Bhargav Hegde

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Graduate Machine Learning Engineer with 3+ Years of Experience, Specializing in Autonomous Systems and Deep Learning

Education

State University of New York at Buffalo, Buffalo, NY Aug. 2024 – Present
Master of Science in Computer Science and Engineering
Research Associate in CAVAS Lab (Connected and Autonomous Vehicle Applications and Systems) - ongoing research on real-time 3D perception and networking using LiDAR

JSS Academy of Technical Education, Bangalore, India Aug. 2016 – Aug. 2020
Bachelor of Engineering in Computer Science and Engineering
Initiated and **secured funding for an IoT** lab and conducted instructional sessions for junior students.

Professional Experience

Tech Mahindra, Software Engineer Nov. 2021 – Jul. 2024
Developed automation scripts using Robot Framework, applying data pattern recognition via Wireshark for system performance optimization.
Enhanced IEEE 802.11mc technologies with ML-based Wi-Fi RTT for precise locationing and trained global teams on implementation.

Tata Consultancy Services, System Associate Engineer Apr. 2021 – Oct. 2021
Python-based RESTful APIs to optimize data pipelines, enhancing processing and storage efficiency for client reporting.

Teqed Labs, Intern 2019
Developed an innovative Attendance System leveraging Computer Vision and Deep Learning for face recognition and database management.
Awarded 'Best Project' for delivering an impactful, high-quality solution.

Experts Hub, Intern 2018
Built and deployed a machine learning pipeline to classify plant and seedling images with an accuracy of 92%, optimizing species recognition for a dataset of 10,000 images.
Led and mentored a team of 8 members, effectively coordinating tasks to ensure the successful completion of the project, **earning the 'Best Intern' award** for exceptional performance and contributions.

Academic Projects

Ongoing Research - Autonomous Vehicle 3D Perception System (PyTorch, CUDA, ROS2, LiDAR)
Designed and implemented a real-time 3D object detection system, developing a CenterPoint-based algorithm with PyTorch and CUDA to achieve high accuracy.
Integrated with Ouster LiDAR for real-time object detection in dynamic environments, improving autonomous vehicle perception.

Garbage Segregation Robot (Python, YOLOv3, CNN, Raspberry Pi, OpenCV)
Designed a robotic waste segregation system using YOLOv3 and CNNs, achieving 90% garbage classification accuracy.
Automated waste sorting and placement, with funding secured from the Karnataka State Council for Science and Technology (KSCST).

Advanced Machine Learning (PyTorch, Gymnasium, Reinforcement Learning)
Developed custom Gymnasium-compatible environment achieving 90%+ policy convergence through implementation of SARSA and n-step Double Q-learning algorithms.
Designed and implemented CNNs from scratch using PyTorch, achieving 87% accuracy on complex image classification tasks while optimizing VGG-13 and ResNet-34 architectures.

Laser Shooter Using Object Detection (Python, OpenCV, Raspberry Pi, Servo Motors)
Built a real-time object tracking system with OpenCV on Raspberry Pi, implementing computer vision algorithms for precise detection.
Integrated servo motors for accurate laser targeting, optimizing model performance for dynamic scenarios.

Technical Skills

Machine Learning Frameworks: PyTorch, TensorFlow, OpenCV, YOLOv3, CNNs
Programming & Tools: Python, C/C++, JavaScript, SQL, Git, Docker, Linux, AWS, Azure, ROS2
Data & Optimization: CUDA, real-time object detection, model optimization, data pipelines, system integration