Chitharanjan Ganesh Kumar

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EDUCATION

Master of Science in Robotics (Mechanical Engineering Concentration) — *Dec 2025*
Northeastern University, Boston, MA — *GPA:3.79*
Coursework: Robot Mechanics and Controls, Robot Sensing and Technology, Machine Learning, Control Systems Engineering

Bachelor of Engineering in Mechanical Engineering — *Jul 2021*
RV College of Engineering, Bengaluru, India — *GPA:3.50*
Coursework: Design of Machines, Kinematics and Dynamics, Control Engineering, Strength of Materials, Automotive Systems

SKILLS

Languages: Python, MATLAB, C/C++
CAD Tools: NX, SolidWorks, Catia V5
Analysis Tools: ANSYS WORKBENCH, HyperWorks, Simulink, MS Office Suite, KISSsoft
Simulation Tools: ROS, Gazebo, KISSsys, IPG Carmaker, GT Suite

WORK EXPERIENCE

Powertrain Mechanical Design Engineer
Greaves Electric Mobility Pvt. Ltd, Bengaluru, India — *Aug 21 - Dec 2023*
- Managed the production drawings, and Bill of Materials, and conducted tolerance stack-up analysis for facilitating the mass production of components for the Motor Integrated with 2-Stage Gearbox, ensuring it met IP67 rating standards
- Commenced the development of comprehensive design documentation for E-motors and gearboxes, including DFMEA and DVP
- Engaged extensively in the prototyping, testing, and development phases of single-stage and two-stage reduction gearboxes coupled with e-motor and electrical components
- Developed an integrated motor with gearbox in 3 product development cycles, resulting in 15%-time reduction in mass production.
- Pioneered the design of Swingarm for two-wheelers, incorporating the e-motor and gearbox, marking the first such innovation

ACADEMIC PROJECTS

Indian Premier League (IPL) Score Predictor
Northeastern University – Boston, MA, United States of America — *Jun 2024*
- Collected and preprocessed historical IPL match data, handling missing values and encoding categorical variables
- Trained and evaluated multiple machine learning models (Linear Regression, Decision Trees, XG Boost, Ada Boost, Support Vector Regression) to predict match scores
- Focused on comparing model performance to determine the most effective approach for predicting IPL match scores

Simultaneous Localization and Mapping (SLAM)
Northeastern University – Boston, MA, United States of America — *Apl 2024*
- Conducted a comprehensive comparative analysis of LiDAR-based 3D mapping techniques: LeGO-LOAM and LIO-SAM
- Compared trajectories with ground truth in simulation using Root mean square error and Absolute trajectory error metrics in Python
- Assessed RMSE and ATE values to evaluate performance across different environments with TurtleBot simulations

Exoskeleton for Assisted Stair Climb
Northeastern University – Boston, MA — *Mar 2024*
- Developed a passive 3D-printed exoskeleton for assisted stair climbing with mobility analysis based on Grubler's equation
- Conducted kinematic analysis using the Newton-Raphson method in MATLAB, validating the accuracy of analytical method with results of SolidWorks
- Designed using torsion springs and levers to assist the elderly and those with lower limb weaknesses, effectively reducing stress

Team Helios Racing (SAE BAJA)
RV College of Engineering-Collegiate Club, India — *Aug 2017- Jul 2021*
- Embarked on the design and analysis of diverse drive train components, encompassing shafts, gears, and axles using CATIA V5 and KISSsoft software
- Acquired a deep comprehension of the design intricacies and conducted analysis using ANSYS Workbench for Axles, Shafts, Hubs, Open Differential, Reduction gearbox, and continuously variable transmission (CVT) components
- Developed jigs and fixtures for chassis and mounts for all subsystem parts components

Project on Robotics
RV College of Engineering- Mechanical Engineering Department, India — *Dec 2020*
- Implemented pick-and-place tasks using Robo-Arduino and managed the robot through an RF signal.
- Supported the chassis with four Omni wheels to facilitate robotic arm movement and controlled by Python code.

ACHIEVEMENTS AND EXTRA-CURRICULAR ACTIVITIES

- Engineer's Day Award winner in Greaves Electric Mobility Pvt. Ltd, Bengaluru, India — *2023*
- Member in SAE India (Student of Automotive Engineering) — *2020-2021*