# Nazib Abrar

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## EXPERIENCE

**Junior Software Developer (Part Time) | FronTech Limited:**  January 2024 - Present
**Research & Development Intern | FronTech Limited:**  June 2023 – December 2023
- Developed the back-end of a Transportation Tracker System utilizing an ESP32 device, providing GPS data to a *NodeJS*-based web application. This initiative attracted significant investor investment.
- Maintained a **VPS** server automating database back-ups and implemented live video streaming in **RTMP** and **HLS** protocol.
- Created well-documented libraries in *C++* for JRC Board (an ESP32-based microprocessor development board) to ensure compatibility with Arduino shields.
- Authored educational materials for JRC board users.

**Software Developer | Team Ogrodoot:**  January 2023 – May 2023
- Implemented Meta's Segment Anything model to segment Mars terrain, contributing to Team Ogrodoot's 11th position globally in the *International Rover Design Challenge*.
- Designed the **inverse kinematics** controller for the robotic arm of the Mars rover using *Python's* arithmetic libraries such as *NumPy*.

## PROJECTS

**CORTEX-Health: An AI Assistant for Medical Practitioners (PyTorch, FastAPI, OpenCV)**
- Developed a *FastAPI*-based API server to facilitate communication between an Android application (built with Flutter) and machine learning models.
- Trained three YOLO-v8 models using *PyTorch* for disease diagnosis from medical images (e.g., X-RAY and CT scan reports).
- Programmed an API server with a *PostgreSQL* database for efficient data collection and storage.

**CORTEX Robotic Arm Controller Software (PyQT, OpenCV, Matplotlib)**
- Created *Python*-based software for controlling robotic arms using forward and inverse kinematic algorithms.
- Developed a GUI with *PyQT* to control and simulate robot movement with a 3D *Matplotlib* graph.
- Designed a custom hardware stabilization algorithm, increasing load-carrying capacity by 5%.
- Implemented computer vision-based environmental awareness and object detection using *OpenCV*.

## Leadership and Awards

**Secretary of Programming Dept | Notre Dame Information Technology Club**
- Led programming-related affairs, including contests and tutoring sessions for junior members.

**First Runner-Up - Phitron Show Your Project Contest**
- Won the project showcase competition with CORTEX Robotic Arm Controller Software.

**Champion - DRMC Tech Carnival**
- Won the Line Follower Robot racing competition using "Thunder," an LFR controller software developed with *C++.*

## Certificates

**Machine Learning Specialization**  September 2023
*Issued by: Stanford Online*