Sandeep N Menon

LinkedIn | +1 347-951-5417 | sandeepnmenon.github.io | snm6477@nyu.edu | Github

Experience

Deep Learning Research Engineer | Deepen AI | **Hyderabad, India** **Sept 2020 – Jul 2022**

- Developed 3D PointNet model that performs temporal smoothing of segmentation predictions over point cloud sequences, improving mean Intersection over Union (mIoU) by 20%
- 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
- Implemented object-aware anchor-free tracking for 2D visual object tracking
- Devised algorithm for targetless Camera-IMU and stereo camera calibration. Reduced calibration time by 90% from 45 minutes to 10 seconds. Achieved 1 degree error compared to target-based approaches
- Created an on-demand GPU Virtual Machine allocation system saving up to 4000 USD/month for the company

Software Development Engineer II | Microsoft | **Hyderabad, India** **Jun 2018 – Sept 2020**

- 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; **received patent award**
- Developed GDPR query handling service for email insights infrastructure that handles 1 million daily requests
- Shipped Dynamics 365 sales insights connector to all Microsoft Power platforms that manage more than 9 million monthly service requests

Publications and Projects

Removing noise from Optical Coherence Tomography (OCT) Images [published] **Aug 2017 - May 2018**

- **Sandeep N Menon**, VB Vineeth Reddy, A Yeshwanth, BN Anoop, and Jeny Rajan. In *Proceedings of 3rd International Conference on Computer Vision and Image Processing*, pages 115–126. Springer, Singapore, 2020
- 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

Graphic Novels from Wikipedia Articles | *LangChain, StableDiffusion, React* **Mar 2023**

- Created a website where users can make graphic novels explaining Wikipedia articles. Used Large Language Models (LLMs) in conjunction with StableDiffusion to generate the narrative and images.

Federated Training System for Generative Adversarial Networks | *PyTorch, Flower* **Oct - Dec 2022**

- Designed a federated learning system to train Generative Adversarial Networks. GAN can be trained across dozens of devices without sharing their data

Point Cloud Oversegmentation using Superpoint Graphs | *PyTorch, Boost* **May - Jun 2021**

- Adapted Superpoint Graph implementation to Argoverse point cloud dataset to achieve over-segmentation results of overall accuracy of 96% and Boundary Recall of 92%

Asymmetric 3D Convolutions in Torchsparse | *PyTorch* **Feb 2021**

- Contributed Asymmetric 3D Convolutions implementation to TorchSparse library, managed by MIT HAN Lab

Virtual Gym Trainer | *PyTorch, Azure, OpenCV, Pose Estimation, PoseNet* | Demo link **May - Jun 2019**

- Platform for guiding users through trainer-specified exercises using automatic audio and visual cues

Education

New York University (NYU) Courant Institute of Mathematical Sciences **2022 – 2024**
Master of Science in Computer Science

National Institute of Technology Karnataka, Surathkal, India (NITK) **2014 – 2018**
Bachelor of Technology in Computer Science

Technical Skills

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