TheLethalCode
TheLethalCode (Codeforces)

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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:** 9.54/10.0 (* Till 8th Semester)

Experience

July '21 – May '21 — **Systems Intern** — **Quadeye, Gurgaon**
- Worked on unit testing the portfolio module, particularly the various safety checks and related parameters.
- Created a novel framework for the unit tests that enhances debuggability and supports the extension of the set of safety checks and parameters to be tested with ease; can be integrated with the main codebase.

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 300 in numerous worldwide contests organized with Codeforces, Codechef, Kickstart, etc.

May '19 – Feb '18 — **Software Team Member** — **Autonomous Ground Vehicle Research Group, IIT KGP**
- 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.

Projects

- **P2P File Sharing**
  - A self replicating, decentralised and multithreaded peer-to-peer file sharing system with an unstructured network overlay, built from scratch on python.
  - Offers a wide range of features in addition to the ones offered by a traditional peer to peer system, including but not restricted to state restore, bandwidth control, managing multiple downloads, etc.
- **Graph Algorithms on GPU**
  - Accelerating conventional algorithms to common graph problems like BFS, Single Source Shortest Path and All-Pair Shortest Path by parallelising them and executing them on a GPU using the CUDA framework.
  - Evaluated the performance on a diverse set of graphs of varying sizes and densities and observed an average speedup of 10x and upto 5000x in certain cases for the accelerated versions as compared to their sequential counterparts.
- **Eklavya 7.0**, **Intelligent Ground Vehicle Competition (IGVC) 2019**
  - A robot capable of intelligently traversing an obstacle ridden course in a restricted environment, with camera, LIDAR and other sensors integrated 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.

Technical Skills

Programming Languages	C, C++, Python, Java, Verilog
Libraries / Frameworks	CUDA, ROS, OpenCV, STL, Flex, Bison, MIPS, REST
Systems / Platforms	Linux, Git, Bash

Achievements & Involvements

- **Projects -** I have taken up other projects like
  - **Hybrid A-Star**: Standard Hybrid A-star planner modified by using Dubins, Reeds-Shepp Path and Djikstra as heuristics.
  - **Sketchify**: A deep generative neural network that abstracts images by converting them to doodles/sketches
  - **KGP-RISC Processor**: A processor designed in Verilog with an ISA similar to MIPS.
  - **Crusade**: A bot that processes visual input using OpenCV and moves along the path obtained
- **Programming Societies -** Co-founder of **Grimoire of Codes** and was a Core-Team Member of **Kharagpur Open Source Society** 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.
- **Scholastic Achievements** - **AIR 322:JEE Advanced** (99.8 percentile), **AIR 1784 :JEE Mains** (99.8 percentile), Twice **Kishore Vaigyanic Protsahan Yojana (KVPY)** Scholar