# Prakriti Prasad

GitHub — PortFolio — Computer Vision Projects — LinkedIn — 215-307-8996 — prakriti0925@gmail.com


## EDUCATION

**University of Pennsylvania, Philadelphia, PA** May 2026
Master of Science in Engineering, Robotics, GPA: 3.78/4
Courses: ML, Perception, Robot Kinematics, Robot Learning, Autonomous racing

**Vellore Institute of Technology, Vellore, India** May 2023
Bachelor of Technology, Mechanical Engineering, GPA: 8.64/10

## SKILLS

**Technical:** Navigation and Path Planning, SLAM, Geometric Computer Vision, Robot Manipulator kinematics and dynamics, Machine Learning, Robot Learning
**Languages:** ROS (Robot Operating System), Python, C++
**Other:** Linux, Jetson Nano, Lidar & Depth camera

## PROFESSIONAL EXPERIENCE

**Research Assistant**
Biolines Lab, UPenn, PA Jan 2025 – Present

- Research and development (in progress) of a Deep learning algorithm to track changes in Human Cells from videos using SAM2, with Dr.Dan Huh.
- Achieved cell image segmentation to detect diameter and area changes to predict best culture time.

**Teaching Assistant**
Machine Perception (Computer Vision) CIS 580, UPenn, PA & Jan 2025 – Present
Linear Algebra and differential equations ENM 240, UPenn, PA Sep 2024 – Dec 2024

- Delivered lectures that visualized concepts to over 50 students, fostering a deeper appreciation for mathematics. Developed lesson plans and homework's with a team of four.
- Improved student performance, with 83% achieving high marks on challenging assignments.
- Graded assignments and held office hours to help students grasp the mathematics behind the algorithms.

**Robotics Software Engineer**
Accio Robotics, India Dec 2023 – May 2024

- Developed the ROS 2 navigation stack for an autonomous warehouse mobile robot, enabling real-time SLAM with 3D LiDAR. This was incorporated into the larger software stack.
- Implemented Unscented Kalman filter for Localization using wheel encoders, IMU, and 3D point cloud data, which improved localization accuracy by 100%.
- Integrated obstacle detection and avoidance system using real-time sensor feedback and behavior trees, enhancing the robot's operational safety in dynamic warehouse settings.
- Debugged and fixed errors during hardware-software integration and testing.

## PROJECTS

### LLM Guided PickPlace using Behavior cloning (RL using MultiModal data)

- Developed a VAE (Variational AutoEncoder)-based latent trajectory encoder to enhance Behavioral Cloning for pick-and-place tasks using only proprioceptive and object-centric inputs
- Integrated a Large Language Model (LLM) to translate natural language goals into spatial configurations for object placement
- Improved policy performance by 50% by integrating latent trajectory representations

### Semantic 3D Mapping and Navigation for Autonomous Vehicles

- Designed and implemented F1-3DNav, a pipeline integrating 3D mapping and path planning using Gaussian Splatting (GS) for real-time 3D scene reconstruction.
- Enhanced environmental perception by embedding semantic information using a Vision Language Model (VLM) and mapped natural language commands via a Large Language Model (LLM).
- Developed a constrained 3D path planning algorithm tailored to the non-holonomic motion constraints of F1Tenth cars, enabling safe navigation in complex 3D environments
- Success rate of about 100% when tested on the F1tenth car