

# Avneesh Mishra



+91 99163 32393

123avneesh@gmail.com

Bengaluru, Karnataka, IN

 theprojectsguy.github.io


 avneesh-mishra


 TheProjectsGuy

## Profile

A Computer Vision and AI researcher from IIIT-H with a background in Robotics and Mechatronics engineering. Skilled at developing and deploying cutting-edge research from literature to hosting. Other skills include system administration and full-stack web development.

## Areas of Experience

 Computer Vision (SLAM systems, Image and video) - AI (PyTorch, TensorFlow, WandB) - Computer Science (Linux, MacOS, Windows; Docker; OS & Hardware) - Programming (Python, Bash/Shell, C++) - Frameworks (Pandas, OpenCV, Open3D, ROS)

 Systems Administration (HPC, IAM, NAS, FreeIPA, Networking, Storage, Hardware) - Cloud (AWS, Linode, Runpod) - Application Development (Python, Web, Unity AR) - CI/CD Pipelines - Programming (MATLAB, Javascript, C, Swift) - Embedded Systems (Jetson, ATmega, STM32, TI, FPGAs) - CAD (Electronics: KiCAD; Mechanical: Fusion 360, SolidWorks)

**Hobbies:** Reading, finance, cooking

## Experience

**Consultant** *Hitloop, Hyderabad* July 2023 to November 2023

- Google Mediapipe and OpenMMLab solutions for detecting pose and facial landmarks.
- Dubbing use-cases for multi-lingual content creation. Lip-sync and voice cloning.

**System Administrator** *RRC, IIIT Hyderabad* May 2022 to Feb 2023

- Assisted in maintaining a SLURM HPC cluster with NFS, RAID, and networking components.
- Oversaw FreeIPA computing environment of RRC for simulation servers. Multi-user access and dataset storage. Developed shell scripts for report generation, user management, and HPC job scheduling.
- Assembled powerful workstations with multiple GPUs. Ensured high up-time of servers through continuous Netdata monitoring and alerts.
- Created and maintained documentation and custom scripts for RRC simulation servers and Ada HPC system.

**Consultant** *Artpark, RBCCPS, IISc Bangalore* March 2021 to August 2021

- Teleoperation using Asha (*Sophia* from Hanson Robotics) with Team Aham for the *ANA Avatar XPrize* challenge.
- Experience with HTC Vive (AR/VR) in Unity. Also worked with ROS (RViZ, kinematics) and Eigen.
- *Teleoperation* of a KUKA robotic arm and *web-streaming setup* to measure end-to-end latency (using USB/IP).

**Student Intern** *CAIR, DRDO, Bangalore* December 2019 to July 2020

- Developed a quadruped test platform (software and embedded program) to execute gaits for my *end-term report*.
- Kinematics and dynamics of a quadruped
- Embedded systems: CAN bus, motor control

**Internship Trainee** *ABB Bangalore* May 2019 to July 2019

- IRB Robots for pick & place, pelletizing, welding, and coordinate measurement. Part of *industrial training*
- Worked on collaborative robot YuMi and ABB RobotStudio.
- GUIs using TKinter (Python).

## Research Intern

*Sirena Technologies, Bangalore*

May 2018 to July 2018

- First experience with computer vision, artificial intelligence, robotics (kinematics), and various software frameworks.
- Hand **recognition** and **gesture recognition** using OpenCV

## Education

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### M.S. by Research (CSE)

*Robotics Research Center (RRC), IIIT Hyderabad*

August 2021 to July 2024

**CGPA 10/10**

- Thesis: **Foundation Models for Visual Place Recognition**
- RRC Summer School 2022 - Multi-View Geometry ([GitHub](#))
- SLAM (Simultaneous Localization and Mapping) using cameras, VPR systems, local features matching, global image descriptors.
- Group equivariant deep learning, rotation robust descriptors for feature matching
- Courses: Computer Vision, Statistical Methods in AI, and Mobile Robotics
- Student SysAdmin (from May 2022 to Feb 2023)

### B.Tech. in Mechatronics Engineering

*Manipal Institute of Technology*

July 2016 to July 2020

**CGPA 9.88/10 (Gold Medalist)**

- Minor in Robotics and Artificial Intelligence
- Quarter-finalist for IICDC (DST&TI) 2018
- Technical Head of ISA (Manipal Chapter)
- Research head of RoboManipal (Robotics student project) and organized RoboWars (event) for TechTatva. Participated in RoboCon 2018.

## Publications

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- Keetha, N., **Mishra, A.**, Karhade, J., Jatavallabhula, K. M., Scherer, S., Krishna, M., & Garg, S. (2023). "Anyloc: Towards universal visual place recognition". 2023 IEEE Robotics and Automation Letters. [Website](#), [GitHub](#), [torch.hub](#)
- Peri, A., Mehta, K., **Mishra, A.**, Milford, M., Garg, S., & Krishna, K. M. (2022). "ReF - Rotation Equivariant Features for Local Feature Matching". arXiv preprint [arXiv:2203.05206](#).