

Ajay Narasimha Mopidevi

720-579-6333 | ajay.mopidevi@colorado.edu | [linkedin.com/in/majaysimha](https://www.linkedin.com/in/majaysimha) | ajaymopidevi.github.io/ajay/

EDUCATION

University of Colorado Boulder

Masters of Science in Computer Science — GPA: 4.0/4.0

Boulder, CO

Aug. 2022 – Dec 2023

Indian Institute of Technology, Guwahati (IITG)

Bachelors of Technology in Electronics and Communication Engineering

Guwahati, India

Aug. 2013 – May 2017

Courses: Computer Vision, Computational Photography, Deep Reinforcement Learning, Natural Language Processing

TECHNICAL SKILLS

Languages: Python, C/C++, Matlab

Machine Learning Frameworks: Keras, Pytorch, Tensorflow

Tools: Git, Open3D, Meshlab, CloudCompare, Visual Studio, PyCharm, Eclipse

Libraries: OpenCV, ROS, OpenCL, OpenGL, OpenMP, scikit-learn, pandas, NumPy, Matplotlib

EXPERIENCE

Samsung Semiconductors India R&D

Computer Vision Research Engineer, Advanced Multimedia Solutions Team

Bangalore, India

July 2020 – July 2022

- Developed **3D scene reconstruction** algorithm with only the depth-data from ToF sensors, achieving a real-time processing speed of **20fps**
- Automated the alignment of output 3D scene with groundtruth and improved the **accuracy by 5%** by detecting and removing outliers
- Optimized Samsung's CMOS camera sensor noise reduction algorithm with OpenMP parallel programming, thereby reducing the algorithm runtime by **33%**
- Reduced the latency of Remosaic deep learning models for 200M pixel camera sensor using **quantization** and **pruning** techniques by 10 % with an unnoticeable degradation of 0.1% in perceptual quality

Qualcomm

Software Engineer, Audio Quality Validation Team

Bangalore, India

Aug. 2017 – June 2020

- Spearheaded the development and maintenance of python audio library to evaluate both the objective and perceptual audio quality of the Bluetooth headsets
- Enhanced python automated test framework with new features that populate test vectors and visualize audio output signals, leading to a 10%-15% reduction in both the validation and development teams' efforts

PROJECTS

Radar based Navigation

Autonomous Robotics and Perception Group(ARPG)

Sep 2022 – Present

- Utilized only the radar data, sparse pointclouds compared to Lidar data, to overcome the challenges in visually degraded scenarios and improved the odometry estimation by **8%**, using **transformer** and DeepVO architecture
- Developed transformer based architecture for upsampling the sparse mmWave radar FMCW data to dense pointclouds, providing more comprehensive spatial information in navigation.


Electron Tomography Segmentation

Kasinath Aydin Lab

May 2023 – Present

- Achieved 92% accuracy in segmenting electron structures like ribosomes, membrane using < 1% of the entire tomogram for training
- Designed U-Net architectures specifically tailored for tomograms captured at different scales, resulting in a f1 score of 78% for segmentation

PUBLICATIONS

- Tell Me Where to Go: A Composable Framework for Context-Aware Embodied Robot Navigation 
- Grouped BERT for Multi-Label classification to reason the human values behind the arguments 