Background: I was part of software module in team Abhiyaan (Autonomous shuttle project of IIT Madras) , during my tenure I implemented 3D object detection and real time dynamic path planning on an autonomous robot ,after reading the problem statement of the research paper ‘GNNs are Dynamic Programmers’ I realized that traditional algorithms for solving problems like finding the shortest path are computationally expensive and will not work well in real time for projects like Abhiyaan. So I want to explore the use of Graph Neural Networks (GNNs) with computer vision techniques to solve such algorithmic problems in real-time.

Aim: Building a path finding algorithm that works faster than pre existing algorithms for dynamic path planning.

Approach:

1) Using computer vision to get data from the camera and construct a graph-like environment.
2) This graph will serve as the input to a GNN designed to solve specific algorithmic problems like finding the shortest path. (Main research topic).
3) Evaluating performance on simulated robot environments using ROS, Gazebo and Rviz.