

## GUDIPATI SADASHIV SHRI RAM

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### EDUCATION:

**Master of Science, Mechanical Engineering (Robotics & Controls)** |University of Colorado, Boulder, CO, USA Jan 2024 - Dec 2025(exp)  
Coursework: Advanced Dynamics, Feedback Control, Linear Systems, Introduction to Robotics, Micro Electromechanical Systems, Robust Multivariable Controls.

**Bachelor of Engineering in Mechanical Engineering** |Osmania University, Hyderabad, Telangana, India Aug 2017 - July 2021  
Coursework: Basic Electronic Engineering, Mechatronics, Engineering Mechanics, Kinematics and Dynamics of Machinery, Design of Machine Elements, Computer Aided Manufacturing, Production Planning and Control.

### TECHNICAL SKILLS:

**Software & Tools:** AutoCAD, SolidWorks, Lotus Shark, Ansys Workbench, Fusion 360, Siemens NX, MATLAB, ROS2, Raspberry Pi, Arduino, LabVIEW, Ignition SCADA HMI Development & OPC UA Integration, CODESYS, Open PLC, Siemens PLC SIM and Solid Edge, Allen-Bradley PLCs, Twin CAT, SPI, I2C.

**Computer Languages:** Python, C/C++, HTML, WordPress, PHP, JSON.

**Concepts:** Machine Learning, Control Systems, PCB Design, Mechanical Design, Data Analysis, IoT, Model Predictive Control, Cloud hosting/VPS Management.

**Fabrication Skills:** CNC Lathe, FANUC, TIG, MIG, Arc Welding, Additive Manufacturing [FDM, Resin & RL Printing].

### EXPERIENCE:

**Teaching Assistant- Statics and Structures (MCEN- 2023)** Aug 2024- Dec 2024  
• Teaching Assistant under Professor Fatemeh Pourahmadian for Statics and Structures. Assisted in resolving student doubts, clarifying concepts, and supporting coursework.

**Assistant Supervisor at G.V. Satyanarayana Murthy Enterprises |Vijayawada** Jan 2022 - Feb 2023  
• As an Assistant Supervisor, I managed bid submissions by preparing technical and financial proposals, conducting detailed cost estimations including material procurement, labour costs, and risk assessments and ensuring compliance with government and private sector requirements. Additionally, I coordinated with clients, contractors, and regulatory bodies to align project execution with contractual and technical specifications while reviewing project blueprints to optimise cost efficiency and resource allocation.

**Nano-degree Program on Electric Vehicles| Elite Techno Groups |Hyderabad** Jun 2022- Oct 2022  
• Designed and modelled EV systems and architecture; developed mathematical models for electric powertrain sizing using the vehicle's drive cycle; designed Li-ion battery packs with MATLAB Simulink; conducted thermal analysis using Ansys Fluent on Pouch, LI-PO 18650 cells and Solid-State Battery.

**Electric Vehicle Design Internship | Capabl India|Banglore** Jan 2022- Mar 2022  
• Analyzed cell power characteristics, depth of discharge, and internal resistance; evaluated various battery pack designs and calculated module configurations, in depth understanding of Hybrid Systems.

**Vehicle Dynamics Master Internship** Jul 2020 - Sep 2020  
• Explored suspension dynamics, steering systems, transmissions, and braking systems with a focus on mechanical design and engineering analysis. Designed a double wishbone suspension for an ATV, conducted steering geometry analysis, and optimized powertrain sizing in SolidWorks. Performed tubular chassis stress analysis using Ansys FEA and developed braking system designs through detailed hand calculations.

**In plant Intern |Ordnance Factory Medak (Ministry of Defense, Gov of India)** Jul 2021 - Sep 2021  
• Authored detailed reports on BMP Sarath Infantry combat vehicle manufacturing and designed an automated door mechanism using Siemens NX.

**Research Intern |Defense Research and Development Organization DYSL (Ministry of Defense, Gov of India)** Feb 2021-May 2021  
• Collaborated with Scientist Dr. P. R. Vineeth to design and analyze auxetic honeycomb structures with negative Poisson ratios, optimizing mechanical properties for advanced engineering applications. Conducted finite element simulations in Ansys and Fusion 360 to evaluate load distribution, energy absorption, and dynamic behavior under varying stress conditions.

### Projects/Research:

**Fire Fighting Robot Project-** IJARESM Published- ISSN: 2455-6211 Volume 11, Issue 1, January-2023, Impact Factor: 7.429  
Designed a four-wheel differential drive firefighting robot with an acrylic chassis and N20 DC motors, modeled in SolidWorks. Integrated HCSR04 ultrasonic and IR-based flame sensors for fire localization and obstacle avoidance, programmed in Arduino IDE. Developed an Arduino Uno-controlled system with an L298N motor driver and 6V DC solenoid pump, optimized via MATLAB Simulink. Implemented a 315/433 MHz RF module and GoPro camera for remote telemetry and video feedback processed in Python (OpenCV).

**Automatic Vehicle Detection for Self-Driving Cars using Deep Learning -** IJARESM Published- ISSN: 2455-6211, Volume 11, Issue 8, August-2023  
Utilized deep learning models like Faster RCNN, YOLO, and SSD via TensorFlow Object Detection API to enhance object detection in autonomous vehicles. Focused on detecting pedestrians, vehicles, and traffic lights through extensive training and testing. Highlighted machine learning advancements for improving road safety and reducing traffic accidents.

**Quad Rotor Dynamics with Wind Gusts**  
• Designed a PID and model Predictive Control trajectory control system for a quadrotor drone, enhancing trajectory tracking under wind disturbances and achieving a 40% boost in stability metrics using MATLAB Simulink.

**E-Puck Path Planning and Rapid Exploring Random Tree- COEN 5830**  
• Implemented a Rapid Exploring Random Tree algorithm on an E-puck in Webots to simulate reaching a goal with 50% Bias and set propagation times of 5 seconds. The Project utilized Supervisor and Controller scripts to generate a Node tree for successful propagations and replay the path tree (In Python).

**MEMS Electron Microscope- MCEN 5636**  
Designed and simulated the focusing effect of an electron beam using an Einzel Lens in COMSOL Multiphysics, analyzing Beam Quality (Beta-emittance) and 1-RMS. Investigated parameters affecting these metrics in electron gun applications and a miniaturized Transmission Electron Microscope.

**Lagrangian Dynamic Analysis of a 4-Stroke Internal Combustion Engine**  
• A comprehensive dynamic analysis of a 4-stroke internal combustion engine using Lagrange's equations, considering kinetic and potential energies for each stroke. The study models piston, connecting rod, and crank dynamics to derive motion equations for efficient performance evaluation.