

Manjunath Bhat

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ACADEMIC DETAILS

Education	Institute	Year	CPI / %
B.Tech(Hons): Mechanical Engineering	Indian Institute of Technology, Kharagpur	2017- 2021	8.73 / 10
12th	SKCH Composite Pre-University College, Bengaluru	2015 - 2017	97.16 %
10th	Prarthana Central School, Bengaluru	2015	10 / 10

MAJOR PROJECTS

• Google Summer of Code 2019 - FluxML (The Julia Language)

(Guide: Mr. Dhairya Gandhi, Mr. Elliot Saba , March'19 - Present)

- **Project** : Enriching FluxML's model zoo repository with Deep Learning models : Spatial transformer Network, VAE-GAN, EBGAN, StarGAN, and GRCNN.
- Contributed to the backend of the Flux library by adding dropout layers, normalization layers, and wrappers for convolution and pooling layers.
- Worked on integrating the Flux library with a new Automatic Differentiation package called Zygote.

• Robot Path Planning Algorithms

Kharagpur RoboSoccer Students' Group, Artificial Intelligence Team

(Guide: Prof. Alok Kanti Deb , March'18 - May'18)

- Worked on various random sampling based path planning algorithms such as RRT(Rapidly Exploring Random Trees), RRT-Connect, RRT-Star, RRT-Star with Artificial Potential Field.
- Acknowledged for my work in the research paper "**Potential and Sampling based RRT star for Real Time Motion Planning accounting for momentum in cost function**".

• RoboCup Small Sized League(SSL)

Kharagpur RoboSoccer Students' Group, Artificial Intelligence Team

(Guide: Prof. Alok Kanti Deb, May'18 - Present)

- Worked on the software for controlling multiple soccer playing robots in a dynamic environment using the Finite State Machine Architecture to develop plays and strategy.
- Worked on Robot Operating System (ROS) by using its nodes, topics and services to send commands and handle game state data in a centralized manner.

• Maze Solving Robot

(Sept'18 - Oct'18)

- A three-wheeled robot with two driving wheels and one castor wheel for steering, that can find the shortest path between source and destination in a maze, and can follow the path generated.
- Various techniques of Image Processing such as Edge Detection, Contour Detection, and Hough Transforms were used. Dijkstra's algorithm was used to generate the shortest path.

TECHNICAL SKILLS

- **Languages** C, C++, Python, MATLAB, Octave, Julia, \LaTeX
- **Libraries and Tools** Tensorflow, OpenCV, ROS, Git
- **Fields of Interest** Computer Vision, Path Planning, Machine Learning.

AWARDS AND ACHIEVEMENTS

- **2nd Runner Up**, Robotics + Image Processing Event, Pixelation, NSSC, 2018.
- **2nd Runner Up**, Coding + Soccer Strategy Event, Code-O-Soccer , Kshitij, 2018
- Part of the only Indian team to qualify for **RoboCup SSL (Small Sized League)** in 2018 and 2019.
- Mentored over 90 first year students at an **IEEE certified Image Processing Workshop** organized at Indian Institute of Technology Kharagpur.
- Secured **AIR 444 among 1.2 million students** in JEE Main 2017 and **AIR 1459 among 160,000 students** in JEE Advanced 2017.