

# SANDEEP N MENON

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## EDUCATION

<b>New York University (NYU) Courant Institute of Mathematical Sciences</b>	<b>2022 – 2024</b>
Masters in Computer Science	New York, USA
<b>National Institute of Technology Karnataka, Surathkal, India (NITK)</b>	<b>2014 – 2018</b>
Bachelor of Technology in Computer Science	Karnataka, India

## INDUSTRY EXPERIENCE

<b>Deep Learning Research Engineer   Deepen AI   Hyderabad, India</b>	<b>Sept 2020 – Jul 2022</b>
<ul style="list-style-type: none"><li>Developed 3D PointNet model that performs temporal smoothing of segmentation predictions over point cloud sequences, improving mean Intersection over Union (mIoU) by 20%.</li><li>Built Sparse Point-Voxel CNN model for semantic segmentation of 3D point cloud sequences. Improved data annotation speed by 30% against manual annotation; achieved 76% mIoU score.</li><li>Implemented object-aware anchor-free tracking for 2D visual object tracking.</li><li>Devised algorithm for targetless Camera-IMU and stereo camera calibration. Calibration time reduced by 90% and reached 1° degree error compared to target-based approaches</li><li>Created an on-demand GPU Virtual Machine allocation system using Azure. Enabled automatic allocation and de-allocation of expensive GPU machines, thereby saving up to 2000 USD per month for the company.</li></ul>	
<b>Software Development Engineer II   Microsoft   Hyderabad, India</b>	<b>Jun 2018 – Sept 2020</b>
<ul style="list-style-type: none"><li>Co-authored new Machine Learning method inspired by Random Forests to identify similar won deals and opportunities for sales executives in Relationship Analytics in Dynamics 365; <b>received patent award</b>.</li><li>Developed GDPR query handling service for email insights infrastructure that handles 1 million daily requests.</li><li>Shipped Dynamics 365 sales insights connector to all Microsoft Power platforms that manage more than 9 million monthly service requests.</li></ul>	

## SELECTED PUBLICATIONS AND PROJECTS

<b>Removing noise from Optical Coherence Tomography (OCT) Images [published]</b>	<b>Aug 2017 - May 2018</b>
<ul style="list-style-type: none"><li><b>Sandeep N Menon</b>, VB Vineeth Reddy, A Yeshwanth, BN Anoop, and Jeny Rajan. In <i>Proceedings of 3rd International Conference on Computer Vision and Image Processing</i>, pages 115–126. Springer, Singapore, 2020</li><li>Achieved Structural Similarity Index (SSIM) value of 96.7% for low noise images and 91.2% for high noise images, surpassing the state-of-the-art results at the time of publishing.</li></ul>	
<b>Point Cloud Oversegmentation using Superpoint Graphs   PyTorch, Boost</b>	<b>May - Jun 2021</b>
<ul style="list-style-type: none"><li>Adapted Superpoint Graph implementation to Argoverse point cloud dataset to achieve over-segmentation results of overall accuracy of 96% and Boundary Recall of 92%.</li></ul>	
<b>Online calibration of Surround-view Camera system   OpenCV, Sophus, Boost</b>	<b>Apr - May 2021</b>
<ul style="list-style-type: none"><li>Online calibration of the four surround-view camera systems by minimizing photometric loss in the overlapping regions of the bird-eye view. Made Calibration possible with just one snapshot from the four cameras.</li></ul>	
<b>Asymmetric 3D Convolutions in Torchsparse   PyTorch</b>	<b>Feb 2021</b>
<ul style="list-style-type: none"><li>Contributed Asymmetric 3D Convolutions implementation for the open source repository TorchSparse, managed by MIT HAN Lab</li></ul>	
<b>Virtual Gym Trainer   PyTorch, Azure, OpenCV, Pose Estimation, PoseNet   Demo link</b>	<b>May - Jun 2019</b>
<ul style="list-style-type: none"><li>Platform for guiding users through trainer-specified exercises using automatic audio and visual cues.</li></ul>	

## TECHNICAL SKILLS

**Deep Learning** (PyTorch, TensorFlow, Keras, MMDet, CNN, VAE, GAN), **Convex Optimization** (CVXPY), **Computer Vision** (LiDAR, SLAM, Multi-Sensor Calibration and Fusion), **Languages/Platforms**: C++, C#, Python, Go, JavaScript, React, Docker, Azure, Google Cloud, MongoDB, RocksDB, MySQL