# Atharva Ajay Wani, MS

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## Education

**Master of Science in Robotics and Autonomous Systems:** Mechanical and Aerospace Engineering — May 2024
- Arizona State University, Tempe, AZ — GPA: 3.78/4.00
- Relevant Coursework: Mechatronics device innovation, Programming of IoT devices, Machine Learning, Wearables.

**Bachelor of Technology Mechanical Engineering:** Machine Design minor — Aug 2021
- Manipal Academy for Higher Education, Manipal, Karnataka, India. — GPA: 3.53/4.00

## Skills

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| **CAD/CAE** | SolidWorks, Catia V5 & 3DX, Fusion360, Creo, AutoCAD, ANSYS, Revit, Navisworks. |
| **Fabrication/Prototyping** | 3D printing (FDM/SLA/SLS), CNC Lathe/Mill, GD&T, Laser Cutter, electric circuits design. |
| **Computer Skills** | Python, ROS2, Linux, Gazebo, MATLAB/Simulink, XML, Git, Arduino, ESP32, C++, OpenCV. |

## Professional Experience

**Tech trainee intern, Tesla** — Aug 2023 - May 2024
- Analyzed system communications, performance using advanced diagnostic tools - CAN analyzer and Pico scope, 30%.
- Reduced diagnostic time by 30% through successful Root Cause Analysis and resolution of hardware, software issues.
- Applied expertise in electric powertrain design principles and autonomous driving system interactions, 100%.
- Applied expertise in problem solving HVAC hardware and software issues.

**Mechanical Design Engineer Intern, ACME process systems pvt. Ltd.** — Feb 2021 - Aug 2021
- Integrated ANSYS for fluid flow simulation in R&D, resulting in a 30% increase in simulation accuracy.
- Transformed 10 chemical mixer designs into optimized 3D models, improving product design efficiency by 25%.
- Established streamlined procedures for 3D modeling, fluid dynamics simulation setup, reducing analysis time by 20%.
- Industrial design and manufacturing of chemical engineering industrial equipment.

**Vehicle dynamics engineer, Team Manipal racing** — Aug 2018 - May 2019
- Collaborated in a cross-functional team of 35 students to design a BAJA-SAE vehicle.
- Utilized iterative design optimization techniques to develop 20% lighter steering knuckles.
- Played a key role in the fabrication, assembly, and testing of 2 key vehicle components, Steering knuckles, and Suspension linkages, demonstrating hands-on experience and proficiency in manufacturing processes, and using machine tools, 60%.

## Projects

***Neurological Disability Assistive Technology Wearable Medical Device*** — Jan 2023 - Present

**Team Lead | Lead Engineer**
- Led a team of 6 students in collaborating with doctors at Barrow Neurological Institute, optimizing fitment and ergonomics of electric stimulation pads. Project Management.
- Spearheaded electro-mechanical design responsibilities, enhancing user accessibility and ease of operation, 100%.
- Implemented Rapid Prototyping methods to 3D print electric stimulation pad design prototypes, 20%.
- Developed strong interpersonal communication skills with people from diverse fields, 50%.
- Owned the financial and Material Requirements Planning, Life Cycle Management and interactions with investors.
- Manufactured and assembled the innovative prototype using laser cutting, 3D Printing FDM/SLS with medical grade materials resulting in Best-Project Award and patent application. (US Patent application number: 66/611,833), 100%.

***Collision avoidance system for Autonomous vehicle in ethically challenging situation*** — Jan 2024 - May 2024
- Designed MATLAB/Simulink simulations for decision making and collision avoidance algorithms, 100%.
- Identified autonomous driving scenario that may occur 10-15% more often as number of autonomous vehicles increase.
- Used Automated Driving toolbox, and Model Predictive Control toolbox, 100%.

***Prosthetic Hand*** — Jan 2023 - May 2024
- Designed a realistic 3D printed prosthetic hand with real-time motor control system, sensor fusion integration, 33%.

***Mobile robot with manipulator arm simulation. (ROS2, Gazebo, Moveit2)*** — Aug 2023 - Dec 2023
- Created a differential drive robot with simulated arms using ROS2 and Gazebo, 100%.

***Wildlife camera trap with live stream on mobile app. (ESP-32, Arduino IDE, NodeJS, AWS, HTML, CSS)*** — Aug 2023 - Dec 2023
- Developed a live feed camera on ESP-32 with version control using GIT, 100%.

## Additional Skills

- Collaborated with doctors in clinical requirements translation, disposable medical equipment design (ASU).
- Hands on experience with fabrication, test equipment, test and validation processes and data analysis (ASU).
- Debugging and analyzing complex electrical circuits in complex autonomous systems (Tesla).
- Worked with data acquisition and digital signal processing using various sensors and sensor fusion (ASU).