

# TEJAL BEDMUTHA

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## EDUCATION

**Veermata Jijabai Technological Institute (VJTI), Mumbai, India.**

Aug. 2019 – Jul. 2023

Bachelor of Textile Technology and Manufacturing (GPA- 3.7)

Mumbai, India

- Ranked first in the program..

## TECHNICAL SKILLS

OS : Windows, Linux, ROS (Meta-OS)

Languages : C++, Python, C, Embedded-C, MATLAB, Javascript, HTML/CSS.

Databases : Shell Scripting, MySQL.

Technologies/Frameworks : OpenCv, Scikit-Learn, Numpy, Git.

Software : Gazebo, Coppeliasim, Simulink, MATLAB, MS Excel.

## PUBLICATIONS

- Tejal Bedmutha , Jatin Salve | *Comparative Analysis and Novel Algorithm Development for heuristics based Offline Clustering of UAVs*| (under review)
- Tejal Bedmutha, Jivita Gorad, Ritik Nawgire, Aditya Jadhav | *Comparative study of in-situ polymerization by polyaniline on different fabrics for development of conductive fibres* | (under review)

## WORK EXPERIENCE

### MIKO.AI

July 2023 - Present

Robotics Engineer

Mumbai, India

- Motion planning and feature development related to robust and obstacle free motion of the robot, considering the dynamics of the robot.
- Sensor fusion and calibration to make it use case specific.
- Implementation and calibration of the controller(PID), considering its mechanical dynamics.

**ORANGEWOOD LABS** | ROS, Gazebo, C++, Python, Darknet, Computer Vision.

Sept 2021 - Oct 2021

Robotics Research Intern.

Remote, India

- Spearheaded the 3D pose estimation project for a robotic arm.
- Proficiently trained models to enhance object detection capabilities using the Darknet framework.

**AIRPIX** | Pixhawk, Ardupilot, Python, Fusion360, C++, CMake

May 2021 - July 2021

Systems Intern.

Remote, India

- Investigated the No-Permission-No-Takeoff (NPNT) protocol for drones in the Indian regulatory context.
- Explored and implemented NPNT compliance in drones using Ardupilot on Pixhawk controller.

## RESEARCH EXPERIENCE

**TEXTILE DEPARTMENT, VJTI** | Tableau, Powerpoint Presentation .

June 2022 - July 2023

*Comparative analysis of In-situ polymerization by polyaniline on different fabrics and development conductive linen fibres.*

- Investigated 0-dimensional electronic sensors and their applications alongside exploring conductive finishing techniques for textile materials.
- Researched and experimented with various synthesis and polymerization techniques to develop conductive fibers.

**MITACS - GRI** | MATLAB, Gazebo, Simulink .

May 2022 - Aug 2022

Research Intern.

Montreal, Canada

- Led Unmanned Aerial Vehicles (UAVs) deployment, clustering, and stabilization project.
- Devised an efficient algorithm to cluster UAVs before takeoff, reducing clustering time by approximately 20 seconds in comparison to the conventional evolutionary algorithms.

*Detecting changes on the images captured by the satellite.*

- Devised an algorithm using K-Means clustering & PCA to cluster the important information & to find the principal component in order to detect changes in the images over the time.
- Plotting graphs with marked changes for analytical representation and developing a ML model to further assess the possibilities of loss of vegetation.

## PROJECTS

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**Flipkart - GRID** | *ROS, GAZEBO, Python, C++, Computer Vision, SLAM*      September 2021 - October 2021  
*Multi robot handling and optimization .*

- Worked on navigation and motion planning of robots.
- Worked on robust and optimal obstacle detection and avoidance mechanism ensuring enhanced performance.

**MOB - MANIPULATOR** | *ROS, GAZEBO, Python, C++, MoveIt, SLAM*      April 2021 - July 2021  
*modelling of a mobile manipulator capable of performing various dexterous tasks autonomously.*

- Worked on the Mobile Base by applying various SLAM algorithms to achieve the desired autonomous navigation.
- Developing a four wheeled differential drive system from a two wheeled differential drive system.

**Vitarana Drone** | *ROS, GAZEBO, Python, C++, Computer Vision.* [Link to the Repo](#)      Aug 2020 - March 2021  
*drone as a purpose for Disaster management.*

- Implemented and co-devised a PID-based Control System solution for an automated Parcel Pick and Place drone for delivery in situations of calamities and disaster.
- Trained and utilized a Haar Cascade model with 30% increased accuracy for automated detection of parcel locations alongside development of an algorithm for the gripper to pick and place the boxes at the given location.

## SCHOLASTIC ACHIEVEMENTS AND AWARDS

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- Department topper with 3.7 GPA.
- Among top 2% students to be eligible for branch change based on cumulative CPI of 1st year.
- Ranked in the top 2% out of one million students who took the engineering entrance examination.
- Awarded for being an all rounder student with a monetary reward of Rs 30k from Bank of Baroda.
- Awarded the Alumni Association Scholarship, offered to students with exceptional academics and extra-curricular records.
- Selected as a Mitacs Globalink Research Intern with a research grant of \$9000 CAD -2022 .

## EXTRA-CURRICULAR

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- Participated in National Level Boxing Championship-(2023).
- Gold medalist in 100m race and Runner-up in 10km Mumbai Marathon conducted by Enthusia, VJTI-(2021).
- Silver medalist in School Games National Kickboxing Championship-(2018).
- National football player-(2016-2017).
- Bharatnatyam Dancer.
- A fervid reader and writer. You can have a glance at [my blog](#)
- Lecturer at Society of Robotics, VJTI.
- Design Head of Society of Robotics, VJTI.
- Event Manager at E-cell, VJTI and Enthusia, VJTI.
- Involved in social work as a volunteer for Milaap Organization.