



Abhishek Iyer *Software Engineer, AI and Robotics*

✉ iyer.abhishek18@gmail.com 🌐 Personal Website  Abhishek Iyer  Abhishek-Iyer1
☎ +91 8511772858 🇦🇺 Australian 📍 Pittsburgh, PA, USA

OBJECTIVE

I want to increase disaster relief and environmental preservation efforts by deploying teams of autonomous robots by making robots a trustworthy, friendly, and integral part of our society.

EDUCATION





Carnegie Mellon University, 08.2024 – 05.2026 | Pittsburgh, USA
Masters in Robotics Systems Development

- Incoming student in the MRSD Program. I am excited to work on creating fully autonomous agents, improving multi-agent and human coordination, and exploring multimodal capabilities for perception and reasoning.


Birla Institute of Technology and Science (BITS) Pilani, 08.2018 – 05.2022 | Pilani, India
B.E Electrical and Electronics

- Major GPA: 8.51/10
- Bachelor Thesis: Transformer based Object detection on Images collected using Airbone Optical Sectioning for Forest Search and Rescue
- Courses of Note: Neural Networks and Fuzzy Logic, Digital Design, Internet of Things, Digital Image Processing, Control Systems

PUBLICATIONS

- [1] **CoColor: Interactive Exploration of Color Designs** 
Lena Hegemann, Niraj Dayama, **Abhishek Iyer**, Ekaterina Marchenko, Erfan Farhadi, Antti Oulasvirta.
Published In the proceedings of the 28th International Conference on Intelligent User Interfaces (ACM IUI, 2023)
- [2] **CNN and LSTM based Ensemble Learning for Human Emotion Recognition using EEG Recordings** 
Abhishek Iyer, Srimrit Sritik Das, Reva Teotia, Shishir Maheshwari, Rishi Raj Sharma.
Published in Multimedia Tools and Applications Journal, 2023.
- [3] **Eformer: Edge Enhancement based Transformer for Medical Image Denoising** 
Achleshwar Luthra*, Harsh Sulakhe*, Tanish Mittal*, **Abhishek Iyer**, Santosh Yadav.
Published in the International Conference on Computer Vision (ICCV) Workshop, 2021
- [4] **Modelling, Simulation, and Implementation of PID controller on Quadrotors** 
Abhishek Iyer, Hari Om Bansal.
Published in the International Conference on Computer Communication and Informatics (ICCCI, 2021)

EXPERIENCE

Indian Institute of Sceince (IISc), Bangalore, *Research Assistant* 11.2023 – present | Bangalore, India
Advisor: Prof. Rajiv Soundararajan 

- Solving high-level semantic issues in AI-generated images such as conjoined limbs and disfigured faces by leveraging **vision-language models** for assessing application-specific perceptual quality.
- Improving 3D scene understanding by researching novel view synthesis using **Neural Radiance Fields (NeRFs)**.

Design.AI, *Software Development Engineer*  08.2022 – 07.2023 | Espoo, Finland

- Developing an **artificial intelligence tool** for digitizing corporate standard guidelines ensuring brand consistency in UI designs. The solution is deployed as a Figma Plugin.
- Researched and implemented deep learning models such as **Large Language Models (LLMs)**, Gaze Estimation models, and Convolutional Neural Network (CNN) classifiers.
- Became a **major contributor** to the company's intellectual property.

- **Pitching our product** to design team leads at MNCs. Hosting regular feedback sessions with design leads to understand the needs of our users in order to **brainstorm new features**, to **resolve user experience issues**, and to be **updated on the rapidly changing market and competitors**.
- **Quality assurance**, regression testing, and testing against a benchmark performance suite.

Aalto University, *Research Assistant*

08.2021 – 08.2022 | Espoo, Finland

Advisor: Prof. Antti Oulasvirta

- Implemented **saliency estimation** deep learning models for focal object detection in a given UI.
- Improved Modified Median Color Quantization (MMCQ) algorithm for extracting coherent color palette.
- Used **Monte Carlo Tree Search (MCTS)** and Gaussian Mixed Models (GMMs) to extend the initial palette.
- Developed heuristics and algorithms for colour assignment to different layers while ensuring high contrast.
- Packaged together as a **Figma plugin** that allows for theme or product-based recoloring of UIs.

Computer Vision Research Society (CVRS), *Team Lead*

02.2021 – 12.2021 | Pilani, India

- **Led** the team in researching novel techniques to **denoise low-resolution computed tomography (CT)** scans.
- Our model is composed of a **transformer-based architecture**, Sobel-Feldman operators for edge enhancement, and residual learning.
- The architecture achieved **state-of-the-art results** on the AAPM-Mayo Clinic Low-Dose CT Ground Challenge dataset.

