UMESH VANGAPALLY

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EDUCATION

Master's in Computer Science, Northern Illinois University (NIU) GPA - 3.8/4.0 | Aug 2023 - May 2025

Relevant Coursework: Machine Learning, Artificial Intelligence, Distributed Systems, System Development, Operating Systems, Complexity Analysis, Cloud Computing, Pattern Recognition, Compiler Design.

SKILLS

Languages and Databases:	Python, C++, Java, SQL, JavaScript, C, HTML5, CSS3, MySQL, relational databases
Tools and Platforms:	Tableau, Power Bi,Excel, Anaconda,AWS, GCP,Git ,Web scrapping,Agile
ML/AI Frameworks:	PyTorch, LLVM,TensorFlow, Scikit-Learn, XGBoost, Hugging Face Transformers
Cloud and Distributed Systems:	AWS, GCP, Metis, Docker, Kubernetes, Spark
Core Competencies:	Artificial Intelligence, Distributed Computing, Optimization, Data Science, Model Deployment,
CERTIFICATIONS	Generative AI, Large-Scale AI Systems, Federated Learning,Machine learning.

- AWS Certified Cloud Practitioner
- Certified in Azure AI Fundamentals
- Google cloud Essentials batch
- Udemy - Supply Chain Management
- GFG-Complete Machine Learning and Data Science Course

EXPERIENCE

Research Assistant – Federated Learning-NIU, *Illinois, United States* Sep 2024 - Present

- Developed AI models using Federated Learning with PyTorch and TensorFlow for fraud detection on large-scale medical datasets.
- Applied Min-Max Loss (AUC: 0.73) and Federated Deep X-Risk Optimization (AUC: 0.72), surpassing baseline BCE loss by 40%.
- Conducted analysis on multiple MNIST datasets, integrating advanced optimization techniques and statistical methods, while reviewing 15+ research papers to refine AI model performance, ensuring efficient training and model scalability.

Undergraduate Teaching Assistant-VMEG, *Telangana, India* Aug 2022 - Mar 2023

- Mentored 40+ undergraduate students in Python, R, and SQL, focusing on machine learning platforms, relational database querying, data structures, algorithms, and object-oriented programming for large-scale distributed computing.
- Conducted hands-on workshops on debugging techniques, code efficiency, and system optimization, enhancing students' ability to write scalable, fault-tolerant software solutions with 25% faster troubleshooting speed.

Software Development Engineer Intern-Mapping Tech labs, *Telangana, India* Jul 2022 - Aug 2022

- Developed an e-commerce platform for bicycle aggregation, integrating brand listings, price comparisons, and filtering features, enabling seamless user experience and increasing search efficiency by 40%.
- Engineered scalable backend services using RESTful APIs and relational databases, optimizing data retrieval speeds and reducing query latency by 25% using Python. This ensured efficient processing of user queries.

Cloud Computing Intern-Google Cloud Skills Boost, *Telangana, India* Mar 2021 - May 2021

- Engineered a scalable, fault-tolerant, cost-efficient storage solution using Python and cloud-native technologies within decentralized architectures, leading to a 40% reduction in overall storage expenses while enhancing data retrieval speeds across large-scale networks.

PUBLICATIONS

- Public Sentiment to Gauge Key Stock Events and Volatility in Conjunction with Time and Options Premiums. [**arXiv**] Feb 2025
- Eyeball Cursor Movement using Deep Learning., Volume 12, Issue XI. [**IJRASET**] Nov 2024

PROJECTS

Stock Volatility Prediction Using Public Sentiment and Financial Data - NIU Sep 2024 - Dec 2024

- Crafted advanced stock forecasting models using Python and sophisticated algorithms, utilizing NLP-based sentiment analysis from Reddit and Yahoo Finance alongside quantitative metrics; analyzed over 50,000 financial data points to achieve a 70.1% predictive accuracy.
- Executed sentiment analysis for market insights by employing advanced transformer models (RoBERTa, FinBERT), analyzing over 10,000+ posts from Reddit and Yahoo Finance to uncover key trends affecting earnings reports.

U-Net Model for Lung and Infection Segmentation - NIU Oct 2024 - Dec 2024

- Spearheaded initiatives as the most junior team member to integrate AI-driven systems for healthcare, leveraging NumPy, Pandas, and Matplotlib to process and visualize medical imaging data. Focused on precise disease detection via advanced image analysis techniques, achieving an 85% accuracy rate in lung infection diagnostics.
- Streamlined computational workflows on the Metis GPU server using CUDA, processing 2112 CT scan images and accelerating project timelines by three weeks while enhancing model inference speed for real-time medical diagnostics by 40%.

Eye Ball Cursor Movement Using Deep Learning - VMEG Aug 2022 - Apr 2023

- Facilitated seamless interaction between users and devices by implementing cutting-edge Eye Aspect Ratio (EAR) detection methods using deep learning ,machine learning and computer vision techniques within a AI-controlled cursor system processed from over 6,000 carefully curated eye images, enhancing mobility independence.

LEADERSHIP & AWARDS

Graduate Research Scholarship & Mentorship - NIU Sep 2024 - Presnt

- Recipient of a **75% tuition waiver** and **biweekly stipend** for **academic excellence** and contributions to **AI/ML research** as a **Research Assistant**.
- Active **ISA Member**, demonstrating **leadership qualities** through collaboration, mentorship, and engagement in academic and professional development activities.