

Kousheek Chakraborty

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EDUCATION

Sri Aurobindo International Centre of Education

Bachelor of Science in Mathematics

Pondicherry, India

Dec. 2018 – Oct. 2021

- Subjects Covered - Mathematics, Numerical Analysis, Physics, Computer Science, Electronics, English, French

Sri Aurobindo International Centre of Education

Higher Secondary

Pondicherry, India

Dec. 2016 – Oct. 2018

- Subjects covered - Mathematics, Physics, Solar Science, Electronics, Computer Basics, English, French, Bengali, History

EXPERIENCE

Telekinesis AI

Robotics Engineer

Darmstadt, Germany

Jul. 2020 – Present

- Developed a C++ based API to control industrial manipulator arms
- Led the design and prototyping of a hand-mounted device to track the orientation of the operator's hand

PROJECTS

Inter-Robot Communication Protocol to Maintain Formation in Swarms

Oct. 2021 – Present

- Designed an inter-robot communication protocol to maintain desired formations between robotic systems acting in a swarm and currently testing the system on a set of wheeled differential drive robots.

Foothold Estimation on Uneven Terrain for Legged Robots

May. 2021 – Oct. 2021

- Built a foothold estimation pipeline for legged robots on uneven terrain and tested the system on a scratch-built 3D printed quadruped.

Reinforcement Learning Toolkit for Robotics

Jul. 2020 – Oct. 2020

- Created an open-source and modular toolkit with state-of-the-art reinforcement learning algorithms and tested the algorithms on OpenAI gym environments.

Trajectory Following Controller for Differential Drivetrains using Bezier Interpolation

Jan. 2020 – May. 2020

- Developed a trajectory generation system to convert 2D waypoints and heading information into a time parametrized trajectory using Bezier interpolation and tested the pipeline on a scratch-built differential drive robotic platform.

Long Range Autonomous Surface Vehicle

May. 2019 – Oct. 2019

- Built a GPS-based waypoint tracking controller for an autonomous surface vehicle and tested the pipeline on a scratch-built catamaran-style boat.

PATENTS AND PATENT APPLICATIONS

Patent Application - Controlling Industrial Machines by Tracking Movements of their Operators

Development of a system to control the operation of an industrial machine by monitoring the movement of the human operator.

HONOURS AND AWARDS

- Prize for Academic Excellence – Sri Aurobindo International Centre of Education
- Topper in Introduction to Robotics Course – Rank 5 – NPTEL
- Winner of 23 contests hosted on instructables.com

Oct. 2019

Dec. 2020

EXTRA-CURRICULAR ACTIVITIES

Co-Author of Technovation

Dec. 2014 – Present

<https://www.instructables.com/member/Technovation/>

Co-author of an Instructables page called Technovation with over 30 projects ranging from fields such as design and digital fabrication to electronics and computer science with over 1 million views on the page.

Project Blog

Jan. 2019 – Present

<https://kousheekc.github.io/>

Author of my project blog containing detailed explanations with pictures, videos and write ups about the conceptualisation and development process of all the projects that I have worked on.

Physical Education

Dec. 2003 – Oct. 2021

Gymnastics, Athletics, Aquatic Sports and Games (Football, Basketball, Volleyball, Hockey)

Organised the Science Fair

Jul. 2018

Helped organise the annual science fair held at Sri Aurobindo International Centre of Education by managing funds and mentoring junior students.

ONLINE CERTIFICATES

Machine Learning

Oct. 2020

Coursera

- Introduction to machine learning and statistical pattern recognition
- Supervised Learning
- Unsupervised Learning
- Best Practises

Introduction to Robotics

Dec. 2020

NPTEL

- History and Growth of Robotics
- Manipulator Kinematics
- Electrical Actuators
- Probabilistic Robotics

SKILLS

Programming Languages – Python, C, C++, Matlab, Simulink, Arduino

Computer and Digital Skills – Autodesk Fusion 360, Git, L^AT_EX

Libraries and Frameworks – Pytorch, OpenCV, ROS, Numpy

Languages – English, French, Bengali

Soft Skills – Logical Reasoning, Written Communication, Verbal Communication, Time Management, Discipline, Self-motivation, Teamwork, Humour