Tejoram Vivekanandan

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EDUCATION:

UNIVERSITY OF WASHINGTON, SEATTLE, WA **Sep. 2022 – Dec. 2024**

Master of Science in Electrical Engineering (Specializing in Computer Vision) GPA: 3.86/4.0

Coursework: *Computer Vision, Statistical Learning, AI for Engineers, Probability and Random Processes, Data Visualization*

COIMBATORE INSTITUTE OF TECHNOLOGY, COIMBATORE, INDIA **Aug. 2016 – Oct. 2020**

Bachelor of Engineering in Electronics and Communication Engineering GPA: 8.66/10.0

Relevant Coursework: *Robotics, Digital Image Processing, Data Structures & Algorithms, C Programming, Programming in JAVA*

SKILLS:

PROGRAMMING LANGUAGES: Python, MATLAB, C/C++

FRAMEWORKS: Pytorch, Tensorflow, Keras, JAX, Hugging Face, Sci-kit Learn, OpenCV, Stable- Baselines, Tableau, Matplotlib

TOOLS: Git, Azure ML, AWS, Docker, Bash, Linux, ROS, Gazebo, Pybullet, Open AI Gym, MuJoCo, COLMAP, Open3d

EXPERIENCE:

GRAIL Lab – Paul G. Allen School of CSE | Research Assistant | U of W Seattle, WA **Sep. 2023 – Dec. 2024**

- Research Topic: "Multi-Modal Multi-Agent System for Medical Diagnostic Decision-Making" arXiv (ICCV'25)
- Developed and implemented a multi-agent system to navigate WSI images, simulating the behaviour of histopathologists across various spatial dimensions, zoom levels, and resolutions.
- Leveraged Large Language Models (LLMs) to automatically generate medical diagnosis reports from ROIs extracted by the agents.

Radius AI | Machine Learning Engineer | Bellevue, WA **Jan. 2023 – June 2023**

- Research Topic: "Photo-realistic synthetic Image generation"
- Enhanced object detection model performance by leveraging pix2pix, GAN and NeRF to increase dataset variability.
- Implemented an end-to-end pipeline for retail product checkout scene, which improved mAP of object detection by 12%.

Robotics Lab – Paul G. Allen School of CSE | Research Assistant | U of W Seattle, WA **Sep. 2022 – Mar. 2023**

- Research Topic: "Object shape completion for occlusion"
- Worked on an object grasping project funded by Amazon Robotics to automate warehouses.
- Used masked autoencoders to predict the shape of regions occluded by other objects.
- Implemented multi-frame instance segmentation for object tracking.

Computational Imaging Lab – Indian Institute of Technology, Madras | Project Associate | India **Sep. 2021 – Aug. 2022**

- Research Topic: "Restoring extreme dark night-time images and Stereo depth estimation for Autonomous Vehicles"
- Developed a neural model which enhances low light images of 2-5 lux.
- Performed stereo rectification, disparity estimation and optical flow estimation.
- Detected salient objects in low light Light-Fields using domain adaptation.

NASA – Jet Propulsion Laboratory | Research Intern| Pasadena, California **Sep. 2020 – Sep. 2021**

- Research Topic: "Correlation between color changes in Jupiter's storm "Oval BA", cloud heights and ultraviolet exposure"
- Implemented an algorithm for image processing pipeline automation which processed data of more than two decades.
- Used Nodding technique to suppress the background emission of the Jupiter sky.
- Obtained ground-breaking results with a correlation of 92.44% applying Minnaert function which validates that Oval BA storm's color changes are due to cloud heights.

Indian Space Research Organisation | Research Intern| Hyderabad, India **Nov. 2019 – Aug. 2020**

- Research Topic: "Shadow detection and Radiometric restoration in VHR Satellite Imagery"
- Detected and restored shadows of Cartosat -2E satellite images using Color Invariant Index and Variance.
- Implemented region-based image segmentation and achieved average restoration accuracy of 96%.