

Kartik Paigwar

THIRD YEAR UNDERGRADUATE, COMPUTER SCIENCE, VNIT NAGPUR

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EDUCATION

Visvesvaraya National Institute of Technology Nagpur, India
Bachelor of Technology, Computer Science and Engineering

Jul'15 - Jul'19

RESEARCH INTERESTS

Computer Vision, Neural Networks, Path planning, Controls of Mobile Robots, Algorithm Design and Optimization.

RESEARCH PROJECTS

Multi-Focus Image Fusion with a Deep Convolutional Neural Network *Sept 17 - Present*

- To obtain an all-in-focus image by fusing multiple images of the same scene taken with different focal settings using Deep CNN.
- Developing algorithm similar to the one described in the [paper](#) by Yu Liu.

Turtlebot 2 [[More-Info](#)]

Apr'17 - Jul'17

- Implemented Navigation stack to make autonomous robot navigation.
- Map was created using ROS'gmapping package and Kinect was used as a 3D depth sensor.
- It uses A* algorithm for path planning and particle filter method for localization in an unknown environment.
- Devised new weighted mean algorithm for Lane Following using camera as a visual sensor.
- Achieved autonomous navigation to natural landmarks in outdoor situation with the use of a single camera and parabolic mirror to get the 360 field of view.

Path Planning & Autonomous Navigation [[More-Info](#)]

Jan'17- Mar'17

- Carried Environment detection & Obstacles identification using a Overhead Camera.
- Generated Waypoints from source to destination using A-star search algorithm, used fibonacci heap for the open list to increase the performance.
- Localized mobile robot using April tag & transmitted proportional speed & yaw values via bluetooth in a closed loop.

Rubik's Cube Solver Program [[More-Info](#)]

Jun'16 - Jul'16

- Developed robust multiple color identification algorithm for identifying different colors in captured images of cube faces.
- Used kociemba algorithm for finding the most optimum moves to solve the scrambled cube.
- Animated moves with the help of 3D GUI created using OpenGL libraries.

Virtual Freehand Drawing Pad [[More-Info](#)]

Oct'16 -Nov'16

- Provided Realtime In Air Freehand Drawing experience in front of webcam.
- Added utility trackbar to change color, size & a tool to erase.

COMPUTER PROFICIENCY

Languages : C, C++ ,Java, Python

Web Development : HTML, CSS, JSP, MySQL

Misc. Tools: Photoshop, Latex

Research Tools & Libraries: OpenCV, Tensorflow, ROS, Matlab, Android, Netlogo

ACHIEVEMENTS

- Quarterfinalist in [DST & Texas Instruments Inc. India Innovation Challenge Design Contest 2016](#).
- Winner at Maze Solver Robotics Competition, Axis 2016, VNIT, Nagpur.

MENTORSHIP & LEADERSHIP EXPERIENCE

- Project Mentor for [Wizards' Chess](#) (Speech Recognition Based Chess Game) at Ivlabs.
- Website Manager at [Innovation Labs](#), VNIT, Nagpur.
- Treasurer of Programming Society, VNIT, Nagpur.