Shaownak Shahriar

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Technical Skills

- **Machine Learning & Computer Vision:** PyTorch, TensorFlow, OpenCV, Object Detection, Image Segmentation, 3D Detection, Vision Transformers, GANs, Geospatial AI
- **Deployment & MLOps:** TensorRT, ONNX, TorchScript, Docker, GitHub Actions (CI/CD), AWS Sagemaker
- **Backend & APIs:** FastAPI, Django, Redis, REST APIs
- **Edge AI & Robotics:** NVIDIA Jetson (Nano/Orin), Raspberry Pi, ROS, SLAM, Sensor Fusion, Pixhawk
- **Languages & Tools:** Python, C++, SQL, Bash, Linux, CVAT, Label Studio

Professional Experience

Dubotech Ltd. *Dhaka, Bangladesh*
Autonomous Systems Engineer *May 2024 – April 2025*

- Engineered and deployed real-time underwater image enhancement systems using **GAN-based translation** for low-visibility environments.
- Deployed and optimized vision models on **Jetson Orin Nano** using **TensorRT**, achieving low-latency inference for live video streams.
- Collaborated with hardware teams to integrate AI pipelines with **Pixhawk**-based control systems.

Applied AI & Autonomous Systems (BRACU Duburi & Mongol-Tori) *Dhaka, Bangladesh*
AI & Autonomous Systems Lead *Jun 2021 – Apr 2024*

- Led AI integration for underwater vehicles and Mars rover platforms, managing **30+ engineers** and mentoring junior researchers.
- Developed real-time computer vision pipelines using **YOLO, SSD, SAM, U^2-Net, and Mask-RCNN** along with **stereo vision** and **monocular depth estimation** for edge deployment.
- Engineered terrain-aware **SLAM** and mapping modules using **ROS and LiDAR** for autonomous navigation.

Key Projects & Research

Dhaka Traffic Optimization (Geospatial AI) — *GNN, LSTM, Transformers, XGBoost, OSMnx, Folium*
Engineered a congestion simulation system using GIS road networks with interactive scenario visualization.

Drone Detection System — *YOLOv11, PyTorch, Raspberry Pi*
Fine-tuned YOLOv11 and deployed it onboard a drone for real-time drone-to-drone tracking.

Driver Safety System – *YOLOPv2, MIDAS, Jetson Nano*
Developed a real-time driver monitoring and road perception system integrating **lane detection**, **drowsiness detection** and **monocular depth estimation** to support safe driving and scene understanding.

BRACU RaptorX — Autonomous VTOL System
Co-founded an autonomous VTOL research, leading perception and autonomy development.

Point-Cloud-based 3D Object Detection for Autonomous Navigation (Best Thesis Award 2024) (CVPR)
Proposed a hybrid **GLE-SSD-VR** voxel–point model for LiDAR object detection, benchmarked on the **KITTI dataset**.

Education

BRAC University *Graduated 2024*
Bachelor of Science in **Computer Science**
Award: **Best Thesis Award 2024**

Global Achievements

1st Runner-up (Global) — RoboSub 2023, RoboNation (San Diego, USA)
7th Position (Global) — International Rover Challenge 2023 (Bangalore, India)
Participant — University Rover Challenge 2023 (Utah, USA)
3rd Place — Kibo Robot Programming Competition 2022, JAXA (Dhaka, Bangladesh)

Mentorship & Instruction

Robotics Instructor, BRAC University (2022–2023) — Taught **Introduction to Robotics** for three semesters and conducted workshops on **Computer Vision**, mentoring 100+ students.