Navyasri Reddy Mallu

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Education

Arizona State University August 2022 – Present
Masters in Computer Science GPA: 4.0 / 4.0

International Institute of Information Technology, Hyderabad August 2014 – June 2020
B.Tech in Electronics, Communication & Engineering, MS by Research in ECE GPA: 3.68 / 4.0
Advisor: Vineet Gandhi (IIIT-H)

Publications

Tidying Deep Saliency Prediction Architectures, IROS 2020
Navyasri Reddy, Samyak Jain, Pradeep Yarlagadda, Vineet Gandhi

Experience

Graduate Services Assistant, ASU Tempe, Arizona, Jan 2023 – May 2023
- Developed a sample-efficient approach for training language-conditioned manipulation policies, integrating hierarchical modularity and supervised attention, resulting in improved transferability across various robots under the guidance of Prof. Heni Ben Amor.

Senior Associate, Capital One Bangalore, India, Sept 2020 – July 2022
- Worked towards building code parser tool to detect vulnerabilities in the existing projects by parsing over 1000 java projects.
- Leveraged CodeQL, Java parser to parse the code and built on top of it to get API urls, payload and deviations.
- Worked on building APIs for Customer Navigator Application, An NLP based search tool on user call data to agents. Able to get results from a dataset consisting 10 million records.

Research Assistant, IIIT Hyderabad Hyderabad, India May 2018 – July 2020
- Developed simplified, novel end-to-end architectures for saliency estimation, bridging the gap between machines and human visual cognition.
- Achieved state-of-the-art performance on the largest saliency benchmark using "SimpleNet," an optimized encoder-decoder architecture with an accuracy of **90.7**%.
- Introduced "MDNSal," a parametric model that enhances interpretability of prediction maps and achieved **real-time** performance at 25 frames per second.

Software Engineering Internship, Samsung R & D Bangalore, India, May 2018 – July 2018
- Developed and implemented Chained Allocator, an efficient memory management module, optimizing fast and small-sized memory allocation.
- Designed allocation strategies and implemented memory deallocation cases, minimizing memory wastage and improving overall memory utilization.

Projects

3D Models Capture System **Bachelor's research**, May 2016 – Apr 2018
- Developed a 3D human model capture system using Microsoft Kinect cameras, implementing calibration techniques to merge point clouds from multiple cameras.
- Successfully implemented a data-driven approach to capture and reconstruct 3D human models, leveraging skeleton-based models for parameter extraction from images.
- Expanded the project to generate 3D human models from images using stick shape figures, training a parameterized 3D model for accurate reconstruction.

Dense Optical flow Prediction From Static Image Statistical Machine Learning in AI, Aug 2016 – Nov 2016
- Implemented an advanced deep learning model for optical flow prediction without the need for human labeling, achieving accurate motion predictions based on scene context.
- Utilized the HMDB-51 dataset and implemented the K-means clustering algorithm to obtain 40 clusters for classification, achieving a prediction accuracy of **81%** with 20 epochs.

Reflection removal of images using ghosting cues Digital Image Processing, Aug 2016 – Nov 2016
- Implemented an innovative approach for reflection removal in digital images using ghosting cues and convolutional modeling, resulting in enhanced image quality.
- Utilized advanced techniques such as autocorrelation analysis, spatial shift vector estimation, and Gaussian Mixture Models (GMM) priors to achieve accurate separation of reflection and transmission layers, leading to superior image reconstructions.

Camera Model Identification from Images Independent Study, Aug 2017 – Dec 2017
- Developed and implemented an algorithm for camera model identification using machine learning, image processing, and signal processing techniques, achieving accurate classification of images based on camera models with an accuracy of **90.88%**.
- Conducted extensive experimentation and fine-tuning of the algorithm to optimize its performance and ensure robustness in handling diverse image datasets. Implemented various preprocessing techniques and feature extraction methods to enhance the accuracy and efficiency of the camera model identification system.

Skills

- **Programming Languages**: C, C++, Python, MATLAB
- **Frameworks, Libraries and APIs**: PyTorch, TensorFlow, Keras, Scikit-Learn, OpenCV, Django

Courses

- Statistical Machine Learning in AI, Digital Image Processing, Computer Vision, Optimization Methods, Algorithms and Operating Systems, Computer Source Organisation, Mathematics, Artificial Intelligence, Digital Video Processing, Statistical Machine Learning, Data Mining, Data Visualization

Achievements

- Capital One FY2020 Q2 Award for novel contributions in code parser tool.
- Secured rank in top 0.5% among 1.5 million students in the year 2014.
- Obtained certificate of special mention for active participation in various events at IIIT Hyderabad.
- Sports Representative at IIIT Hyderabad in the year 2015-16 and organised different sports.