Vivek **Mhatre**

Software Developer · Student

Current: *890 Curran Street, NW, Atlanta, GA*

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Education

Georgia Institute of Technology — *Atlanta, Georgia*

Computer Science · BS Graduation: May 2022 · MS Graduation: May 2023 — *Aug. 2019 - Present*

- Specializing in Systems & Architecture and Intelligence · GPA: 3.94

Experience

Zebra Technologies — *Holtsville, New York*

Computer Vision Intern — *May 2021 - Present*

- Developed computer vision algorithms and implemented/optimized software for Zebra's Fixed Industrial Scanners and Machine Vision Smart Cameras.
- Set up CI pipline with static analysis, style and testing tools and wrote unit tests for various algorithms, improving code quality.

Georgia Tech Research Institute — *Atlanta, Georgia*

Research Intern — *May 2020 - July 2020*

- Researched and developed various custom machine learning models using Keras to accurately characterize blast waves generated by explosive charges with ~96% accuracy.
- Parsed, organized, and prepared over seven years of collected sensor readings using Pandas and Numpy to model blast waves.
- Utilized signal processing methods to extract features from sensor data to improve the characterization of blast waves by ~10%.

MobileArq — *Summit, New Jersey*

Database Programmer — *Oct. 2014 - Sept. 2018*

- Maintained highly secure MySQL databases for large school districts consisting of 40,000 families.
- Built and maintained secure websites for various NJ organizations using a LAMP Stack and WordPress.
- Designed mockups and wireframes for a mobile application to assess performance of medical residents at Columbia University.

Extracurricular Activities

Robojackets RoboNav — *Atlanta, Georgia*

Software Lead — *Mar. 2021 - Present*

- Lead and educate a team of 20 software developers for the Intelligent Ground Vehicle Competition (IGVC). Achieved 3rd place in design and 3rd place for the Grand Award in the 2021 competition.

Software Engineer — *Dec. 2019 - Mar. 2021*

- Collaborate with team members to write code for a 200+ lb robot autonomously navigating rough terrain.
- Implemented 3D SLAM using Factor Graphs through the GTSAM library. Improved performance and computational efficiency by >55% from previous Extended Kalman Filter localization implementation.
- Used OpenCV and YOLOv3 to implement a low latency line detection algorithm able to identify lane lines and barrels in ~30ms.
- Created a ROS node testing library to streamline unit test creation and double code coverage.

Automotive Lidar Vertically Integrated Project — *Atlanta, Georgia*

Simulation Subteam Lead — *Jan. 2020 - May 2021*

- Developing a scanning 2D LiDAR system mounted on an RC vehicle to enable point-to-point autonomous navigation, with collision avoidance using ROS, Python, and C++.
- Doubled the capabilities of existing gazebo simulations to test the robustness of algorithms and eliminate bugs.

Projects

Hackathons and More

- Too Long Didn't Listen (TL:DL): Built a transcription tool during HackGT 2019 to convert an mp3 file into summarized text, highlighting keywords and linking selected phrases. Used Django and a combination of Microsoft Azure and Google Cloud.
- Created a Fantasy Premier League tool to predict player performances using reinforcement learning. Placed in top 5% of players.
- Developed a basic aimbot in Counter-Strike: Global Offensive using C and x86 Assembly.

Skills

Technologies TensorFlow, Keras, Scikit-Learn, Jupyter, Pandas, Numpy, LAMP stack, MySQL, Django

Programming Languages Python, C++, R, Java, Javascript, MATLAB, LaTeX