KARTIK SINGHAL

kartik21259@iiitd.ac.in
Website
GitHub

EDUCATION

Indraprastha Institute of Information Technology (IIIT), Delhi, India　　　　**Aug 2021 - May 2025**
Bachelor of Technology in Computer Science and Applied Mathematics　　　　　　(Expected)
CGPA: 8.5/10

KNOWLEDGE & SKILLS

Computer Vision, Robotics, Reinforcement Learning, Deep Learning, Machine Learning, MLOps
Python, C/C++, Java | Pytorch, NumPy, Pandas, Scikit-Learn
Previously proficient in ReactJS, NodeJS, ExpressJS, Flask, MySQL, Firebase

WORK EXPERIENCE

Research Specialist II - AiSys Lab, University of South Carolina, USA　　　**May 2023 – July 2023**
Advisors - Mehdi Yaghouti, Pooyan Jamshidi　　　　　　　　　　　　　　　　On-Site

Research Intern - VIGIL, IIT Hyderabad, India　　　　　　　　　　　　**Jun 2021 – Dec 2021**
Advisors - C. Vishnu, C. Krishna Mohan　　　　　　　　　　　　　　　　　　Remote

ACHIEVEMENTS

⚙ Grand-Prize Winner of ***Google Code-In*** *2019* for my contribution to open-source projects.

Papers

- Multi-Sense-Rescuer: Multi-Target Audio-Visual Learning and Navigation in Search and Rescue Scenarios, **Kartik Singhal**, Mehdi Yaghouti, Pooyan Jamshidi [*IROS 2023, Learning Robot Super Autonomy* workshop] [Under Review at *ICRA 2024*] [project website]

PROJECTS　　　　　　　　　　　　　　　　　　**Many more. Please see Github.**

<u>**Sensor Fusion and Tracking**</u>　　　　　　　　　　　　　　　　　　[Waymo Open Dataset]
- Track objects over time by fusing incoming Lidar and Camera data. See the Github repository for results.

<u>**3D Object Detection using Lidar**</u>　　　　　　　　　　　　　　　[Waymo Open Dataset]
- Detect vehicles using a pretrained SFA3D model in a bird's eye view perspective image-like input.

<u>**Object Detection and Localization**</u>　　　　　　　　　　　　　　　[Pytorch | Tensorflow]
- Detect and draw bounding boxes around cars in an image using the YOLO algorithm trained from **scratch**
- Draw bounding boxes around vehicles, pedestrians, and cyclists by training an SSD Resnet 50 640x640 model and achieving 70% mAP for large-sized objects.

<u>**Mini Keras**</u>　　　　　　　　　　　　　　　　　　　　　　　　[Python, Numpy]
- Built a neural network library using only Python and Numpy with a user-friendly interface akin to Keras
- Dense layers, Optimizers: gradient descent with momentum, Adam, and Regularizers: L2 loss and Dropouts.

<u>**Behavioural Cloning for self-driving cars**</u>　　　　　　　　　　　　　　　[Keras]
- Collect steering data by driving car in the simulator and train a CNN-based model for autonomous driving

<u>**Chat App**</u>　　　　　　　　　　[ReactJS, NodeJS, Flask, MySQL, Firebase Realtime Database]
- A web-based application allowing users to create account and share private messages in real-time.