SWAPNIL JOSHI

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EDUCATION

Clemson University **August 2023 - May 2025**
Master's, Mechanical Engineering *GPA: 3.2*
- Relevant Coursework: Manufacturing Processes, Product Design, Intro to FEA, Design Automation, Material Selection.

Savitribai Phule Pune University **July 2018 - June 2022**
Bachelor's, Mechanical Engineering *GPA: 3.5*
- Relevant Coursework: Design and Product Development, Material Science, Machine Design, Industrial Engineering

SKILLS

Software Packages: SolidWorks**,** Creo (Drafting, Assemblies, GD&T), Siemens NX, CATIA, ANSYS, AutoCAD
Testing and Validation: Product Development Testing, Performance & Emissions Testing, Prototype Validation, Root Cause Analysis, Documentation & Reporting
Manufacturing Processes: DFM/DFA, CNC Machining, Casting, Welding, Tolerance Stack-Up, Quality Control
Productivity Tools: Microsoft Excel (Macros, Data Analysis), PowerPoint (Technical Presentations), Word, Outlook
Soft Skills: Cross-functional Communication, Customer Updates, Test Data Summarization, Independent Task Management

PROFESSIONAL EXPERIENCE

Manufast.in, *Product Design and Development Engineer Intern,* India **December 2022 – June 2023**
- Led design optimization efforts that resulted in a **15% reduction** in material usage, supporting sustainability and improving cost-efficiency. **Improved quality control** by conducting rigorous testing and validation on over **20 redesigned product components, which reduced defect rates by 10%.**
- **Enhanced manufacturing efficiency** by analyzing workflow and implementing optimized assembly processes, **reducing production time by 20%** and significantly improving overall throughput. Streamlined system reliability by diagnosing and addressing frequent system issues, increasing operational uptime and **reducing repair frequency by 25%.**
- Collaborated with cross-functional teams (engineering, production, and quality control) to refine product specifications and ensure compliance with industry standards, which **contributed to a 30% increase in production quality and efficiency**.
- Implemented continuous improvement methodologies like **Lean and Six Sigma principles** to identify and eliminate process inefficiencies, resulting in faster project delivery timelines.

Team MechAgrinics, *R&D and Digging System Head,* India **June 2020 – June 2022**
- Conceptualized, **designed, and developed** an autonomous onion harvesting system aimed at minimizing post-harvest losses and increasing operational efficiency. The harvester utilized precision-engineered cutting blades and synchronized lifting mechanisms to gently extract onions from the soil, **effectively reducing crop** bruising and mechanical damage by **approximately 5%,** thereby preserving the quality and shelf-life of the produce.
- Engineered for diverse field conditions, the machine was optimized for traction, balance, and mechanical adaptability across varying soil types and terrains. Adjustments to ground clearance, wheelbase, and drive control allowed for seamless operation in both soft and uneven agricultural landscapes, **resulting in a 15% increase** in overall harvesting efficiency compared to traditional methods.
- **Automated key mechanical functions**, including digging, lifting, and conveyance systems, which significantly decreased the need for manual intervention. This innovation **enabled a 20% reduction in manual labor requirements**, supporting farmers with labor shortages while improving safety and consistency in field operations.

ACADEMIC PROJECTS

Autonomous 360-degree Fire Extinguisher Robot, India **August 2021 – June 2022**
- **Designed and built** an autonomous 360-degree fire extinguisher robot that **maneuvers in various environments to extinguish fires.**
- Created a 360-degree fire suppression system within the robot, enabling it to tackle fires from any angle efficiently and **reducing emergency response time by 25%.**

Hydraulic Lift and Drop Arm, India **August 2018 – June 2019**
- Developed a hydraulic lift and drop arm solution to facilitate smoother operations and move heavy loads, **reducing manual handling time by 30% and decreasing injury reports among staff.**

CERTIFICATIONS AND PUBLICATIONS

- Introduction to Self Driving Cars
- Self-Propelled Onion Harvester
- Panat, Shrirang Sandip, Parth Patil, Swapnil Joshi, and David Gaikwad. ”Design and Development of a 360-degree Fire Extinguisher Robot using Microcontroller”, 9(5), 547-551, May 2022

LEADERSHIP EXPERIENCE

R&D and Digging System Head, Team MechAgrinics
- Led a team of 15 in Designing and Manufacturing a Self-Propelled Onion Harvester, achieving **AIR 5** and Best Design Award.

Management Activities
- Conducted seminar and presentation on Design of CNC Laser Engraver.
- Planned and managed a series of educational seminars featuring industry professionals as guest speakers.