Supriyo Pal

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Summary — I'm a Mechanical Engineering student at IIEST Shibpur, specializing in Automobile Engineering,robotics,Automation and Machine Learning. Proficient in MATLAB, python, Solidworks, Fusion 360 and Ansys, my expertise spans programming, simulation, and modeling. I'm dedicated to driving innovation and aim to make significant contributions to engineering advancements.

Technical Competencies

Modelling Catia, Solidworks,Rino,Siemens NX
Simulation Ansys Workbench, Ansys APDL
Languages Python, Bash, PHP, Perl, C# , Matlab
OS Debian, Ubuntu, CentOS, Windows
Robotics CoppeliaSim, Raspberry py, Arduino
Automation AI, Docker, Deep Reinforcement Learning, ML.

Education

Indian Institute of Engineering Science and Technology Shibpur
Bachelor of Technology in Mechanical Engineering : CGPA - 8.40
Minors :Mechatronics & Robotics

Research Projects

Auxatic Materials for Dental Implant using carbon nanotubes & PEEK **Jan 2024 – Present**
Under professor Amit Roy Chaduhary (IIESTs)

Project: Description

– In this project we have created an advanced auxatic material for implants with different auxatic unit cells.

Project: My work

– To create a software form generation of lattice from different unit cell.
– To solve and analyse the final data from the final report.

Finding computational solution of naiver strokes equation using Quantum Computing **May 2024 – Present**
National Science Laboratory

– Created advanced quantum algorithms and optimized program to run in a finite time
– Configured and monitored network security measures, including firewalls and intrusion detection systems
– Configured new boundary conditions for better estimation .

Methane Emission Forecasting in Underground Mines using Cellular Automata **June 2024 – Present**
Indian Summer School of cellular automata

– Created advance cellular automaton rules to simulate methane emissions in mines
– Testing the model on real data from various coal mines in Bengal.
– Configured new boundary conditions for better estimation .

Industrial Projects

Lifecycle analysis on Hydrogen FCV and EVs **August 2023 – Dec 2023**
Under professor Bijan K. Mondal (IIESTs)

– In this project we modelled a simple financial model of FCV and EV.
– We researched about various advancements in FCV and EV technology.
– After various consideration and simulations we wrote a report about the feasibility of both the technologies in long term.

Kinematics analysis and simulation of a industrial robotic manipulator **March 2024 – April 2024**
Under professor Shamal Kumar Chaterjee (IIESTs)

– In this project we have completed the code for finding the DH parameters for given initial conditions.
– We modelled and simulated the robot in fusion and Coppeliasim.
– We compiled the result in report and created a modelled animation of the manipulator.

Control and modelling of autonomous Aerial quad rotor drone **May 2024 – June 2024**
Self Motivated

– I modelled and simulated the robot in fusion and Coppeliasim.
– The algorithm design and trajectory planning was done in matlab and python.
– Raspberry py was used as a control board with Infrared sensor for depth detection.

Design and analysis of a turbofan engine **June 2024 – July 2024**
Self Motivated

- Modelling of the engine was done in Creo pramatic for ease of design.
- The CFD scripts were written in python for automation of the analysis that was done on Ansys Fluent.
- The mechanical non linear finite element analysis was done on Ansys Workbench.

Thermo-Mechanical Analysis of a Wind Turbine Blade **June 2024 – July 2024**
Self Motivated

- Modelling of the turbine blade was done in Solidworks using aerofoil data on the web.
- The Thermo-Mechanical analysis was done on Ansys Workbench.

Design and trajectory planning for a gripper robot **June 2024 – July 2024**
Self Motivated

- I modelled the engine in Fusion 360.
- Coppeasim was used for trajectory planning and simulation.
- ROS 2 was used for robot automation.

Design of a humanoid robotic arm **July 2024 – July 2024**
Self Motivated

- I modelled the arm in Fusion 360 with gears for motion and control.
- The control scripts were written in python.
- The mechanical non linear finite element analysis was done on Ansys Workbench.

Extracurricular Activities

Core Team Member **Mar 2024 – Present**
CodeIIEST

- Served as core team member
- Reviewed and helped to conduct various activities and events for the club.

Core Team Member **Jan 2024 – Present**
GDSC IIESTs

- Served as core team member
- Reviewed and helped to conduct various activities and events for the club.
- Maintained close connection with industrial experts for guidance for the club.