

H.M.Mehedi Hasan (Badhon)

Associated Robotics and AI Engineer

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CAREER OBJECTIVE

Passionate Robotic and AI engineer with expertise in Robotics, NLP, ML, and computer vision. Seeking a challenging role to design and implement innovative AI solutions that enhance intelligent systems' capabilities and autonomy.

WORK INTERESTS

Natural Language Processing, Machine Learning, Computer Vision and Robotics.

WORK EXPERIENCE

Next Solution Lab, Dhaka, Bangladesh

September, 2023 - Present

Associated Robotics and AI Engineer

- Leading the development of Tele-Presence Robot with robotic arm for specific task solutions, enhancing remote communication and control systems.
- Design and implement state-of-the-art AI models with GUI according to business requirements.
- Develop machine learning-based OCR solutions according to business requirements.
- Research and develop transformers-based non-English language models for fine-tuning text classification, question answering, text summarizing based on LLM etc.
- Collaborate with cross-functional teams to integrate AI technologies into existing products.

Trainee Robotics and AI Engineer

August, 2022 - September, 2023

- Developed industrial automation solutions using object detection, text recognition, and GUI.
- Conducted R&D for computer vision and NLP-based paper implementation and product feature improvements.
- Designed and developed algorithms for data preprocessing, model training, testing, and post-processing.
- Assisted in the integration of AI models into robotics platforms.
- Participated in hackathons and competitions to showcase innovative AI solutions.

EDUCATION

Begum Rokeya University, Rangpur

Department of Electrical and Electronics Engineering

Relevant Coursework: Artificial Intelligence, Machine Learning, Robotics, Signal Processing

February, 2017 - July, 2022

B.Sc.(Eng.), CGPA: 3.38/4.00

SKILLS

Programming Languages	Python, C, JavaScript
Frameworks	TensorFlow, Keras, PyTorch, SpaCy, Transformers, Scikit-learn
Tools	OpenCV, NLTK, Gensim, NumPy, SciPy, Pandas, Matplotlib, Seaborn
Web Development	Django
Embedded Systems	Arduino, Raspberry Pi, Jetson Nano
Operating Systems	Ubuntu, Windows

Projects

Japanese OCR Data Analysis & Annotation

Conducted data analysis, annotation, and testing for Japanese OCR systems. Worked on improving recognition accuracy through detailed character-level labeling and quality assurance.

Robot-User Telecommunication System

Developed a communication system using MQTT, Django, and WebSocket for real-time interaction between robots and users. Ensured low-latency and reliable data exchange in robotics applications.

Meter Detection and Recognition

Built a system for automatic meter reading using image processing and deep learning. Focused on detecting analog/digital meter panels and recognizing values with high accuracy.

Color Matching System for Garment Fabrics

Designed a color detection and matching system to ensure consistency in garment manufacturing. Implemented algorithms for fabric color comparison under varying lighting conditions.

Data Preparation & Size Measurement for Virtual Try-On (Diffusion Model)

Prepared and processed data for a virtual try-on system using Diffusion Models. Extracted human body measurements to improve clothing fit accuracy in virtual environments.

Traffic Monitoring with YOLOv11 – Wrong-Side Car Detection

Trained a custom YOLOv11 model to detect vehicles violating lane rules. Implemented real-time monitoring and alert system for law enforcement integration.

ROBOTICS PROJECTS

Telepresence Robot with Robotic Hands using Jetson Nano and Django with WebRTC [\[GitHub\]](#)

Developed a telepresence robot for real-time remote communication. The robot includes a robotic arm controlled remotely for specific tasks and incorporates object detection for classifying and interacting

with objects.

Tech Stack: WebRTC, Django, MQTT

Prosthetic Limb Control using Electromyography (EMG) Sensor

[\[GitHub\]](#)

Developed a prosthetic limb control system utilizing EMG sensors to interpret muscle signals and control limb movements, providing a natural user experience.

Tech Stack: EMG Sensors, Signal Processing, Prosthetics

CERTIFICATIONS AND COURSES

Natural Language Processing (NLP) and Text Mining Tutorial for Beginners - Simplilearn
Machine Learning - Kaggle

Basics of Robotics, Embedded Systems, & IoT - Lead Academy

LANGUAGES

Bengali (Native)

English (Fluent)

Hindi (Conversational)

EXTRA-CURRICULAR ACTIVITIES

- Former President of Public University Welfare Association of Dimla (PUSWAD)
- Recipient of Best Organizer Award from NO-Not Out