Saad Ahmed Rana

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SKILLS

Software *ROS2 | Gazebo | MoveIT | OpenCV | AWS ASK SDK | ReactJS | NodeJS | Typescript | TensorFlow | JupyterNotebook | Git*

Languages *Python | C++ | Arduino | MATLAB | C# | Hypertext Markup Language (HTML) | JavaScript | Cascading Style Sheets (CSS)*

Creative *Public Speaking | Interpersonal | Leadership | Teamwork | Vision-board | Product/Market fit | MVP/Prototyping | SEO*

EXPERIENCE

Headstarter AI — Remote, *New York, USA*

Software Engineering Fellow — ***July 2024 - Present***

Team Impact

- Developed a personal portfolio website using ReactJS and optimized it building a strong grip on frontend design.
- Developed a team project to gain 1000 users / 1000 USD / 1000 customers on the waitlist as a startup project.
- Built 5 AI projects including an inventory management system with complete backend design in NodeJS.
- Used Firebase, hosted website using Vercel for the product, and hosted personal portfolio website on GitHub.
- Ran Search Engine Optimization (SEO) and Google Analytics to visualize key parameters of the product website.

Fauji Fertilizer Company Limited — Mirpur Mathelo, Pakistan

Management Trainee — *Aug 2023-June 2024*

- Built a Python project to detect vibration anomaly in a running centrifugal pump at the plant site.
- Gained industrial training to manage inventory of the unit at the plant site for Ammonia, Urea, and Utilities units.
- Managed predictive, preventive, and corrective maintenance plans at the functional units.

Pakistan Institute of Engineering & Applied Sciences — Islamabad, Pakistan

Research Fellow — *June 2020- June 2023*

- Built a MATLAB application with a human-friendly GUI that runs a Parametric and Performance Analysis.
- The project was funded by the government of Pakistan and was used to develop rubber engine designs.

PROJECTS

Autonomous Unmanned Aerial Vehicle *(International Bronze@ TeknoFest, Turkey)* — *Jan 2022 – Sept 2022*

- Designed and developed a prototype of an Autonomous Unmanned Aerial Vehicle (UAV) for smart agriculture.
- The UAV is capable of autonomously detecting the affected fields and deploying locust sprays.
- The project was presented at a public exhibition held at Samsun Airport in Turkey and was declared 3rd internationally.

Voice Activated Robot using ROS2 and Alexa Skills Kit SDK — *June 2024-July 2024*

- Built a URDF voice-activated robot model for domestic use using ROS2 in Linux and integrated it with Amazon Alexa.
- Executed Path planning in the MoveIT environment using cartesian coordinates while computing in quaternion coordinates.

Finger Counter with OpenCV and MediaPipe — *June 2024-July 2024*

- Developed a Python model using OpenCV and MediaPipe libraries to build a model for counting the open fingers.

Inventory Management System — *July 2024-Aug 2024*

- Developed a website to manage the inventory using NodeJS and Material UI and hosted the website using Vercel.
- GPT AI was used to classify images and update the firebase.

Para Thrust App — *July 2024-Aug 2024*

- MATLAB application with a human-friendly GUI that lets the user design a turbojet engine of single-spool configuration.
- A UAV was designed using this app, following NASA's Systems Engineering Handbook, and published as a thesis.

EDUCATION

Aalto University Master of Science (Technology) | Mechatronics Major | Finland Scholar — *Aug 2024-Present*

- Secured Aalto University Scholarship and Finland Scholarship Grant for the mechatronics major at the Engineering School.

Pakistan Institute of Engineering & Applied Sciences Bachelors of Science | Mechanical Engineering — *Sept 2019-June 2023*

- Secured Research Fellowship and received a Certificate of Merit for an outstanding CGPA of 3.56/4.0.
- Helped 500+ students with their fees by leading the forum Muaawin for educating the less privileged students.
- Developed a MATLAB Application and served as the president of the American Society for Mechanical Engineers-PIEAS.

ACHIEVEMENTS

1st Place in Regionals of Hult Prize *~200+ UG Students* — *Sept 2021-May 2022*

- *PROBLEM SOLVED*: Collection of plastic waste from industries and households targeting SDG 12 of the UN.
- Built an app and a pyrolysis plant to enable the user to sell their plastic waste which is recycled in the plant.
- The idea was also pitched at the Hult Prize International Dhaka Summit held in May 2022.

Duke of Edinburgh International Award *~Bronze Level* — *June 2018-Dec 2018*

- *Led a dynamic team of 60 people in a program of learning and growth for 6 months and achieved a bronze-level award.*
- Raised funding for 20 computers at a local school for the underprivileged and taught them basic Python.