Johannes Kepler University, *Bachelor Thesis*

07.2021 – 12.2021 | Linz, Austria

Advisors: Prof. Oliver Bimber, Prof. Shishir Maheshwari

- Introduced an **object detection model** that can perform in real-time for human detection in dense canopies.
- Used Reed-Xiaoli Detector to identify colour changes and generate anchor boxes in only those regions to keep the model lightweight.
- Utilized the latest research on **vision transformers** to overcome the speed-accuracy tradeoff.
- Used **Airborne Optical Sectioning (AOS)** technique to preprocess input images.
- A custom dataset was collected by using the airborne optical sectioning technique using a quadrotor.

Nexstem.AI, *Summer Intern*

05.2020 – 08.2020 | Pilani, India

- **Rapid prototyping ideas** in order to deliver a **proof of concept** for a **prosthetic arm controlled through brain waves**.
- Analyzed Electroencephalographic (EEG) signals from a **Brain Computer Interface (BCI)** headset and seamlessly designed and integrated a prosthetic arm prototype using an Arduino micro-controller.
- **Designed Eagle Libraries** for custom components and designed the PCB for the prosthetic arm.

AcYut Robotics Team, *Core Member*

08.2018 – 05.2019 | Pilani, India

- AcYut is a collegiate technical team which designs humanoid robots to play soccer autonomously. It has previously represented India on an international level.
- My role focused on **designing motor controllers** and encoders for our in-house programmable motors.
- Research and **simulation of navigation strategies** for the robot.

SKILLS

Technical Skills -

- *Languages*: Python, C++, Matlab, Arduino
- *Tools and Frameworks*: PyTorch, Tensorflow, ROS2, NumPy, Pandas, Matlab, OpenCV, Gazebo, Eagle

Non Technical Skills -

- Critical Thinking, Leadership, Designing Solutions, Networking, Community Outreach, Conducting Independent Research, Academic Writing

COMMUNITY ENGAGEMENT

Building Washrooms - After noticing a lack of washrooms in the neighbourhood areas of our school from where some of the support staff came, we took it upon ourselves to build fully functioning washrooms and provide a basic facility which should be a human right.

Heal - I was a core member of the Heal organization for a year. We focused on organizing shows and events, playing games, evocative storytelling and creating a buddy system at a children's cancer hospital.

Tees ka Dum - I spent two years being part of Tees ka Dum, doing community outreach in nearby areas. Our efforts were directed towards educating underprivileged kids - primarily using hands on learning techniques to teach maths and science, awakening curiosity through demonstrations. Furthermore, we taught basic English so these kids would be able to overcome communication barriers for higher education venues.

Prabhat - Spending time at Prabhat was probably the most touching and grounding experience for me. We worked closely with differently abled children and their parents, to learn more about the conditions that plague Designing and creating visual and mobility aids for special needs children at a partner NGO.

Elder Homes - I also spent a year organizing visits and planning sessions at elder homes. We hosted games, listened to their life stories, and commemorated the time we spent with them by creating a book with recipes and wisdom from the elders we spent time with.

POSITION OF RESPONSIBILITY

Team Leader, *Computer Vision Research Society*

- I was a team lead at the Computer Vision Research Society at BITS Pilani, researching the topic of **medical image classification** of **low-resolution images** using vision transformers.
- As the team lead, I led the research direction over the course of six months. Over the period, I was able to identify key skills in my team members and delegate tasks accordingly. Furthermore, I mentored my team in key skills like effective literature reviews, analyzing current research themes to take inspiration for novelty, and academic writing.

Core Member, *Department of Sponsorship and Marketing, BOSM*

- As a core member of the sports festival at BITS Pilani, my responsibilities included **mentoring a team of juniors**, allocating tasks, and negotiating with industry professionals.
- This role had me **pitching ideas** on the spot to many industry professionals, and networking in order to get successful deals.
- This experience has enabled me to become a more hands-on mentor, a **confident speaker**, and granted me longer foresight.

SCHOLARSHIPS

Recipient of Merit Based Scholarship

I have been the recipient of a merit-based scholarship every semester of my undergraduate degree. This scholarship is extremely competitive in nature.

PERSONAL INTERESTS

Photography, Calisthenics, Hiking, Travelling, Driving & Roadtrips, Motorsports - F1, MotoGP, Rally