Md Arafath Rahman Nishat

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Objective

A dedicated third-year Mechanical Engineering student at Bangladesh University of Engineering and Technology, I bring a solid academic background with a CGPA of 3.95. Actively pursuing internship opportunities in the domains of Robotics, Machine Learning, and Automobile, my goal is to apply theoretical knowledge to practical scenarios. Enthusiastic about contributing to innovative projects, I am eager to immerse myself in these dynamic fields, gaining valuable hands-on experience and making meaningful contributions to technological advancements.

EDUCATION

- **Bangladesh University of Engineering and Technology (BUET)**
  3rd year student, B.Sc in Mechanical Engineering; CGPA-3.95

INTERESTS

- Robotics
- Automobile
- Machine Learning
- Mechanical Design and Simulations
- Electro-mechanical Systems
- Web Development

PROJECTS

- **Prochesta v1.0- Mars Rover**
  - Debugged the electrical system of the mars rover.
  - Executed the wiring assembly of the rover for optimal functionality.
  - Participated in *"University Rover Challenge 2023 (URC)", "European Rover Challenge 2023 (ERC)", & "Anatolian Rover Challenge 2023".*

- **Prottasha v1.0- A concept Mars Rover**
  - Designed full electrical system of the mars rover.
  - Participated in *"International Rover Design Challenge (IRDC)".*

- **Pneumonia Detector based on ML**
  - Developed a pneumonia detection website utilizing my custom-trained Machine Learning model with almost 5000+ samples, based on X-ray reports. Explore it at "*https://medapp-nishat.onrender.com"*.

- **Vibration Analysis and Visualizer**
  - Created a Vibration Analyzer project, excelling in predicting and preventing machinery issues. Explored diverse applications, including health metrics monitoring for holistic wellness and real-time snooze tracking for parents.

- **Smart Surveillance System based on ML**
  - Developed an Image Classifier using ML to identify occupied and empty parking spaces. Integrated it into a CCTV-based Parking Lot Surveillance System, enabling accurate car counting and vacant space identification. Demonstrates practical ML application for real-world solutions.

- **Sign Language Detector with ML**
  - Trained a model for sign language detection.
- **Virtual Assistant with Python**
  - Developed Anisha v1.0, a Python-based Virtual Assistant proficient in recognizing human voices and engaging in vocal interactions. Capable of personalized greetings based on date and time, playing music, sending emails, searching in Wikipedia, introducing itself, opening applications, typing on a word file, providing time, date, and comprehensive weather updates for any global region. Operable through seamless voice commands.
- **Knuckle Simulation of Formula Student Car**
  - Conducted knuckle simulation and analysis for Team AutoMaestro's Formula Student car, ensuring structural integrity and performance optimization.
- **Soln v1.0**
  - Led team presentation for Soln v1.0, an autonomous drone concept for the IEEE R10 Robotics Competition-Ideathon 2023. Designed to aid post-calamity situations, the drone assesses flood-affected areas, bridges rescue efforts, and offers additional use cases like wildlife monitoring and reforestation.
- **Line Tracking Robot**
  - Developed a line-tracking robot and participated in multiple competitions.
- **Remote Controlled Car**
  - Designed and built a remote-controlled car complete with custom control software, actively participating in various tracked race competitions with the vehicle.
- **Object detection**
  - Trained a model using TinyML and implemented object detection on an ESP32-CAM.

EXPERTISE AND SKILLS

- **Cad Software:** Solidworks, AutoCAD, TinkerCAD
- **Simulation Software:** Optimum K, Proteus, Simulink, Ansys Workbench
- **AI:** Machine Learning, Deep learning
- **Programming Language:** C, C++, Python, Matlab, Arduino.
- **Web Development:** HTML, CSS, JavaScript
- **PCB and Electrical Design:** Altium, Proteus, Solidworks Electrical
- **Micro-controller:** Arduino, Raspberry pi pico, ESP32
- **Graphics:** Illustrator, Canva
- **Other Software:** Microsoft office suit, Capcut
- **Aptitude:** Event Management, Organizing, Project management, Leadership, Critical thinking

AFFLIATIONS

- **Team Interplanetar** December 2022 - Present
  Electrical Sub-team Member
- **Team Automaestro** August 2023 - Present
  Suspension Sub-team Member
- **BUET Automobile Club** June 2023- Present
  Marketing Executive

- **BUET Robotics Society** June 2023 - Present
  Secretary of design
- **IMechE BUET Student Chapter** July 2022 - Present
  Affiliate member

HONORS & AWARDS

- **Anatolian Rover Challenge 2023** July 2023
  Team Position: **1st** (Preliminary Round)
  Role in team: Electrical Sub-team Member
- **European Rover Challenge 2023 (Remote edition)** September 2023
  Team Position: **13th**
  Role in team: Project Management Specialist
- **International Rover Design Challenge (IRDC)** May 2023
  Team Position: **15th**
  Role in team: Electrical Sub-team Member
- **University Rover Challenge 2023 (URC)** June 2023
  Team Position: **27th**
  Role in team: Electrical Sub-team Member
- **Certified Solidworks Associate- Mechanical Design** March 2023
- **Certified Solidworks Associate - Electrical** November 2023
- **Certified Solidworks Associate - 3D Mold Creator** December 2023

CERTIFICATIONS

- **Supervised Machine Learning: Regression and Classification** December 2023
  Coursera
- **Signal Processing Onramp** November 2023
  Mathworks
- **Matlab Onramp** May 2023
  Mathworks
- **Introduction to Programming with Matlab** March 2023
  Coursera
- **Robotics: Aerial Robotics** April 2022
  Coursera
- **Graphics Design Workshop** August 2023
  BUET Automobile Club
- **Inside Out Workshop** August 2023
  BUET Automobile Club

Reference

Dr. Aloke Kumar Mozumdar
Professor,
Department of Mechanical Engineering,
Bangladesh University of Engineering and Technology