Kousshik Raj M

 TheLethalCode
 TheLethalCode (Codeforces)
 TheLethalCode (CodeChef)

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Education

2017-2022 (Expected)	B.Tech + M.Tech (Dual degree) in **Computer Science and Engineering** Indian Institute of Technology, Kharagpur	**CGPA:** 9.41/10.0 (* Till 6th Semester)

Experience

May 19 Feb 18	**Artificial Intelligence Team Member**	**Autonomous Ground Vehicle Research Group**

- Worked on a novel and robust path planning algorithm taking the kinetic constraints of the bot into account, for a dynamic environment supported by a high accuracy localization.
- Responsible for the ideal integration of the various modules such as vision, localisation, planning, sensor data, etc.

Present May 18	**Competitive Programming**	**Codeforces, CodeChef**

- Implemented numerous algorithms and data structures while solving over 1000 problems across various competitive programming platforms.
- Placed within the top 500 in numerous worldwide contests organized with Codeforces, Codechef, Kickstart, etc.

Projects

- **Hybrid A-Star, Path Planning Algorithm**
  - An improved, parallelized and novel implementation of the conventional Hybrid A-star global path planner using Dubins, Reeds-Shepp Path and Djikstra as heuristics over a ROS wrapper, capable of running at 30Hz even in densely populated environments and can achieve better results in a sparsely populated surrounding.
- **Eklavya 7.0, Intelligent Ground Vehicle Competition (IGVC) 2019**
  - A robot capable of intelligently traversing an obstacle ridden course in a restricted environment, using camera for visual input, LIDAR for avoiding collisions, and other sensory inputs for controlling the position and velocity of the bot, intergrated over ROS framework using various algorithms.
  - The bot took part in the **IGVC 2019** competition for autonomous vehicles and bagged the 2nd place.
- **DigiCon, OpenSoft 2018 IIT Kharagpur**
  - A web application that accurately parses and mines the contents of a hand-written doctor's prescription with the help of OpenCV and advanced Optical Character Recognition(OCR); the gold winning entry for Inter-Hall Opensoft 2018.
- **Sketchify, Generative Neural Network Project**
  - A deep generative neural network that abstracts images by converting them to doodles/sketches while trying to retain all the major characteristics of the image, saving the need to store unnecessary information.

Technical Skills

Programming Languages	C, C++, Python, Java, GoLang, Verilog
Libraries / Frameworks	ROS, OpenCV, Tensorflow, STL, Numpy, Flex, Bison, MIPS, REST
Databases	MySQL, SQLite
Systems / Platforms	Linux, Android, Windows, Git, Bash

Technical Interests

Algorithms and Data Structures, Number Theory, Networking, Robotics, Scripting and Automation.

Achievements & Involvements

- **Projects -** I have taken up other projects like
  - **Artemis Arrow**: a web app for scraping novels, songs and anime from various sources across the web.
  - **KGP-RISC Processor**: a processor designed in Verilog with an ISA similar to MIPS.
  - **BrkOut**: a 60FPS game developed using PyGame incorporating real time mechanics.
  - **G_Inface** : a command line interface for Google Drive, with features for syncing local data.
- **Programming Societies -** Co-founder of **CodeStash, IIT KGP** and was a Core-Team Member of **Kharagpur Open Source Societies** and **CodeClub** which help to nurture a programming zeal among the KGP community by organizing workshops, hackathons and fests.
- **Kharagpur Winter of Code 2018 -** One of the organizers of the five week long GSOC-styled Open Source Program and an active mentor of one of the projects in it. Responsible for the development and maintenance of the KWOC website.
- **CodeNites Series -** A problem setter and tester for the fortnightly organized competitive programming contest series, CodeNites. It is organized to promote the competitive coding culture among the KGP students.
- **Kshitij Events, Technical Fest -** Participated in various events hosted in Kshitij Technical Fest like Source Code (generating code from an executable), Crusade (a path following bot using OpenCV), etc. and secured standings among them.
- **Scholastic Achievements** - **AIR 322:JEE Advanced** (99.8 percentile), **AIR 1784 :JEE Mains** (99.8 percentile), Twice **Kishore Vaigyanic Protsahan Yojana (KVPY)** Scholar