S. VIGNESH KUMAR PANDIAN

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EDUCATION

Masters in Computer Science **2023 - Expected 2025**
Georgia State University GPA - 4.26 out of 4.0

SKILLS

Languages	Python(Adv.), C(Int.), R(Beg.), C++(Adv.), Java(Adv.), Julia(Beg.)
Frameworks & Libraries	Tensorflow, Keras, Pytorch, Django, Flask, MLflow, Numpy, pandas, sklearn
Machine Learning	Deep Learning, GAN, NLP, Computer Vision, Transformers, Diffusion Models, LLMs, CNN, RNN, LSTM, Autoencoders, SVM, Decision Tree, Ensemble Learning
Cloud	AWS, GCP, Azure, Docker, Kubernetes
Miscellaneous	Data-mining, PostgreSQL, Probability, Statistics, Fuzzy logic, Rough sets, Git, CI/CD, Spatial DBMS, POSTGIS

WORK EXPERIENCE

Graduate Research Assistant - Georgia State University `Jan 2024 - Present`
Developed and implemented several Auto-encoder models(including fourier neural operator based AE) for representation learning of sparse speckle data for atmospheric turbulence detection utilizing standardised reporting framework, resulting in improved visibility of key performance metrics and data driven decision making.

Senior Officer - GAIL India Ltd. `Sept 2021 - Jul 2023`
Responsible for application development and created 10+ applications. Created multi-threaded script to automate the process of checking network devices reducing time from 2+ hrs to 12 seconds.

SDE Intern - Amazon `May 2020 - Jun 2020`
Responsible for developing dashboard for hierarchical resource utilization (AWS and non-AWS).

PROJECTS

Adaptive Diffusion with Cross-Domain Consistency Regularization: Implemented transfer learning for domain adaptation with adaptation layers to fine-tune diffusion models with minimal target domain data.
Fourier Vision Transformer: Implementing a Vision Transformer in the Fourier domain can aid in extracting patterns in the frequency domain. This approach can be valuable in medical image processing, facilitating the detection of subtle changes in images.
Time Dependent Page Rank Algorithm: Modified Pagerank algorithm on word graph to incorporate the volatility of terms at each time slice to calculate dynamic page rank values.
Image Re-colorization using GAN: Converting gray-scale image to RGB using MLPGAN, StyleGAN and DCGAN using CIELAB color format and Autoencoder for representation learning of latent dimensions.
Assistive Vision: Created a project to help the visually impaired, utilizing Transfer Learning on RESNET50 model trainned on Imagenet and the fine tuned on Flickr30K dataset, and made a multi-modal model combined with NLP, to identify obstacles in an image and provide audio descriptions, using text to speech API, of the obstacles to assist mobility
Pathfinder using Reinforcement Learning: Pytorch project using Kivy and Q-learning (Bellman Eqn.) to navigate a grid containing obstacles.
Volunteer Allocation System: Created E-M algorithm for skill based volunteers/first responders allocation in times of disaster to requesters in need of those skills. Volunteers could offer skill to multiple people and people may be allocated multiple volunteers.

RESEARCH PAPERS

AMOS Conference 2024 - Representation learning of Sparse speckle data for atmospheric turbulence detection

CERTIFICATIONS

Udemy: (Docker & Kubernetes)
Coursera: Deep Learning Specialization, Python Specialization