# Mahesh Saboo

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## EDUCATION

**Stanford University** Sep. 2021 – June 2023

Master of Science in Mechanical Engineering (Robotics) – GPA: 4.0/4.0 Stanford, USA

- Coursework: Principles of Robot Autonomy, Smart Product Design Fundamentals

**Indian Institute of Technology Kanpur** July 2016 – June 2020

Bachelor of Technolgy in Mechanical Engineering – GPA: 8.6/10 Kanpur, India

- Computing Coursework: Data Structures and Algorithm, Machine Learning
- Robotics Coursework: Autonomous Navigation, Mechatronics, Robot Manipulators, Dynamics & Controls

## EXPERIENCE

**Software Engineer - Bajaj Finserv Limited** July 2020 – June 2021

Team: Mobile Application Development Pune, India

- Managed front-end and its integration with back-end for multiple segments of company's android application
- Coordinated with internal teams and external partners and developed solutions for requirements within organization

**Research Intern - Soft Computing Lab, Prof. D K Pratihar** May 2019 – July 2019

Project: Gait Event Detection IIT Kharagpur, India

- Designed a device consisting of arduino, raspberry pi, FSRs and IMUs that helps in collecting lower limb kinetic data
- Enhanced the raw data and devised an algorithm to detect gait events on different terrains using data from IMUs
- Developed algorithm has a potential to act as a high level controller for powered prosthetic and assistive devices

**Robotics Intern - Euphotic Labs** May 2018 – July 2018

Project: Automated Cooking Machine Bengaluru, India

- Designed and manufactured a user friendly ingredients dispensing system for an automated cooking machine
- Employed belt-drive and ball-screw mechanisms controlled by arduino and raspberry pi to achieve the functionality
- Reduced the machine size by 20 percent by incorporating the dispensing system in the remodelled machine

## PROJECTS

**Delivery Robot**

- Implemented autonomous exploration, A-Star, TSP, gmapping SLAM on a Turtlebot using ROS (Python) for navigation in a mock environment.

**Autonomous Underwater Vehicle**

- Developed familiarity with frameworks and tools commonly used in robotics like ROS, OpenCV
- Designed and fabricated waterproof casings and vehicle frame using in-house manufacturing facilities

**Depth Map from Stereo Vision**

- Developed a ROS compatible implementation of Kanade's stereo matching algorithm as a solution to assign window size for block matching in stereo vision using SSD

## SKILLS

**Languages** : C, C++, Python, MATLAB, Kotlin

**Tools** : ROS, Arduino, Raspberry Pi, Solidworks, ANSYS Workbench, OpenCV, Scikit-Learn, Numpy, Pandas, Git

**Hardware** : LIDAR, Camera, IMU, PIC Microcontroller, Proximity Sensors, Encoders

## PUBLICATIONS

• S. Sahoo, M. Saboo, D. K. Pratihar and S. Mukhopadhyay, "Real-Time Detection of Actual and Early Gait Events During Level-Ground and Ramp Walking," in IEEE Sensors Journal, 15 July, 2020

## AWARDS AND ACHIEVEMENTS

• Academic Excellence Award at IIT Kanpur (2018-2019), awarded to Top 10% students

• National Talent Search and Kishore Balvaidyanik Protsahan Yojana scholarships by Govt of India