PARAS PARANI

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EDUCATION

Masters Of Science - Computer Science **May 2025**
Florida International University; Miami, FL, USA
GPA: 3.83/4.0

Bachelor of Technology - Mechatronics **July 2022**
Symbiosis University of Applied Sciences; Indore, India
GPA: 3.71/4.0

SKILLS

Machine Learning & Deep Learning: Vision Transformers, Reinforcement Learning, HuggingFace, LLMs, Neural Networks, NLP, spaCy, PyTorch, TensorFlow, Explainable AI (XAI), Weights and Biases, PEFT, Accelerate, Captum, LangChain
Programming: Python, Bash, CUDA, C++
Software Engineering: Django, REST APIs
Advanced Courses: Advanced Topics in Machine Learning, Operating Systems, Mobile and Wireless Networks
High-Performance Computing: SLURM (Simple Linux Utility for Resource Management), Kubernetes
Cloud & Infrastructure: AWS, Azure

PUBLICATIONS

P. Parani, U. Mohammad and F. Saeed "Lightweight Transformer exhibits comparable performance to LLMs for Seizure Prediction: A case for light-weight models for EEG data" accepted to the **2024 IEEE International Conference on Big Data** workshop HPC-BOD (Link)

P. Parani, U. Mohammad and F. Saeed "Utilizing Pretrained Vision Transformers and Large Language Models for Epileptic Seizure Prediction" accepted to the 8th International Conference on Data Science and Machine Learning Applications (CDMA 2024) (Link)

EXPERIENCES

Florida International University | Miami, FL, USA **May 2024 - Present**
Graduate Research Assistant

- Fine-tuned Vision pretrained Transformers and LLMs, achieving a 15% accuracy improvement in seizure prediction
- Designed lightweight transformer models for EEG data, improving accuracy by 5% over fine-tuned LLMs
- Developing a multi-modal model for Alzheimer's detection using images and time-series data
- Leveraged SLURM for distributed system management, reducing training time by 20%
- Used Grad-CAM, SHAP, and attention map visualizations for explainability and detailed model analysis

Ignatiuz Software Pvt Ltd | Indore, India **September 2021 - July 2023**
Senior Associate

- Led a team of 2 to successfully revamp the Scoutfoto project, delivering a more efficient and scalable platform
- Developed the backend architecture and designed the database structure, optimizing data storage and retrieval
- Designed and implemented scalable Django-based APIs, ensuring seamless integration and enhanced functionality
- Deployed the platform on Azure, achieving an 80% improvement in operational efficiency and system reliability

PROJECTS

ESPFormer: Lightweight Transformer for Seizure Prediction **October 2024 – November 2024**

- Developed a lightweight transformer-based model for **real-time inference**, achieving accuracy improvements **of 2.65% over LLMs, 3.35% over ViTs,** and **17.65% over ResNets** on 4/12 benchmarks.
- Validated model on large-scale datasets, showcasing **computational efficiency** and suitability for **production environments**

UtilLLM_EPS | GitHub Link **August 2024**

- Preprocessed EEG data for compatibility with ViTs and LLMs, enhancing seizure prediction accuracy by 15%
- Optimized model performance through hyperparameter tuning and tracked experiments with Weights and Biases