

Karan Manghi

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SUMMARY

- I am a graduate student looking for opportunities in the field of **Software Engineering, Software Development** and **Artificial Intelligence** starting May 2021
- I have worked in the following industries in software and research and development roles : **Education, Transportation, Automated Vehicles, Photography**
- My skills include **Python, Java, C++, OpenCV, R, MySQL, Arduino, Tensorflow, Robotics Operating System, Prolog, Keras, LiDAR, MATLAB, PyTorch, Flask, PostgreSQL, Convolutional Neural Networks, Jetson**

EDUCATION

Rochester Institute of Technology

Master of Science in Computer Science

Expected: May 2021

WORK EXPERIENCE

Kodak Alaris Labs, RIT, Computer Vision Research Assistant

Aug 2020 – Present

- The tasks were performed for photography applications
- Tasks completed :
 - Modified the existing pose detection algorithm for photography applications to increase the yaw pitch roll detection accuracy
 - Developed the code for eye gaze detection
- Skills used : **C++, OpenCV, Python**

Toyota Labs, RIT, Robotics Research Assistant

Aug 2018 – Aug 2020

- The tasks were performed for automating a forklift
- Tasks Completed:
 - Integrated the LiDAR sensor on the forklift for front obstacle detection
 - Modified the YOLO v3 object detection algorithm to detect warehouse objects
 - Designed the kinematics formulas for controlling the forklift
 - Conceptualized and tested the forklift odometry in simulation and blind spot detection
- Skills and concepts used: **Python, Vehicle kinematics, Deep Learning, Sensor electronics, ROS, Physics**

The Raymond Corporation, Automation(Robotics) Engineer Intern

May 2019 – Aug 2019

- Researched various LiDARs and vision sensors for obstacle detection
- Planned the interfacing of sensors with the safety controllers on the forklifts
- Designed the placement of sensors for maximum protection of the forklift

Alstom Signaling, Software Developer Intern

Jan 2019 – May 2019

- Created railway track plans using AutoCAD and developed code in Visual Basic for control table creation which would automate the process of railway and subway signaling by generating routes for directing the train

Stanford and UC Berkeley(iD Tech), Robotics and Machine Learning Instructor

Jun 2018 – Aug 2018

- Tasks:
 - Instructed 5 batches of teens and developed their machine learning and robotics skills from beginner to intermediate
 - Machine learning instruction included coding a backpropagation neural network in Python
 - Robotics instruction included programming a small robot car in C++ to detect obstacles and modify its path
- Skills and concepts used: **Python, C++, ROS, Sensor electronics, Teaching, Machine Learning, Jetson**

PROJECTS

Virtual Study Partner Finder:

- Designed the recommender algorithm for finding study partners
- Developed the algorithm using **Breadth First Search** in non directed graphs
- Used **Flask** as the web framework, **Python** for the algorithm development and **PostgreSQL** as the database

Indy Autonomous Challenge:

- Working as the Path Planning Lead of the RIT Autonomous Racing Team to automate an Indy Race Car
- Conceptualizing the path planning, sensor systems and navigation of the car in dynamic environments using **ROS, DDS, Ansys Simulator**

Mobile Robot Navigation using SLAM:

- Simulated the EKF-SLAM on **MATLAB**
- Experimented landmark extraction using an open source library called **Falkolib(C++)** and Kinect 360