

Syed Hasibur Rahman

MACHINE LEARNING ENGINEER



Objective

Aiming for a leadership role in the AI/ML domain, where I can combine my proven advanced experience in the industry along with my HPC and Physics knowledge to solve complex challenges and drive impactful solutions and product innovation.

Career Summary

- | | |
|--------------|---|
| 2023-Present | Quality Automation Tooling, MDP, GEO, Woven by Toyota Inc.
(Tokyo, Japan) |
| | Leading a small team by managing scrum and Quality Automation tools development for HD Mapping, Medium Definition Mapping, and Enhanced Standard Definition Mapping. |
| 2021-2023 | ML Map Generation, ML Engine, Automated Mapping Platform, Woven by Toyota Inc.
(Tokyo, Japan) |
| | Generate a digital map from satellite imagery, detecting road features. Design and deploy a Kubernetes-based multi-stage map generation pipeline for automated map generation. |
| | Also supervised 3 ML interns for their internship projects on ML problems based on cutting edge technologies. |
| 2017-2021 | Deep Learning Engineer, LeapMind Inc.
(Tokyo, Japan) |
| | Research business problems and design AI/ML solutions using cutting-edge deep learning, including classification algorithms like AlexNet, VGG-16, ResNet, and MobileNet; object detection algorithms like SSD and YOLO; and segmentation algorithms like Fast-RCNN, FCN, U-Net, and Mask R-CNN. |
| 2016-2017 | Sr. Software Engineer, BJIT Inc.
(Tokyo, Japan) |
| | Conduct comprehensive research utilizing diverse deep learning platforms and conduct performance analysis by testing cutting-edge AI research methodologies. |
| 2014-2016 | Sr. Software Engineer, BJIT Ltd.
(Dhaka, Bangladesh) |
| | Development of C# application. Developing new ideas and solving various performance issues while developing methods to effectively and efficiently implementation. Also designing large scale High Available infrastructure for robust application management and integration. |

- 2013-2014 **Associate Manager, Application Management & Integration, SDI Division, Brac IT Services (bITS) Ltd.**
(Dhaka, Bangladesh)
- Developed software using C/C++, C#/ASP.NET, Groovy/Grails, and Linux HA Server System Administration. Conducted research on novel concepts and performance optimization for efficient simulation engines. Designed robust application management and integration infrastructure.
- 2010-2013 **Sr. Software Engineer, R&D Division, Documenta Ltd.**
(Dhaka, Bangladesh)
- Linux HA Server System Administration, War-Game Simulation Software Development with C/C++ (QT framework), R&D, Performance Issues, Enterprise Application Implementation, Large-Scale High Availability Infrastructure Design and Maintenance.
- 2009-2010 **System Developer, Chartered Computer Ltd. (Part-time)**
(Rajshahi, Bangladesh)
- Developing software with C#/VB.NET, MSSQL as the database, and other technologies. Developing simple websites with HTML, PHP, CSS, and other web development technologies.
- 2001-2003 **Junior Developer, Kamranga Software Ltd. (Part-time)**
(Rajshahi, Bangladesh)
- Developed and debugged RDBMS engine, CellStat Software, and other applications using C/C++ and Qt platform.

Project Highlights

- 2024-2025 **GoLang CLI Tool for GeoSpatial data ingestion**
(Quality Automation Tooling, MDP, GEO, Woven by Toyota Inc.)
- Contribute to develop and manage a command-line interface (CLI) tool for geospatial data ingestion into a PostGIS server. This tool is an integral component of serve map data for various visualization tools.
- Achievements:**
- **Upgrade to latest data spec:** Modify the code as necessary to comply latest data specification.
 - **Implement standard practices:** Implement standard coding and review practices and tools to improve code quality and maintainability.
 - **Documentation:** Add a documentation section for the tools for users as well as add standard code commenting to help developers better understand the code.
- Technology:**
- GoLang, PosGIS, Docker, CI/CD

2023-2025

Python CLI Tool for GeoServer Utilizing REST API

(Quality Automation Tooling, MDP, GEO, Woven by Toyota Inc.)

Developed a command-line interface (CLI) tool for the GeoServer application, enabling users to interact with GeoServer from a terminal. This tool is an integral component of a web-based visualization tool for map data.

