PRAHLAD ANAND

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EDUCATION

The Johns Hopkins University 2024 – Present
Master of Science in Engineering, Computer Science

Vellore Institute of Technology, Vellore, India 2020 – 2024
Bachelor of Technology, Computer Science and Engineering **GPA: 8.86/10.0**
Coursework: *Machine Learning, Natural Language Processing, AI, Applied Linear Algebra, Predictive Analytics*

Test Scores **GRE: 335/340, IELTS: 8.5/9.0**

EXPERIENCE

AI and Robotics Lab, Department of Aerospace Engineering, Indian Institute of Science, Bangalore, India
Research Intern 01/2024 – 06/2024
- Introduced a Semi-supervised RGB-to-IR Image-to-Image Translation Generative Adversarial Network to generate IR images from RGB images.
- Models trained on images generated by the network consistently outperform those trained using other image translation (I2I) networks in downstream tasks (segmentation and detection) by as much as 8.3%.

Research Intern 05/2023 – 07/2023
- Boosted the accuracy of benchmark object detection frameworks (Yolo, RCNNs) by up to 7% on EO-IR datasets through image fusion approaches and data augmentation using supervised generative image translation.
- Introduced super-resolution into the image augmentation pipeline to further improve accuracy by 5%.

Research Intern 05/2022 – 07/2022
- Improved the accuracy of multiple CNN models (VGGNet, ResNet) on multi-modal aerial image classification by 7.5% using data augmentation and hyperparameter tuning.

PUBLICATIONS

Sikdar, A., Saadiyean, Q., ***Anand, P.,*** *Sundaram, S. (2024).* ***SSL-RGB2IR: Semi-supervised RGB-to-IR Image-to-Image Translation for Enhancing Vision Task Training in Semantic Segmentation and Object Detection.*** *IROS.*

Anand, P., *Saadiyean, Q., Sikdar, A., N., Nalini, Sundaram, S. (2024).* ***Supervised Image Translation from Visible to Infrared Domain for Object Detection.*** *arXiv preprint.*

SELECTED PROJECTS

Product Recommendation System
- Implemented a system to create a dataset on the fly using web scraping and recommend products based on images, titles, and brand information according to user choice.
- Used a CNN as a feature extractor to compute image similarity, using NLP techniques including stopword removal for pre-processing and cosine similarity together with a count vectorizer to compute brand/title similarity.

Intrusion and Email Phishing Detection using Machine Learning Models
- Performed hyperparamater tuning using ROC-AUC curves and cross-validation, achieving a detection accuracy of 99.738% on the benchmark NSL-KDD dataset.
- Compared decision tree models augmented with pruning, Adaboost, nearest neighbors and support vector machines and achieved a peak accuracy of 99.79% with a polynomial kernel SVM for email phishing detection.

ACTIVITIES

- Reviewer, IROS 2024.
- Trainee in Particle Physics at CERN, Geneva (2019)

LANGUAGES

English (Expert), French (Intermediate), German (Basic), Hindi (Intermediate), Tamil (Basic)

SKILLS

Python, PyTorch, TensorFlow, C/C++, Java, HTML/CSS, JavaScript, PHP, SQL, Linux