

COVER LETTER

Devesh Datwani

Respected Hiring Manager,

My name is Devesh Datwani and I am a second-year graduate student pursuing Robotics Engineering at Worcester Polytechnic Institute, Worcester, USA.

This cover letter is an attempt to articulate my passion for building robots and solving problems all while enjoying it.

My robotics journey began right from high school when I started building fixed wing RC aircraft as a hobby to satiate my passion for aviation. To now fortify my hobby turned passion, I pursued an undergraduate program in mechanical engineering to develop knowledge in subjects of mechanics, aerodynamics, and programming. As part of my undergraduate course, I authored a thesis on plasma actuators for flow induction inside hollow pipes, the experiments of which were conducted at the Propulsion Lab at the Aerospace Department of IIT, Mumbai (Bombay). Having observed splendid results, my team and I decided to apply for a utility patent for the same.

With exciting achievements in the space of AI (Artificial Intelligence) and limitations of innovation in mechanical engineering, the natural next step in my journey was to pursue a master's program that helps me develop the necessary skills to build autonomy for robots. This led me to pursue MS in Robotics Engineering at WPI (Worcester Polytechnic Institute). Shortly after joining, I was selected to represent WPI at the NASA (National Aeronautics and Space Administration) Extreme Challenge 2022 where my team and I were responsible for building a robot that traverses Martian surface. I used my knowledge of building aerial vehicles to this task and was a part of the mechanical design, electronics, and perception team. I worked as a graduate researcher at the surface metrology lab that unified my skills in computer vision and mechanical engineering to create learning-based techniques for surface analysis. My stint at WPI revolves around research and projects in the space of machine learning and computer vision, deep learning and robot localization / perception.

Through this cover letter, I would like to highlight one of the exciting projects I was a part of under the capstone experience at WPI. The project was tailored to cater homeowners for maintaining real time fire safety preparedness. This project was designed and developed after extensive research & consultations with the Chief, Deputy Chief of the Worcester Fire Department and homeowners. We aimed to solve a potential fire hazard situation with SLAM, computer vision and motion planning techniques. I implemented a PCA & K Means algorithm to detect landscape changes for homes by comparing maps generated from LiDAR sensors. This technique was generally developed for detecting changes in remote sensing. However, my team and I implemented it on point cloud scans and achieved the objective we wanted to. I feel it's something I am proud of due to its ingenuity. This experience not only demonstrates my technical skills but also my ability to engage with stakeholders, identify the problem statement, think critically and build a robotics solution to solve a problem statement tailored for the end user.

With this, I submit to your fine sense of judgement to make a decision on my application.

Sincerely,

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