Achievements:

- **Reduced User Time:** The tool has reduced user time spent working with Geo Data by 80%.
- **Elimination of Installation Requirements:** Users no longer need to install Geo applications such as QGIS.
- **Removal of Web Interface Dependence:** The tool eliminates the need to interact with the Web interface of GeoServer.
- **Automation Integration:** The tool can be integrated into Python code or used as a standalone CLI for further automation.

Technology:

- Python, Django, PosGIS, GeoServer, GeoNode

Ref: (OpenSource) <https://gitlab.com/aice/geoserver-ctl.git>

2022-202

Code Quality Improvement

(Quality Automation Tooling, MDP, GEO, Woven by Toyota Inc.)

Developed a reusable common code design to reduce duplication, enhance maintainability, and accelerate processing.

Implemented workflow policies like DesignDoc, 1-pager, and documentation alongside code implementation for better understanding, readability, and collaboration.

Achievements:

- **Reduced Code Duplication** by 70% through common code.
- **Enhanced code quality with** DesignDocs and 1-pagers.
- **Implemented** standard practices like Pair-Programming and Internal Presentations.

2021-2022

ML Framework, MLOps tool & Model Generation Pipeline - Synapse

(ML Engine, AMP, Woven by Toyota Inc. ML Engine, Woven by Toyota Inc.)

Designed a ML Framework, Synapse; that enables rapid prototyping of ML models. It integrates essential ML pipeline components, allowing users to select models and metrics through configuration files. The framework automates boilerplate code and training protocols, streamlining ML development.

Synapse orchestrates an ML pipeline that automatically pulls, trains, and converts models to ONNX format based on configuration settings.

Key achievements include:

- **Reduced ML prototype time** by providing a common framework for training and evaluation protocols.
- **Automated MLOps pipeline** triggered by database changes, retrieving model, data, metrics codes, training a new model, and saving an ONNX version upon convergence.

Technology: Python, ONNX, Kubernetes, Postgres, AWS, Pachyderm, and Artifactory.

2018-2021

Implement a quantized customized SSD model from scratch

(R&D Dept. LeapMind Inc., Tokyo, Japan)

Developed a customized SSD model tailored to a customer's specification for the purpose of detecting and locating bicycles in environments such as parking lots.

Key achievements include:

- **Performance Enhancement of 20% by** customizing layer parameters to optimize memory usage and align with the anticipated model performance.
- **Enhanced training** by applying various data augmentation techniques.

Technology: Python, OpenCV, Matplotlib

2017-2018

Implement an end-to-end solution prototype for vegetable detection

(R&D Dept. LeapMind Inc., Tokyo, Japan)

Developed a comprehensive vegetable detection system utilizing VGG-16 and VGG-19 neural networks. The system should be integrated with a web API utilizing the Flask framework for deployment and accessibility.

Key achievements include:

- **Rapid Prototyping** by implementing plug-and-play boilerplate code for ML projects enables easy model modification.
- **Automated Web API** triggered by changes in model checkpoint files, automatically reloading the Flask web application to load the latest model.
- **Optimizing the pipeline** by loading the model only when requested for the first time. Additionally, a queue system has been implemented to execute the detection process on limited hardware, such as embedded systems.

Technology: Python, flask, Linux scheduler, AlexNet, SQLite

2016-2017

Lead in Gender Detection based AI Project
(Sr. Software Engineer, BJIT Inc., Tokyo, Japan)

Lead an AI project with three engineering teams: Android, Edge Hardware, and Machine Learning. I contributed to the deep learning team for gender detection. The model deployed on a Linux-based edge device with a camera for signage. The Android app transmitted image data to the model, displaying actions based on gender detection. The project showcased as a prototype at the 2017 CEATEC fair in Japan.

Key achievements include:

- **Developed a machine learning model using OpenCV** for gender detection employing the Haar Cascading algorithm.
- **Optimized model** for very low level edge hardware which was a arm-based android board.
- **Lead 3 teams** to develop three different component and combine together to make the final product.

Technology: C++, OpenCV, Android

2014-2016

Reverse Engineer a VB6 application into VB.NET
(Sr. Software Engineer, BJIT Ltd., Dhaka, Bangladesh)

Reverse engineer a legacy Visual Basic 6 (VB6) application from its executable and its implementation in Visual Basic .NET.

