Khondokar Radwanur Rahman

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About Me

Researcher in Multiphase Systems, Autonomous Systems, Computer Vision, NLP, and Multimodal AI, with strong problem-solving skills as a competitive programmer on platforms like Codeforces and LeetCode. A passionate Kaggler, actively participating in machine learning challenges. Enthusiastic about Robotics, having competed in two international competitions — RoboSub (RoboNation) and KIBO RPC (JAXA). Also experienced as a freelancer on platforms such as Outlier and Fiverr, delivering AI and data-driven solutions.

Education

Rajshahi University of Engineering and Technology March 2022 – April 2026

- Bachelor of Science (B.Sc..) in Electrical and Computer Engineering (ECE).
- CGPA: 3.23/4.00
- **Coursework:** Computer Architecture, Data Structure and Algorithms, Object Oriented Programming, Database, Operating System, Microprocessor and Assembly Language, Control System and Robotics, Digital Signal Processing.

Dhaka City College 2017 – 2019

- Group: Science
- GPA: 5.00/5.00

Experience

Research Assistant, Qatar University – Doha, Qatar February 2025 – Present

- Currently working as a Research Assistant at Qatar University. My research spans multiple domains, including Multimodal Learning, Deep Learning, Multiphase systems, Autonomous Systems, and LLMs. In this role, I contribute to the development of innovative solutions and advanced research methodologies aimed at solving complex, real-world problems.

Software Team Lead, Team BengalSub – Dhaka, Bangladesh April 2025 – Present

- As the Software and Autonomous Team Lead for BengalSub's Hangor 1.0 AUV in the RoboSub'25 competition (Irvine, California, USA), I developed the autonomous control and perception system. I utilized MATLAB for visualization and autonomous control design, and implemented the communication pipeline across the Raspberry Pi, Jetson Orin Nano, and Pixhawk flight controller. For perception, I integrated YOLOv8 for object detection and OpenCV for underwater image processing. The autonomy stack was built in Python, leveraging MAVLink commands for decision-making and control, and structured using a Behavior Tree Algorithm to ensure robust mission planning and execution.

AI Trainer, OutlierAI – Remote, USA Nov 2024 – Jan 2025

- Outlier (often referred to as Outlier.ai) is a contributor platform operated by Scale AI, focused on generative AI work such as training and evaluating large language models through tasks like RLHF (Reinforcement Learning from Human Feedback). Projects worked on: 1. Green Wizards 2. Kepler RLHF

Projects

Hangor Autonomous Underwater Vehicle | RoboSub GitHub Repo

Hangor 1.0 is Team BengalSub's first Autonomous Underwater Vehicle (AUV) for RoboSub 2025, built in Bangladesh. Powered by a Jetson Orin Nano, RaspberryPI, and Pixhawk with ROS-based autonomy, it features YOLOv8 object detection, Underwater Image Processing, 6-DOF maneuverability, and a behavior tree mission planner.

Autonomous Free Flying Astrobee | JAXA GitHub Repo

Developed a robotics solution for the Kibo Robot Programming Challenge (ISS Astrobee) using Java and Android Studio, integrating YOLOv8 for object detection and RViz for visualization. Successfully guided Astrobee to

navigate, avoid obstacles, and complete all mission tasks in microgravity.

AgroVision | Smart Diagnosis for Plant Diseases GitHub Repo

Designed and deployed an end-to-end MLOps pipeline for plant disease classification using TensorFlow, with DagsHub, MLflow, and DVC for tracking and versioning. Built a CI/CD pipeline with AWS and GitHub Actions, and deployed a Flask web app for real-time predictions. Ensured scalability with modular OOP design, Docker containerization, and cloud deployment.

Technologies

Languages: Python, C/C++, MATLAB.
Machine Learning Frameworks: TensorFlow, PyTorch, Scikit-Learn.
Backend: FastAPI, Flask, Django.
Robotics Middleware: ROS.
Version Control: Git, GitHub.

Achievements

28th Annual International RoboSub Competition, Irvine, California, USA.[Link] August 2025

- RoboSub 2025, organized by RoboNation in Irvine, California, is an international competition where teams design, build, and program autonomous underwater vehicles (AUVs) to solve challenging real-world underwater tasks. The event emphasizes innovation, teamwork, and advanced robotics research. In the competition, Team BengalSub achieved a total of 32 out of 58 points for design and documentation, with individual scores of 32/58 for the website, 24/58 for the technical design report (TDR), 20/58 for the video, 27/58 for the presentation, and 38/58 for the system assessment.

5th International KIBO-RPC, Japan(Online) [Link] June 2024

- The KIBO Robot Programming Challenge (Kibo-RPC) tasks participants with programming free-flying robots, like Astrobee, aboard the ISS to autonomously navigate, avoid obstacles, identify targets, and perform actions such as activating switches or aligning with objects.
- Our Team n0Brains secured 7th position among 135 teams in Bangladesh in the National Round.

University Innovation Hub Program (UIHP), Rajshahi, Bangladesh[Link] May 2024

- UIHP (University Innovation Hub Program) is a Bangladesh Hi-Tech Park Authority initiative, funded by the World Bank, empowering students and alumni nationwide to develop innovative business ideas with mentorship and funding.
- Our team **MosQuitt** secured 2nd position and pre-seed funding for start-up.

Smart Rajshahi Innovation Challange, Rajshahi, Bangladesh[Link] October 2023

- Our team **Best_Trio** secured 3rd position out of 100+ teams nationwide for innovative idea and prototype showcasing.

Competitive Programming, Codeforces[Link] October 2024

- Max Rating: Pupil (1216)