

# Mustahid Ahmed

last updated: September 25, 2024

[Online Version](#)

## Residence

Tokyo, Japan

## Nationality

Bangladesh

## Git Profile

<https://github.com/ahmedmustahid>

## Email

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|        |      |            |      |            |      |              |      |            |      |            |      |
|--------|------|------------|------|------------|------|--------------|------|------------|------|------------|------|
| Python | ++++ | C++20      | ++++ | C          | ++++ | Dart/Flutter | ++++ | Swift      | +++  | Javascript | +++  |
| AWS    | ++++ | Statistics | ++++ | Image      | ++++ | NLP          | ++++ | Algorithms | ++++ | Data       | ++++ |
|        |      |            |      | Processing |      |              |      |            |      | Structure  |      |

## Professional Experience

Pioneer Electronics

### Machine Learning Engineer

July 2023 - Present

Sensyn Robotics

### Machine Learning Engineer

May 2022 - June 2023

HyperCube Ltd.

### Machine Learning Engineer

April 2020 - April 2022

Self employed

### Software Engineer

April 2020 - Present

## Projects

Implemented RAG pipeline with LLM for Qualcomm SoC, Pioneer Electronics

April 2024 - August 2024

Designed and implemented end to end RAG pipeline from scratch using faiss and llama.cpp. Created separate library for RAG after deriving llama and embeddings from llama.cpp. Implemented build system using Conan. CI CD using github action.

[C++](#) [Conan](#) [git](#) [faiss](#) [llama.cpp](#)

## Designed end to end middleware system for automotive radar,Pioneer Electronics

August 2023 - March 2024

Implemented API to that obtains sensor data streams and transfers them to machine learning module to deliver inference results back into an alarm sytem.

Implemented lock free ring buffer system that stopped data loss and enabled extremely fast inference. Employed unit tests and CI CD.

C++ CMake git CI/CD

## Analog gauge reading by computer vision,Sensyn Robotics

November 2022 - April 2023

Constructed model for accurately reading the analog gauge by determining the position of the dial, minimum and maximum values from the face of the scale after applying perspective transformation. Squeezed the model into smaller size by quantization in C++ and then deployed it into jetson nano.

Python Pytorch OpenCV onnx mmcv Apache TVM ncnn

## NLP based Chatbot, HyperCube Ltd.

June 2021 - October 2021

Model deployment, system design and maintenance using AWS Amplify, AWS Api Gateway, AWS Lambda, AWS Sagemaker.

Front and backend development using Flutter/Dart/Swift programming languages.

AWS Dart/flutter Swift Docker Git

## Database design and deployment, HyperCube Ltd.

March 2021 – May 2021

Designed MySQL database schema and deployed it in Azure.

Using web application API to connect web app with the database.

MySQL Azure Python Git

## Designed novel algorithm for OCR of Japanese fax documents,Self Employed Batton Ltd

Collected and labelled dataset of fax documents containing tables. Implemented novel algorithm to extract its data and obtained 97% accuracy.

Dockerized the model and created http endpoint using torchserve. Deployed the docker container into GCP Artifact registry and created inference endpoint through Vertex AI endpoint.

Python Pytorch torchserve OCR Docker GCP

## Japanese kanji generation from a specific font, Self Employed

AI Idea Lab

Used controlnet and prompt engineering to create Kanjis from novel fonts.

Python Image Generation

## GPT based AI Callerbot, Self Employed

AI Idea Lab

Converting caller's speech into text and using prompt engineering to obtain the best output from Open AI api.

Converting the api response into voice. Exchange the generated voice from python to node.js using WebRTC.

Python Node.js

## Memorize: A game for training memory, Self Employed

June 2021 - Sep 2021

Designing front end and game logic in Swift programming language.

Swift Git CI/CD

## amusta-chain: A distributed peer to peer blockchain, Self Employed

June 2021 - Sep 2021

Employed end to end TDD.

p2p mining; Implementing transfer of currencies to user wallets;

Validation of transactions by miners.

javascript Express Node.js Git CI/CD

## Education

Tohoku University

MSc, Particle Physics [2018 - 2020]

Tohoku University

BSc, Physics [2014 - 2018]

Tokyo University of Foreign Studies

Associate Degree, Japanese [2013 - 2014]

## Research

### Masters Thesis Machine Learning, Deep Learning, Data Analysis

Simulation of particle collisions and their reaction in particle detectors using C++.

Designing particle detectors using C++ framework.

Analyzing data read by particle detectors using machine learning and deep learning algorithms.

Python OpenCV PyTorch C++ Git CMake

## Conference Presentation: Japan Physical Society Annual Meeting

Full Detector Simulation of Pair Monitor and Application of Machine Learning to Determine Beam Size  
Nagoya University, Nagoya, Japan [March '20]

## Conference Presentation □ International Workshop on Future Linear Colliders

Search for weakly interacting dark matter in the International Linear Collider  
University of Texas, Arlington, Texas, USA. [Oct '18]

## Languages

English, Business Level, TOEFL iBT 110  
Japanese: Business Level  
Bengali: Native Level

## MOOCs

- [Deep Learning Specialization](#): Coursera, Stanford Online
- [Algorithm Specialization](#): Coursera, Stanford Online
- [GAN Specialization](#): Coursera, Stanford Online
- [NLP Specialization](#): Coursera, Stanford Online

Categories: Python C++ Algorithms Deep Learning