OM GAIKWAD

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EDUCATION

Stevens Institute of Technology | Hoboken, NJ
Master of Engineering - Electrical Engineering, Artificial Intelligence Concentration — Expected Dec 2025
Bachelor of Engineering - Mechanical Engineering, Robotics Concentration — Expected May 2025
Leadership: Chi Phi Fraternity (President), Society of Physics Students (Secretary)

WORK EXPERIENCE

SIT Prototype Object Fabrication (ProOF) Lab, Robotics Engineer Intern | Hoboken, NJ — May 2024 - Present
- Built a virtual testing environment for **DOOSAN H2515** collaborative robot using **MATLAB** and **ROS 2.0** that enabled pre-deployment testing and accelerated lab operations
- Developed isoparametric mapping of the robot workspace using **OpenCV** with **0.04 mm** precision
- Programmed a Path Planning Algorithm for Automated Fiber Placement (AFP) using **Python** as a research project
- Designed an AFP compaction roller end-effector in **SolidWorks**, equipped with **pneumatic force/tow tension control**

Charter Machine Company, Mechanical Engineer Intern | Metuchen, NJ — Jan 2023 - Jul 2023
- Designed brackets, support frames, pneumatic components in **Autodesk Inventor**, performed **FEA**, and produced **100+ fabrication drawings** to meet **ASME Y14.5 GD&T Standards**
- Optimized the **hydraulic control system** to facilitate flow and pressure control simultaneously in a single manifold, reducing the manufacturing cost by **$400** per project
- Produced **150+ technical deliverables** with appropriate **DFMA** principles; worked with Senior Engineers to **co-author Operation Manuals**

Spartificial, AI Intern | Hoboken, NJ (Remote) — Jun 2022 - Aug 2022
- Conducted a detailed analysis of lunar topography datasets to classify safe landing sites for spacecraft using image processing techniques with **TensorFlow and OpenCV**
- Independently built **Convolutional Neural Network** algorithms and analyzed **20+** lunar image datasets
- **Managed a team of 6**, to develop, test and validate the algorithm that achieved an total accuracy rating of **93%**

ENGINEERING PROJECTS

Soft Exosuit for Spinal Muscular Atrophy (SESMA 3.0), ME Capstone — Jul 2024 - Present
- Building a **bio-mechanical exosuit** to assist patients with Spinal Muscular Atrophy with sit-to-stand motion
- Integrated an **IMU sensor** and **force-sensing resistor** to a custom PCB for monitoring the user's position in real time; facilitated with the vector calculations of the recorded data in **MATLAB**
- Developed and implemented **control theory algorithms** in **C++** to optimize **IMU filtering**, reducing CPU load by 20x and increasing accuracy, achieving a **20% faster** motor control response time

Stevens Ankle-Foot Electromechanical (SAFE) Orthosis, Prototyping Team — May 2024 - Present
- Collaborated on development of a powered Ankle-Foot Orthosis (AFO) for gait training/rehabilitation
- Developed and refined 3D CAD models in **Artec 3D**; conducted rapid prototyping and assembly of **5 PLA-CF** models
- Assisted with **failure mode analysis** of the prototype and implemented design refinements, achieving a **15% reduction** in the structural weight while maintaining integrity and performance

Modeling Vehicle Dynamics using MATLAB, Personal Project — Aug 2023 - Oct 2023
- Modeled vehicle dynamics and developed both nonlinear and linear state-space representations using **Euler-Lagrange equation** to simulate its lateral and longitudinal dynamics in **MATLAB**
- Incorporated elements such as tire forces, propulsion, braking, and steering angle inputs into the **control system design** using **Simulink** that enabled real-time vehicle simulations

SKILLS

Mechanical: AutoCAD, SolidWorks, ANSYS, Creo, LabVIEW, 3D Printing, DFMA, GD&T, Artec 3D, Lean Six Sigma
Electrical: Embedded Systems, PCB Design, PWM Control
Programming: Python, C, C++, MATLAB, Javascript, ROS, Open3D