Key achievements include:

- **Reverse engineering a complex UI system** that was originally mathematically calculated for a specific display resolution and pixel density. This system has since been upgraded to dynamically calculate based on modern display systems. The UI elements have been retained as closely as possible to their original counterparts.
- **Decompiling VB6 code** to reverse engineer the source code of the original software.

Technology: VB6 decompiler, VB.NET

2013-2014

Design and Implement a mission critical application cluster
(Associate Manager, Brac IT Services Ltd., Dhaka, Bangladesh)

Design and implement the infrastructure for a mission-critical application cluster comprising a total of eight servers. The cluster should include two load balancers, two web application servers, two PostgreSQL database servers with streaming replication, a database backup server, and a filesystem backup server. Each part has redundancy for fail-safe operation.

Key achievements include:

- **Zero-point failure design** was implemented to ensure redundancy at every conceivable failure point within the cluster.
- **Automated operation** was achieved by implementing streaming replication for the database. This ensures that the load balancer and web application server are configured as primary and standby, respectively. In the event of a server failure, the standby server automatically takes over as primary without any downtime. Once the failed server is replaced, it can be automatically configured to serve as the standby.
- **Automated backup** system was implemented for data safety and easy manual recovery.

Technology: Linux Administration, Bash, Distributed Shell, PostgreSQL, Tomcat, ApacheWeb server etc.

2010-2013

Damage Calculation of a War-Game Simulator

(Sr. Software Engineer, Documenta Ltd., Dhaka, Bangladesh)

Employing second-order differential equations, the target accuracy and penetration depth of a specific weapon were determined for various material types. Additionally, the damage probability was calculated for a War-Game Simulation employed in Bangladesh Army training for Strategic Planning.

Key achievements include:

- **Realistic calculation** of the damage probability for each bullets based on real physics and weather data.
- **Optimizing the pipeline by 250%** by implementing multi-threaded operations to speed up calculation

Technology: C/C++, QT, MySQL

Professional Training

2023

Cybersecurity Champion

Company: Woven by Toyota Inc.

2023

Principal of Software Security

Company: Woven by Toyota Inc.

2023

Security Best Practices

Company: Woven by Toyota Inc.

2006-2008

Higher Diploma in MCSE on Windows 2003 Server

Institute: NIIT (Rajshahi Campas)

Achievement: Outstanding

Open Source & AI Architecture

2025

DevLog: Privacy-First Enterprise AI Agent

Architect & Lead Developer | Rust, LLMs (Ollama/OpenAI/Anthropic), CI/CD

Architected a local-first AI agent that automates technical documentation by analyzing code diffs, supporting multi-provider LLMs (OpenAI, Anthropic, Local Llama).

Designed a PII Sanitization Pipeline to strip sensitive enterprise data (emails, secrets) before inference, addressing critical Data Sovereignty and GDPR/PDPL compliance requirements.

Implemented a modular "Provider Adapter" pattern, enabling seamless switching between cloud and local models for cost/performance optimization.

Documentation: <https://ananno.github.io/devlog/>

Education

2012-2014
CGPA: 3.1/4.0

Bangladesh University of Engineering & Technology (BUET)
Dhaka, Bangladesh

M.Phil., Dept. of Physics

- Solid State Physics
- Nano-magnetism

Thesis

- Study of the influence of edge profiles of Permalloy ($\text{Ni}_{80}\text{Fe}_{20}$) nanowires on the magnetic behavior of domain walls using 'micromagnetic' simulations

2008-2010
Marks: 55.34%

University of Rajshahi
Rajshahi, Bangladesh

Masters, Dept. of Physics

- Atomic & Nuclear Physics
- High Energy Physics
- High Performance Computing

Thesis

- Setup a prototype PC Cluster for High Performance Computing

2003-2008
Marks: 57.53%

University of Rajshahi
Rajshahi, Bangladesh

Bachelor with Honors, Dept. of Physics

- Atomic & Nuclear Physics
- Solid State Physics
- Medical Physics
- Mathematical Physics

Achievement

- Above 90% mark in Computer Fundamental & Programming

2000-2002
Marks: 70.80%

New Govt. Degree College
Rajshahi, Bangladesh

Higher Secondary School, Science

- Language: Bangla, English
- Science: Physics, Chemistry, Computer Studies
- Math: General Math, Higher Math

