SANTOSH VASA

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EDUCATION

Northeastern University, Khoury College of Computer Sciences Boston, MA
Master of Science (GPA: 3.9/4.0) May 2023
Teaching Assistant - Natural Language Processing, Computer Vision (Graduate Courses)
Related courses: Advanced Perception, Machine Learning, Algorithms, Artificial Intelligence, Computer Vision, Design Patterns

Jawaharlal Nehru Technological University Hyderabad, India
Bachelor Of Technology (GPA: 8.73 / 10) April 2019
Related courses: Image Processing, Web Programming, Data Structures - C, OOP - Java, Computational Mathematics

TECHNICAL KNOWLEDGE

Languages : Python, Java, C++, SQL, Bash Shell
Libraries/Frameworks : TensorFlow, PyTorch, SciKitLearn, Keras, OpenCV, GIT
Artificial Intelligence : Computer Vision (CV), Natural Language Processing (NLP), Deep Learning (DL), Neural Networks, Sequence Models, Generative Adversarial Networks (GANs), Reinforcement Learning (RL), Machine Learning (ML), Robotics
Certification : Deep Learning Specialization by deeplearning.ai

WORK EXPERIENCE

MERCEDES BENZ R&D NORTH AMERICA, INC Sunnyvale, CA
Machine Learning Research Intern – World Understanding August 2022 – Jan 2023

- Worked to improve existing HD Map free lane connectivity estimation and lane detection system.
- Developed novel training methods, loss functions, metrics and improved the system's performance significantly.
- Profiled the existing system and found ways to speed up training by almost 10x.
- Research on 3D object detection such as detection transformer networks with sensor data sources.
- Filed four utility patents in the field of perception and IoT.

CDW CORPORATION Chicago, IL
Artificial Intelligence Engineering Intern – Data Engineering May 2022 – August 2022

- Building data pipelines for AI systems using PySpark, Hive and SQL.
- Converted legacy PIG scripts to PySpark and built AI data pipelines using Hive.

WIPRO LTD. Bengaluru, India
Software Engineer II - Deep Learning October 2018 - August 2021

- Developed CV and NLP projects extensively with TensorFlow, PyTorch, OpenCV, Keras and deployed then on various Microprocessors, and Microcontrollers (Raspberry Pi, NodeMCU, Neural Compute Stick (NCS))
- The challenges required reading innovative novel research material on deep learning issues, followed by inferring and applying the findings to the actual world.
- Built a GUI application that collects and organizes face image data using unsupervised learning algorithms.
- Modified the face recognition system to house a custom model that is 27x smaller in memory and 4 times faster in inference speed compared to the original model.
- Re-purposed the existing codebase to make long-range surveillance mask detection. The system incorporated a highly accurate Retina-Face face detector designed to detect small and low-resolution objects (faces)
- Built configurable facial attribute GANs that generate or erase facial attributes such as beard, mustache, hair, sunglasses from an input face image.

PROJECTS

3D OBJECT DETECTION ON LIDAR DATA Sunnyvale, CA
Northeastern University Nov 2022 - Dec 2022

- Transformed raw point clouds from the LYFT dataset into a bird's-eye view (BEV) representation using point cloud voxelization
- Developed a custom U-Net and formulated the task as semantic segmentation, then applied post-processing to retrieve bounding boxes.

DEPTH ESTIMATION USING UNCALIBRATED STEREO VISION Boston, MA
Northeastern University April 2022 - May 2022

- Created a calibrated and uncalibrated stereo setup using OpenCV.
- Built applications such as depth map estimation, 3D Video Recorder, 3D Reconstruction, Object Detection, and Obstacle Avoidance using PyTorch and OpenCV, utilizing the established stereo setup.