Vaibhav Jain | Curriculum Vitae

Cluster Innovation Centre, University of Delhi

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Undergraduate IT engineer completing the second year of a bachelor's degree. Passionate about Robotics, with strong Responsible, Initiative, and Teamwork skills for working in a team and successfully completing a project.

Education

Academic Qualifications

- **Cluster Innovation Centre, University of Delhi** — **New Delhi**
  B.Tech in Information Technology and Mathematical Innovation, minor in Embedded Systems — *2016-2020*
- **Kiddy's Corner Public School** — **Gwalior**
  91.6% in 12th [PCM], 9.2 CGPA in 10th — *–2015*

Notable Projects

- **Model of an agriculture field having Feeder and Weeder class robots using Swarm Robotics:** *Dec 2017 - Feb 2018*

  This project was the part of eYantra Robotics Competition 2018 [Track: Swarm Robotics]. It involves multiple robots cooperating to fertilize the plants and remove the weeds in a farm. Two robots carrying different fertilizers and one robot whose primary function is to remove weeds traverse an arena representing a farm. Each Fertilizer Robot identifies and fertilizes the crop that requires the fertilizer that it is carrying; the Weeding Robot identifies and removes weeds from the field. The challenge is to collaborate and complete the fertilization and de-weeding in the most efficient manner.

- **Gesture Controlled Robotic Arm:** *May 2017 - Aug 2017*

  This project aims at developing a user-friendly interface to control a robotic arm using the gesture recognition. It will allow a user to just stand in front of the camera and move his arm. The robotic arm will try to mimic the motion of the user's arm. It allows fluid movements of robotic arm possible which are not easy to perform in real-time using even high-end controller.

- **Trajectory Planning and its Application on Robotic Manipulator:** *Feb 2017 - Apr 2017*

  This was an academic project on study of the Trajectory planning algorithms used in modern Robotic Manipulator Arms and application of Partial Differential Equations in the path planning.

- **Stretegy for Acute angled turns by a Line Following Robot (LFR):** *Jan 2017 - Mar 2017*

  For basic Line Following Robots based on White Line sensors, following a straight line is a straight forward task; but it becomes more difficult when it have turns, specifically acutely angled turns. In this project, I proposed a strategy to address this problem. I also conducted several experiments to support the success of this algorithm.

- **Advanced Maze Solving Robot:** *Aug 2016 - Oct 2016*

  This was a group project during my first year. In this project, we were able to design and code a two-wheeled Differential Drive Mobile Robot to follow a black line on a white board. Black line may form complex network of lines having curved or sharp turns.

- **Stock Management App [ongoing]:***Feb 2018 - Present*

  This is an app designed for stock management, product display and creates stock issue record for Autonomi, the robotics society of Cluster Innovation Centre, University of Delhi.

- **An Innovative approach to Neural Machine Translation [ongoing]:***Jan 2018 - Present*

  Processing sequential data of variable length is a major challenge in a wide range of applications, such as machine translation. This project aims to improve the state-of-the-art models for language translation using a novel FS-RNN model approach.

- **Amazon Product Recommendation System using R [ongoing]:***Mar 2018 - Present*

  This project is aimed to create a machine learning model which will perform sentiment analysis on product reviews given by buyers on Amazon and present the user with a 'review-score'. This will help the user to make a more informed choice.

Work Experience

- **Summer Research Intern** **New Delhi**
  Cluster Innovation Centre, University of Delhi *Jun 2017–Jul 2017*

  Worked under Prof. Shobha Bagai at Cluster Innovation Center. The project was aimed at creating a robotic arm capable to mimic a human arm's motion using Kinect Sensor to generate 3D map of the user's environment.

Technical and Personal skills

- **Programming Languages:** Proficient in: C, C++, Python, Arduino
  Also familiar with: Java, Matlab, R, Mathematica.
- **Industry Software Skills:** Tensorflow, Matlab, LTspice, CPUsim.
- **General Business Skills:** Good presentation skills, Works well in a team.
- **Other:** Good management and writing skills. Can write well organized and structured reports.

Position of Responsibility

- **Project Manager** at Autonomi, the Robotics society at Cluster Innovation Centre since January 2017. My position as "Project Manager" requires me to get involve with every project ongoing under Autonomi and review their progress. I also help them gathering financial as well as intellectual resources.
- **Organizing Member** of ROSPy Jam: a meet-up aimed for people working with either ROS or python or both.
- **Organizing Member** of CRIP - CIC Robotics Internship Programme. CRIP is an initiative by Autonomi to enable budding roboticists to work on projects under the mentorship of experienced students/ faculty/ industry persons in the field of Robotics.

Interests and extra-curricular activity

- **Interests:** Gaming, Music Theory
- **Activities:** Piano, Football, Traveling