HEMAN

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Interests

Path Planning, Computer Vision, Machine Learning, Robot Design, Sensor fusion.

Education

Master's in Robotics, Automation, and Mechatronics Sept 2023-Present
University of California, Riverside
Major: Robotics, Focus: Artificial Intelligence and Perception
GPA: 3.10

Bachelor of Technology in Mechanical Engineering Jul 2017-Jul 2021
Maharshi Dayanand University, India
Percentage: 74%

Experience

EFEV Charging Solutions Pvt Ltd., Sonipat, India Dec 2022 - Sept 2023
Design Engineer (Research and Development Department)

- Developed L3 and L5 category vehicles using Solidworks, CATIA, and Ansys and managed EBOM and MBOM on ERP for manufacturing and R&D departments.
- Collaborated with the NPD team to select materials and improve product quality.
- Optimized product design for cost-effective manufacturing and assembly processes.
- Managed R&D and production workflow, ensuring that the product matches the ICAT guidelines for vehicle production.

Moog Advance Systems Pvt. Ltd., Gurguram, India Mar 2022 - Nov 2022
Mechanical Design Engineer (Research and Development Department)

- Designed and developed 3D models of armoured vehicles steering assemblies and military weapons.
- Researched and analyzed customer design proposals to assess design possibility.
- Prepared sheet metal drawings for fabrication and machining with meticulous attention to detail.
- Created detailed design documentation for efficient manufacturing.

Centroid Automotive Pvt. Ltd., Karnal, India Nov 2021 - Feb 2022
Surface Design Engineer intern (Research and Development Department)

- Worked with the manufacturing team to develop and manufacture products.
- Collaborated with sketching teams and generated ClassA surface using Alias and Autodesk Fusion.
- Developed parts of two-wheelers by considering the constraints of the thermoforming technique.
- Designed moulds of surfaces by considering the specification and limitations of the CNC machine.

Greenvolt Mobility LLP, Ahmedabad, India June 2021 - Nov 2021
Mechanical Engineer Intern (Research and Development Department)

- Designed and developed qualitative testing machines and devices to improve and optimize motor vehicle performance.
- Designed a replica of data collection device to develop the autonomous kit for Indian roads .
- Designed data acquisition system for Dc motor, Electric Vehicle Batteries system using to accurately measure the changes in the performance of the motor, controller , and battery pack.
- Worked on ergonomics of electric two-wheelers.
- Worked on the design of telescopic suspension system to improve the performance of the vehicle

Center of Digital Excellence Pvt. Ltd., Noida, India Feb 2021-April 2021
3D Design and Assembly Engineer Intern (Research and Development Department)

- Designed and developed low-cost DIY cartesian and core-XY fused deposition modeling 3D printer.
- Engaged with customers to explore and understand needs for 3D printing, manufacturing, and innovation.

Honda two-wheeler Pvt. Ltd., Manesar, India June 2019- July 2019
Trainee

- Inspected wiring harness in Honda Shine(15cc), Honda CBR150, and Hornet.
- Experience in manual assembly of African Twin.
- Inspected the work flow of activa and Honda Shine(15cc) engine assembly.

PROJECTS

Fabrication of FDM 3D Printer University project
Guidance: Dr. Deepak Chhabra

- The mechanical and electrical parts have been purchased online for the fabrication of a DIY FDM 3D printer along with some parts manufactured by the 3D printer itself, making the printer self-replicating.
- Various raw materials, including ABS, PLA, PETG, NYLON, HDPE, PC, PP, and others, are combined with ingredients and nanofibers to enhance their mechanical properties for thermoplastic filament production. The process parameters are optimized for maximum efficiency and performance, considering the thermodynamics to maintain optimal temperature and pressure conditions. This results in high-quality thermoplastic filaments with superior mechanical properties.
- Successfully improved the surface finishing of the 3D object by solving the encountered problems while printing like warping, material blockage, nozzle sensor, etc.

Real time driver Behavior detection (Class Project)

- Developed a system that can determine if a driver is paying attention while driving or if they are doing something distracting, such as looking away or using a phone. When the system notices these actions, it will be able to step in and help when the driver's focus is taken elsewhere.
- Developed algorithms to enable immediate reaction to dangerous behaviors by sending out alarms and feedback.

4-DOF Robotic Arm Design and Kinematics Implementation Project

- Designed and built a 4-DOF robotic arm from scratch
- Implemented forward, inverse kinematics as well as velocity kinematics algorithms from scratch for precise control of the arm's motion.

Research Project

- Under the guidance of Professor Konstantinos Karydis, I initiated a research project focused on Soft Leg robots. This project will allow me to acquire practical experience in the areas of robotics, mechanical design, and software development for robotic systems.

SKILLS

Software Skills
Solidworks, Autocad, Autodesk Fusion, Key shots, Cura, Ansys, Catia, Creo, CARLA, gazebo, Riviz
Programming Skills
Python, HTML, C++, Ros, Java, CSS, Matlab, Arduino programming, DevOps tools (docker, git, AWS, jenkins), Computer vision, Machine learning, CNC-G Code, Latex.
Operating systems
Linux, Windows, Rassberrypi
Technical Skills
Welding, Lathe machine, Sheet metal, CNC Machine, 3d-printer, DFA, DFM, GD&T

EXTRACURRICULAR ACTIVITIES

Bachelor's degree
University Institute of Engineering and Technology, Maharshi Dayanand University, Rohtak

- Secured 1st position in Hackathon organized by CipherSchools on 9th August 2020.
- Secured 2rd position in a science competition organized by the department of environment of science.
- Secured 1st position in inter-college badminton championship in 2017 and 3rd position in 2019.