

Pranav Kadam

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EDUCATION

- University of Southern California** Aug. 2020–May 2023
Doctor of Philosophy (PhD), Electrical Engineering
Advisor – C.-C. Jay Kuo | Minor – Computer Science
Dissertation – Unsupervised Green Learning for 3D Point Cloud Data Processing
Los Angeles, CA
- University of Southern California** Aug. 2018–May 2020
Master of Science (Honors), Electrical Engineering
Los Angeles, CA
- Savitribai Phule Pune University** Aug. 2014–May 2018
Bachelor of Engineering, Electronics and Telecommunication
Pune, India

EXPERIENCE

- Tencent** May 2023–present
Senior Researcher
Palo Alto, CA
- Proposed three major lossless and lossy coding tools along with several normative adoptions in AOMedia Polygonal Mesh Coding (PMC) Standard development.
 - Developed rate distortion optimization framework for PMC encoder which achieves over -5% BD-Rate.
 - Implemented UV-preserved decimation in V-DMC and PMC encoders to improve encoding time while achieving over 10% bitrate saving in dynamic mesh coding.
- Tencent** Feb. 2023–May 2023
Research Intern
Palo Alto, CA
- Researched methods to improve compression of symmetric meshes using mesh registration and local/global displacement transforms.
- Sony** Aug. 2022–Dec. 2022
Applied Research Intern
San Jose, CA
- Developed a deep predictor network for inter-prediction in dynamic dense point cloud compression.
 - Designed rate control mechanism in deep learning based point cloud compression methods using gain/inverse gain units.
 - Proposed unified neural network architecture and joint training approach for I- and P-frame compression.
 - Achieved 10% coding gain in BD-Rate over SOTA deep learning method with fewer parameters and 60% over V-PCC.
- InterDigital** May 2022–Aug. 2022
Research Intern
New York, NY
- Designed intra-/inter-mode decision module for dynamic point cloud compression.
 - Proposed training of scene flow estimation methods with unsupervised RD loss for dynamic point cloud compression.
 - Improved performance of dynamic LiDAR compression over G-PCC using deep learning techniques.

PUBLICATIONS

- Pranav Kadam**, Chao Huang, Shan Liu, Efficient coding of repeated mesh connected components via connectivity skip and prediction refinement, *SPIE Applications of Digital Image Processing, 2025* [Paper]
- Igor Vytyaz, Chao Huang, Ondrej Stava, **Pranav Kadam**, Roshan Baliga, Shan Liu, Frank Galligan, Connectivity regularization for triangular meshes, *SPIE Applications of Digital Image Processing, 2025* [Paper]
- Pranav Kadam**, Hardik Prajapati, Min Zhang, Jintang Xue, Shan Liu, C-C Jay Kuo, S3I-PointHop: SO(3)-Invariant PointHop for 3D Point Cloud Classification, *IEEE ICASSP, 2023* [Paper]
- Min Zhang, Jintang Xue, **Pranav Kadam**, Hardik Prajapati, Shan Liu, C-C Jay Kuo, A Tiny Machine Learning Model for Point Cloud Object Classification, *APSIPA TSIP, 2023* [Paper]
- Pranav Kadam**, Jiahao Gu, Shan Liu, C-C Jay Kuo, PointFlowHop: Green and Interpretable Scene Flow Estimation from Consecutive Point Clouds, *APSIPA TSIP, 2023* [Paper]
- Min Zhang, **Pranav Kadam**, Shan Liu, C-C Jay Kuo, GSIP: Green semantic segmentation of large-scale indoor point clouds, *Pattern Recognition Letters, 2022* [Paper]
- Pranav Kadam**, Min Zhang, Shan Liu, C-C Jay Kuo, PCR-P: Unsupervised Point Cloud Object Retrieval and Pose Estimation, *IEEE ICIP, 2022* [Paper]
- Pranav Kadam**, Min Zhang, Jiahao Gu, Shan Liu, C-C Jay Kuo, GreenPCO: An Unsupervised Lightweight Point Cloud Odometry Method, *IEEE MMSP, 2022* [Paper]
- Pranav Kadam**, Min Zhang, Shan Liu, C-C Jay Kuo, R-PointHop: A Green, Accurate and Unsupervised Point Cloud Registration Method, *IEEE TIP, 2022* [Paper]

- Shan Liu, Min Zhang, **Pranav Kadam**, C-C Jay Kuo, 3D Point Cloud Analysis: Traditional, Deep Learning and Explainable Machine Learning Methods, *Springer* [Book]
- **Pranav Kadam**, Min Zhang, Shan Liu, C-C Jay Kuo, Unsupervised point cloud registration via salient points analysis (SPA), *IEEE VCIP, 2020* [Paper]
- Min Zhang, **Pranav Kadam**, Shan Liu, C-C Jay Kuo, Unsupervised Feedforward Feature (UFF) for Point Cloud Classification and Segmentation, *IEEE VCIP, 2020* [Paper]
- Min Zhang, Yifan Wang, **Pranav Kadam**, Shan Liu, C-C Jay Kuo, PointHop++: A Lightweight Learning Model on Point Sets for 3D Classification, *IEEE ICIP, 2020* [Paper]
- Min Zhang, Haoxuan You, **Pranav Kadam**, Shan Liu, C-C Jay Kuo, PointHop: An Explainable Machine Learning Method for Point Cloud Classification, *IEEE TMM, 2020* [Paper]

PATENT

- **Pranav Kadam**, Alexandre Zaghetto, Danillo Graziosi, Ali Tabatabai, Multiscale inter-prediction for dynamic point cloud compression, *U.S. Patent 12,348,774* [Patent]

TECHNICAL SKILLS

Languages – C++, Python, Matlab, LaTeX

Libraries – PyTorch, Open3D, Eigen, Minkowski Engine, OpenCV, Scikit-learn

Certifications – Deep Learning Specialization (Coursera)

ACHIEVEMENTS AND SERVICE

Talks

- Tutorial on AOMedia's Static Polygonal Mesh Coding Standard, IEEE ICIP 2025

Awards

- Top Performer Award 2024 H2, Tencent, Jan. 2025
- Rising Star Award, Tencent, Oct. 2024
- Masters Honors Fellowship, University of Southern California, Mar. 2020
- Best Project in Deep Learning, University of Southern California, May 2019

Teaching Assistant

- USC EE 559 – Machine Learning (Spring 2023)
- USC EE 569 – Digital Image Processing (Spring 2022)
- USC EE 510 – Linear Algebra (Fall 2021)

Course Grader

- USC EE 569 – Digital Image Processing (Spring 2020)
- USC EE 562 – Random Processes (Spring 2020)
- USC EE 567 – Communication Systems (Fall 2019)

Reviewer

- IEEE International Joint Conference on Neural Networks, 2025
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2024, 2025, 2026
- IEEE Transactions on Image Processing (TIP)
- IEEE International Conference on Image Processing (ICIP), 2022, 2023, 2024, 2025
- Elsevier Pattern Recognition
- APSIPA Transactions on Signal and Image Processing
- Springer Nature
- ISPRS Journal on Photogrammetry and Remote Sensing