

ISHIKAA LUNAWAT

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Education

Stanford University, CA

2023 – Present

Master of Science in Electrical Engineering (Software and Hardware Systems – Machine Learning)

Coursework: Sensorimotor learning for Embodied Agents, Principles of Robot Autonomy, Artificial Intelligence

National Institute of Technology Tiruchirappalli, India

2019 – 2023

Bachelors of Technology in Electrical and Electronics Engineering

GPA: 9.58/10

Coursework: Machine Learning and Deep Learning, Industrial Automation, Control Systems

Teaching: Machine Learning and Deep Learning

MOOCs: Deep Learning Specialization, Modern Robotics (Course 1), Machine Learning A-Z

Technical Skills

Programming Languages: Python, C++, C

Tools & Frameworks: PyTorch, Tensorflow, OpenCV, PyBullet, Open3D, Keras, Gazebo, Scikit learn, OpenGL

Software: MATLAB, Visual Studio Code, Git, Anaconda, ROS

Relevant Experience

Robot Perception and 3D Vision Intern

May 2022 – July 2023

Intelligent Autonomous System Laboratory

TU Darmstadt, Germany

- Developed a novel semi-implicit **neural surface rendering** network to learn 3D scene representation and generate 6DoF grasp poses, achieving high grasp success rate of 81.80% for ‘pile’ scenes and 90.48% for ‘packed’ scenes
- Conducted method evaluation through **Pybullet simulations** and real-robot experiments on the **TIAGo++** robot equipped with Robotiq Gripper and a ZED2 Stereo (depth) camera, performing with a high success rate of **~ 90%**
- Co-authored and presented accepted paper at **CVPR 2023** workshop on **3D Vision and Robotics**, spotlight talk presentation in collaboration with other members of research group

Machine Learning Intern

August 2022 – March 2023

Omnlyk Inc.

San Jose, CA (remote)

- Optimized sleep-stage classification by integrating **squeeze-and-excite blocks**, resulting in a remarkable 73% accuracy on processed interbeat interval data compared to current deep learning methods
- Led a team of 3 to plan and manage the execution of research models and maintain the Git organization repository for streamlined workflow
- Performed sleep quality analysis in collaboration with team of 7 members for 10+ patients and created heart health reports with visualizations for patients diagnosed with cardiovascular problems

Computer Vision – Gait Recognition Intern

May 2021 – July 2021

Pattern Recognition Laboratory

IIT BHU, India

- Examined current gait recognition methods to understand effect of static occlusions and performed extensive literature review for improvement of vision-based models
- Innovated a novel **spatio-temporal** models for inpainting occluded frames using 3D convolutions and embedding layers on the TUM-IITKGP dataset
- Boosted accuracy by 20% through pioneering a **3D Convolution** and **Conv-LSTM model** with key-pose embedding layers, surpassing frame averaging methods

Projects

Image-Sensor Fusion for Sign Language Detection (GISiL)

December 2020 – March 2021

- Developed a novel latent space translation model for classifying noisy sensor inputs to ASL alphabet by using **image-sensor feature fusion**, resulting in a 85.7% improvement over naive classification
- Spearheaded a team of 3 integrating different modules to win runner’s up at *Sangam Hackathon 2021*
- Contributed to writing and publishing a short paper as a **first author** at **Medical Imaging and Deep Learning Conference 2022** and qualified for poster presentation among 125 short papers

Publications

NeuGraspNet: 6-DoF Grasp Detection in Clutter with Neural Surface Rendering | [Link](#)

June 2023

Learning Any-View 6DoF Robotic Grasping in Cluttered Scenes | [Link](#)

(Under review)

SIHeDA-Net: Sensor to Image Heterogeneous Domain Adaptation Network | [Link](#)

July 2022