GAURAV MOLUGU

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EDUCATION

Carnegie Mellon University   Pittsburgh, PA
Master of Science in Artificial Intelligence Engineering   December 2024
- CGPA: 4.0/4.0
- Selected Coursework: Intermediate Deep Learning, Fundamentals of Programming for Engineering Systems, ML AI for Engineers

Indian Institute of Technology, Madras   Chennai, India
Bachelor's and Master's of Technology Electrical Engineering   August 2021
- CGPA: 8.06/10
- Selected Coursework: Advanced Topics in Signal Processing, Introduction to Machine Learning, Process Optimization, Mathematical Foundations for Data Science

HONORS

Carnegie Mellon University   Pittsburgh, PA
- Awarded the Civil and Environmental Engineering merit scholarship and Harold A. Thomas tuition scholarship

SKILLS

Programming Languages: Advanced - Python; Intermediate - R, Matlab, BasH; Beginner - Rust
Tools: PyTorch, Tensorflow, Keras, Linux, Git, SQL, Scikit-learn, Pandas, OpenCV, NLTK, ESPnet, Google Earth Engine

RESEARCH EXPERIENCE

Indian School of Business   Hyderabad, India
Research Associate in Information Systems   September 2022 - June 2023
- Contributed to the development of an advanced recommendation system utilizing NLP to streamline job applications by effectively matching applicant skills with job descriptions
- Led research to develop a novel NLP-based gauge for patent innovation, ensuring its reliability through rigorous analysis and validation against existing literature

Indian Institute of Technology, Madras   Chennai, India
Research Associate in Ecohydrology Lab   August 2021 - July 2022
- Fine-tuned a Deep Learning (DL) model to perform a 2D image segmentation of plant parts with 99.7% accuracy
- Implemented and trained a DL pipeline from scratch to generate 3D image reconstruction of plant parts leveraging segmented multi view 2D images

ACADEMIC AND RESEARCH PROJECTS

Carnegie Mellon University   Pittsburgh, PA
Mimicking price action in stock trading   Aug 2023 - Present
- Engineered an end-to-end pipeline responsible for seamless automatic updating of a transformer neural network. This network was specifically trained to forecast individual two-week stock trends within Nifty
- Improving upon baseline of 0.6 MAPE and driving efforts to enhance model's capabilities to update in real-time and for constructing a mid-frequency options strategy focusing on Nifty

Personal Project in collaboration   Remote
Low dimensional representation of Neural Activity   July 2022 - Present
- Formulated and implemented transformer-based low-dimensional embeddings, showcasing a 35% performance enhancement over baseline SVM and a 7% improvement over auto-encoder in downstream classification tasks

Indian Institute of Technology, Madras   Chennai, India
Machine Translation and Speech Recognition for Indian Languages   May 2020 - July 2021
- Developed and validated multiple Machine Translation models for an Indian language, resulting in a substantial 27% enhancement of baseline BLEU score
- Experimented with two transformer architecture to build a universal speech recognizer for multilingual speech

Indian Institute of Technology, Madras   Chennai, India
Hyper local spatio-temporal PM2.5 estimation   Dec 2019 - May 2020
- Researched the utilization of Convolutional LSTMs to model PM 2.5 concentration data obtained from a mobile low-cost sensor network, emphasizing high spatio-temporal resolution
- Attained training accuracy of 57% and test accuracy of 50% by utilizing computer vision models with modest complexity and performing time series analysis on limited data points