, Keras, Scikit-learn, OpenCV, Hugging Face Transformers, Pandas, NumPy, SHAP, LIME
Programming: Python, C++, Java, JavaScript, SQL
MLOps and Cloud: Docker, Kubernetes, AWS EC2, AWS S3, AWS SageMaker, CI/CD, REST APIs, Model Deployment
Development Tools: Git, Linux, Flask, Node.js, Jupyter, Streamlit

Work Experience

Machine Learning Engineer (Volunteer) — Sep 2025 – Present
Community Dreams Foundation, Boston, MA

- Engineered end-to-end ML pipelines using Python, TensorFlow, and PyTorch, achieving 87% average accuracy for donor prediction while reducing inference latency by 20% through model optimization
- Collaborated with cross-functional leadership to integrate ML solutions into 3 operational programs, improving decision-making efficiency by 30% through predictive analytics and automated reporting systems

Machine Learning Intern — Oct 2020 – Feb 2021
Jobdae, Bangalore, India

- Improved candidate-job match accuracy by 40% through Deep Learning ranking models and Predictive Analytics, implementing A/B Testing and model optimization techniques
- Built sentiment-driven recommendation engine using Natural Language Processing, increasing placement conversions by 25% and user engagement by 40%

Projects

VisAIble - Explainable Deepfake Detection *(EfficientNet-B0, Grad-CAM, LIME, PyTorch)* — GitHub

- Achieved 95%+ accuracy using fine-tuned EfficientNet-B0 with Grad-CAM and LIME explainability; deployed Streamlit web application for real-time media forensics verification with transparent AI decision-making
- Built end-to-end XAI pipeline with GPU acceleration and attention heatmap overlays for cybersecurity and content verification applications

Highway Navigation with Multi-Algorithm RL *(Rainbow DQN, A3C, Decision Transformer, PyTorch)* — GitHub

- Implemented Rainbow DQN, A3C, and Decision Transformer achieving 48.2 max reward on autonomous highway navigation with modular GPU-accelerated codebase featuring dueling networks and parallel A3C workers
- Developed production-ready RL pipeline with model checkpointing and evaluation metrics; deployed interactive Streamlit dashboard visualizing training curves across 200+ episodes

Explainable AI for Tumor Classification *(TensorFlow, Keras, Grad-CAM, SHAP)* — GitHub

- Achieved 91% accuracy and 0.97 AUC on histopathologic cancer detection using CNN with batch normalization; processed 96x96 pixel images supporting clinical diagnostic workflows
- Integrated SHAP and Grad-CAM visualizations for transparent model reasoning; deployed Streamlit application with real-time tumor prediction and automated diagnostic reporting