

# Path Planning Algorithm for Automated Fiber Placement

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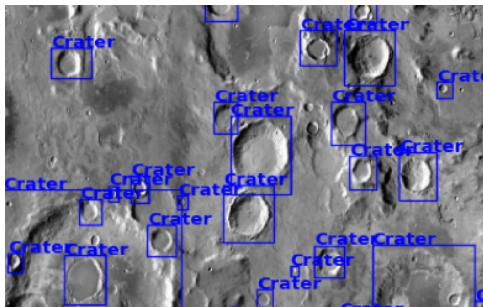
**Role**  
Robotics Engineer Intern

**Organization**  
SIT Prototype Object  
Fabrication Lab

**Date**  
May 2024 - Dec 2024

## What I did

Utilized OpenCV and computer vision techniques to map the robot's workspace. Created a virtual testing environment for the DOOSAN H2515 collaborative robot using MATLAB and ROS 2.0. Designed a 3D model of the roller end-effector in SolidWorks and developed the PCB in C++.



### How I did it

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## Tools & Results

### Tools/Environments:

- DOOSAN H2125 collaborative robot.
- MATLAB simulation environment.

### Results:

- Successfully developed a Path Planning Algorithm for Automatic Fiber Placement.
  - Enhanced lab operations with improved algorithm efficiency and reliability.
  - Reduced testing time and costs by using the virtual environment.
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## Special Skills

- MATLAB & ROS 2.0 Development
- OpenCV & Computer Vision Mapping
- Python Programming for Path Planning
- SolidWorks 3D Modeling
- PCB Design and C++ Programming

Robotics 3D CAD Modeling Sensor Fusion MATLAB	Machine Learning Computer Vision Optimization Python Programming	Control Systems Image Processing Signal Processing ROS 2.0	Embedded Systems Artificial Intelligence AutomationEngineering PCB Design
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