Achievement

- Above 80% mark in Computer Studies

1996-2000
Marks: 83.40%

Rajshahi Collegiate School
Rajshahi, Bangladesh

Secondary School, Science

- Language: Bangla, English
- Science: Physics, Chemistry, Biology
- Math: General Math, Higher Math
- Others: Social Science, Geography, Islam Study

Achievement

- Above 80% mark in Physics, Chemistry, Math, Social Science & Islam Study

Academic Workshops

2013 - 3 weeks
ICTP,
Trieste, Italy

WORKSHOP ON COMPUTER PROGRAMMING AND ADVANCED TOOLS FOR SCIENTIFIC RESEARCH WORK & QUANTUM ESPRESSO DEVELOPMENT TRAINING

Topic: Software Development Basics, OOP, Compilation, Linking, Extending code, Optimization, Debugging, Profiling, Parallelism, Modern Architecture, File I/O, Floating-point Math, Memory Hierarchy, OpenCL, Source Code Management, Testing, Documentation

2012 - 2 weeks ICTP, Trieste, Italy	ADVANCE SCHOOL IN HIGH PERFORMANCE AND GRID COMPUTING Topic: High-Performance Computing (HPC), Grid Computing, Graphics Processing Units (GPUs), OpenMP/OpenMPI, Parallel File Systems, Cloud Computing, and Peta-Scale Scientific Data Handling
2011 - 2 weeks ICTP+IPM, Tehran, Iran	ADVANCE REGIONAL WORKSHOP IN HPC AND GRID COMPUTING: TOWARDS ENABLING E-SCIENCE IN THE REGION Topic: High-Performance Computing (HPC), Grid Computing, GPGPU Programming, and Performance Enhancement of Parallel Programs using GPU.
2010 - 2 weeks ICTP, Trieste, Italy	ADVANCE SCHOOL IN HIGH PERFORMANCE AND GRID COMPUTING - CONCEPT AND APPLICATIONS Topic: HPC, GRID computing, Performance Increase of Parallel Program & Scientific Programs

Extra Curricular Activities

2011-2012	Basic Training on High Performance Computing - Facilitate several training and workshop on HPC, Parallel Programming and Optimization in: - University of Jahangir nagar, Dhaka, Bangladesh - University of Rajshahi, Rajshahi, Bangladesh
2006-2008	Basic Computer Training and Workshop - Train others about basic computer operation as well as computer assembly and trouble shooting.
1998-2000	Debates & Quiz Competition - Took part in several Regional and National Level Debate and Quiz Competition and own prizes
1998-2010	Organizer, Rajshahi Anushandhane Science Organization - Built various science project and helped building others - Took part in several Regional level Science Fare and own prizes both personally and organizationally.

Community Service

1999 - 45 days	BASIC TRAINING IN FIRE SERVICE AND CIVIL DEFENSE Fire Service and Civil Defense Rajshahi, Bangladesh
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Technical skills

Machine Learning	PyTorch, TensorFlow, TensorFlow-Light, TensorRT, Quantization
ML Models	Classification : VGG-16/19, AlexNet, SSD, MobileNet Segmentation : U-net, FPN, YOLO Object Detection : RCNN, Mask-RCNN, YOLO
Programming	Python, C/C++, C#, Visual Basic, SQL, GoLang, Parallel Programming, Code optimization
Database	PostgreSQL, MySQL, MS-SQL, Streaming Replication

Platform	Docker, Kubernetes, GCS, AWS, QT, Android, Unity, CI/CD, Jenkins, JIRA, Bugzilla
System Management	Bash, Zsh, System Admin, Application Management, Networking, LAMP, Zero-point-failure cluster design for Mission Critical Application
Cluster Computing	Distributed-Shell, Slurm, Gluster File System, SIMD/MIMD, OpenMP, OpenMPI, Module, Parallel Optimization
Embedded	Nvidia Jetson, Raspberry Pi, Aduino, Xilinx-FPGA baord. Android based board

Language	English	Fluent
	Bangla	Native Language
	Japanese	Intermediate: Listening, Speaking; Novice: Reading, Writing
	Hindi	Listening, Speaking
	Arabic	Reading only

Personal Info	Mother	Syeda Mahmuda Begam
	Father	Syed Mahmudur Rahman
	Date of Birth	1985-12-24
	Gender	Male
	Marital Status	Married with Kids
	Nationality	Bangladesh
	Religion	Islam
	Current Location	Japan

References

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