JAY KARHADE

jaykarhade3@gmail.com http://jaykarhade.github.io

EDUCATION

Robotics Institute, Carnegie Mellon University   *August 2022 - Present*
M.S. Robotics   *Overall GPA: 4.08 (4.00)*

Birla Institute of Technology and Sciences, Pilani   *August 2018 – June 2022*
B.E. Electrical and Electronics Engineering   *Overall CGPA: 8.81 (10)*
Minor in Robotics and Automation   *Minor CGPA: 9.62 (10)*

Army Public School, Pune   *April 2017 - June 2018*
Class 12   *Score: 96.8% (100%)*

RESEARCH EXPERIENCE

AIRLab, Carnegie Mellon University   *October 2022 - Present*
Graduate Research Assistant   *Pittsburgh, PA*
- Advised by Prof. Sebastian Scherer
- Multi-modal Localization for Multi-Robot SLAM.

Advanced Robotics Centre, National University of Singapore *April 2021 - Dec 2021*
Visiting Undergraduate Researcher   *Remote due to COVID*
- Advised by Prof. Marcelo Ang, thesis on AI for Vision.
- GAN based Point Cloud Rendering and Novel View Synthesis.

Edifice Lab, Arizona State University   *May 2021 - July 2021*
Summer Research Intern   *Remote due to COVID*
- Advised by Prof. Thomas Czerniawski on 3-D Reconstruction.
- Explored techniques for Dynamic Object Removal and Point Cloud Compression.

BITS Pilani   *October 2020 – May 2022*
Research Assistant, Prof. Rajesh Kumar Tripathy Hyderabad, India
- Multi-Stage CNN Network for detection of Myocardial Infarction using VCG data.
- CNN-LSTM Network for Atrial Fibrillation.
- Few-Shot Learning for Sleep Pose Estimation using mm-Wave Bio-RADAR.

BITS Pilani   *Jan 2020 - Dec 2020*
Research Assistant, FAWND Group Hyderabad, India
- Supervised by Prof. Parikshit Sahatiya for ML applications on flexible and wearable electronics.
- 1-D CNN based breath classification from flexible sensor data.
- Texture discrimination via Tactile Sensing.

WORK EXPERIENCE

Matchday AI   *Feb 2022 – June 2022*
Computer Vision Intern (Part-Time)   *India (Remote)*
- Analysis of badminton games using computer vision
- Monocular Object Tracking for player filtering
- Shuttle tracking and contact point detection.

UVRobots   *July 2019 – Jan 2021*
Robotics Engineering Intern (Part Time)   *London (Remote)*
- Developed autonomous mobile robots for restaurant deliveries and later for UV Disinfection
- Custom Web-UI for Visualization using ROS, JavaScript
- Custom ROS Navigation Stack with NFC based docking

- Object Detection via Tiny-ML

Indian Meteorological Department *May 2020 - August 2020*
Summer Intern (For university credit requirements) *Pune, India*
- Computer-Vision for visibility estimation in airports
- Used GANs for image-dehazing and fog image synthesis

HyperLoop India *July 2019 - July 2021*
Electronics Subsystem Team Lead *Hyderabad, India*
- One of the only 2 student teams ever from India to make it to the Hyperloop Competition Finals
- Led Electronics Team to develop a custom onboard electrical and electronics architecture
- Worked independently on a hybrid EKF-RNN based approach for Pod pose-estimation
- Introducing the possibility of Li-Fi communication b/w Pod and Ground-Station

RESEARCH - https://scholar.google.com/citations?user=rmvlyAgAAAAJ&hl=en

- Nikhil Keetha*, Avneesh Mishra*, **Jay Karhade***, Krishna Murthy Jatavallabhulah, Sebastian Scherer, Madhava Krishna, Sourav Garg, "*AnyLoc:Towards Universal Place Recognition*", **IEEE-RAL (Under Review)**

- ***Jay Karhade*, Haiyue Zhu*, Ka-Shing Chung*, Rajesh Tripathy, Wei Lin, Marcelo Ang "Multi-Frequency-Aware Patch Adversarial Learning for Neural Point Cloud Rendering.***

- Tejas Radhakrishnan*, **Jay Karhade***, SK Ghosh, PR Muduli, RK Tripathy and U. Rajendra Acharya, "AFCNNet: *Automated detection of AF using Chirplet transform and Deep Convolutional Bidirectional Long-Short Term Memory Network with ECG signals*", **Computers in Biology and Medicine**

- **Jay Karhade**, Shaswati Dash, Samit Kumar Ghosh, Dinesh Kumar Dash, and Rajesh Kumar Tripathy, *Time-Frequency Domain Deep Transfer Learning Framework for the Detection of Heart Valve Diseases using PCG Signals*, **IEEE Transactions in Instrumentation**

- **Jay Karhade**, Samit Ghosh, Pranjali Gajbhiye, Rajesh Tripathy, U.Acharya, *"Multichannel Multiscale Two-stage Convolutional Neural Network for the Detection and Localization of Myocardial Infarction using Vectorcardiogram Signal"*, **Applied Sciences, MDPI**

- Naveen Bokka*, **Jay Karhade***, and Parikshit Sahatiya, *"Deep Learning Enabled Classification of Real Time Respiration Signals Acquired by Water Soluble Janus MoSSe Quantum Dot based Flexible Sensor"*, **Journal of Materials Chemistry B**

- *Nihal Singh, **Jay Karhade**, Ishika Bhattacharya, Prathamesh Saraf, Plava Kattamuri, Alivelu Manga Parimi, "On-board Electrical, Electronics and Pose Estimation System for Hyperloop Pod Design", "**International Conference on Control, Automation and Robotics**", Singapore,2021.*

TEACHING EXPERIENCE

BITS Pilani, Hyderabad, India *Jan2021 - May 2021*
Teaching Assistant for the course BITS F446 - Pattern Recognition

REVIEWING EXPERIENCE

Field Robotics Journal - 2023
RSS-2023
Robotics and Automation Letters, IEEE - 2023
IEEE Access - 2022

RESEARCH AWARDS & GRANTS

- **Robotics Institute, UTS, Australia**   *July 2021*
  3rd Presentation award for implementation on 3-D Aortic Deformation Reconstruction

- **BITSAA April 2021**   April *2021*
  BITSAA-IRU Travel Partial Scholarship for presenting paper at ICCAR, 2021

LEADERSHIP POSITIONS

- All India Rank - 55, National Defence Academy   *June 2018*

- Chairperson, IEEE Student Branch   April 2019 - June 2021

- Treasurer, I-Cell, CIIE   Oct 2019 - June 2020

- Duathlon Captain   *August 2020 - June 2021*

| **INTERESTS** | Badminton | Long-Distance Running | Lawn Tennis | Piano | Guitar |