Pranav Kadam

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Education

University of Southern California Aug. 2020–May 2023 (expected)
Doctor of Philosophy (PhD), Electrical Engineering Advisor – C.-C. Jay Kuo *Los Angeles, CA*
Research focus – 3D point cloud analysis and compression

University of Southern California Aug. 2018–May 2020
Master of Science (Honors), Electrical Engineering GPA – 3.91 *Los Angeles, CA*
Relevant coursework – Multimedia Compression, Computer Vision, Machine Learning, Deep Learning

Savitribai Phule Pune University Aug. 2014–May 2018
Bachelor of Engineering, Electronics and Telecommunication GPA – 3.90 *Pune, India*

Research Experience

Sony Aug. 2022–present
Applied Research Intern *San Jose, CA*
- Immersive Media Compression

InterDigital May 2022–Aug. 2022
Research Intern *New York, NY*
- Improved performance of conventional methods for dynamic LiDAR compression using deep learning techniques.
- Designed intra-/inter-mode prediction module for dynamic point cloud compression.

USC Media Communications Lab May 2019–present
Research Assistant *Los Angeles, CA*
- Collaborated in research and development of unsupervised and feedforward feature learning method for 3D point clouds.
- Proposed methods for point cloud registration, LiDAR odometry, scene flow estimation and object pose estimation.

Projects

Structure from Motion (SfM) for 3D reconstruction | *Python, OpenCV*
- Reconstructed 3D point clouds of historic structures from pairs of images.
- Performed keypoint matching using SIFT and kNN, pose estimation from essential matrix and SVD, and triangulation.

Classification of quality of white wine | *Python, Scikit-learn*
- Predicted quality of white wine as good, medium, or bad using feature engineering and classification from 11 features.
- Trained machine learning algorithms such as SVM, Naive Bayes, Random Forest, MLP and kNN.

Region based Photorealistic Image Style Transfer | *Python, PyTorch*
- Trained PSPNet on MIT ADE20K dataset for semantic segmentation of content and style images.
- Implemented segment-wise image stylization using Whitening and Coloring transform.

Technical Skills

Languages – Python, C++, Matlab, LaTeX
Libraries – PyTorch, Minkowski Engine, OpenCV, Open3D, Scikit-learn
Certifications – Deep Learning Specialization (Coursera)

Recent Publications

- PCRP: Unsupervised Point Cloud Object Retrieval and Pose Estimation. *IEEE International Conference on Image Processing (ICIP), 2022* [Paper]
- GreenPCO: An Unsupervised Lightweight Point Cloud Odometry Method. *IEEE International Workshop on Multimedia Signal Processing (MMSP), 2022* [Paper]
- R-PointHop: A Green, Accurate and Unsupervised Point Cloud Registration Method. *IEEE TIP, 2022* [Paper]
- 3D Point Cloud Analysis: Traditional, Deep Learning and Explainable Machine Learning Methods. *Springer* [Book]

Achievements and Service

Awards – Masters Honors Fellowship, Best Project in Deep Learning
Teaching Assistant – Digital Image Processing (Spring'22), Linear Algebra (Fall'21)
Reviewer – IEEE International Conference on Image Processing (ICIP), APSIPA Transactions on Signal and Information Processing, ISPRS Journal of Photogrammetry and Remote Sensing