

MD ASIFUR RAHMAN

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SUMMARY

AI/ML Engineer with expertise in developing scalable, zero-downtime machine learning systems. Skilled in training and fine-tuning Large Language Models (LLMs) using Hugging Face, PyTorch, and TensorFlow, as well as deploying production-grade AI pipelines with Docker, Kubernetes, and Azure ML. Draws on transferable knowledge from advanced research in reinforcement learning, safe AI, LLMs, and computer vision, combined with practical industry experience in scalable system validation, containerized deployment, CI/CD automation, and delivering zero-downtime, production-grade AI solutions aligned with Agile, ASPICE, and V-model standards.

EXPERIENCE

Seeing Machines Ltd.

Canberra, Australia

Lead Test Engineer, Product Feature Development Team

April 2024 – March 2025

- Managed test plans and facilitated successful product releases for AI-based Driver Monitoring Systems (DMS), ensuring real-time performance and alignment with ASPICE and V-model.
- Led CI/CD pipeline automation in Jenkins and developed robust SIL/HIL test tools using Python and Groovy.
- Designed and implemented a zero-downtime testing infrastructure, reducing failure rates through optimized test data and analytics.
- Collaborated with developers and QA teams in a fast-paced Agile setting to drive continuous delivery.

Qorvo Inc.

Greensboro, USA

Test Engineer (Internship), Automotive Test Development Team

May 2023 – Aug 2023

- Performed automated HIL testing on semiconductor chips using C++, Python, and Bash.
- Developed pattern conversion libraries and contributed to ultra-wideband signal tools.
- Built and deployed a resource tracking system that improved team productivity by 10%.
- Completed PAX Application training (COHU); automated test workflows and generated statistical reports.

Wake Forest University

Winston-Salem, NC, USA

Graduate Research Assistant

Jan 2022 – Dec 2023

- Developed RL agents (e.g., PPO, TRPO, SAC, DQN, DDPG, QMIX) and built scalable training pipelines using PyTorch, TensorFlow, and Ray.
- Published safe reinforcement learning algorithm (AdvExRL) at IJCAI 2023.
- Managed Dockerized HPC experiments and mentored students in multi-agent RL and safe AI.

Rajshahi University of Engineering & Technology

Rajshahi, Bangladesh

Assistant Professor / Lecturer, CSE Dept.

Jan 2017 – Dec 2021

- Taught core CS courses: Software Engineering, Data Structures, C/C++, and OOP.
- Supervised student research in computer vision and coordinated industry-led internships.
- Led mobile app development workshops and student mentoring initiatives.

Daffodil International University

Dhaka, Bangladesh

Lecturer, Software Engineering Dept.

Jan 2017 – April 2017

- Delivered curriculum in C Programming, OOP, and Software Engineering with industry examples.

EDUCATION

Master of Science in Computer Science

GPA: 3.92/4.00

Wake Forest University, NC, USA

Jan 2022 – Dec 2023

Dissertation: Task-Agnostic Safe Reinforcement Learning

Bachelor of Science in Computer Science & Engineering

GPA: 3.74/4.00

Rajshahi University of Engineering & Technology (RUET), Rajshahi, Bangladesh

Feb 2012 – Oct 2016

Dissertation: Adaptive Background Modeling with Modified Running Gaussian Average

SKILLS AND EXPERTISE

- **Programming Languages:** Python (Professional), C++ (Proficient), C (Proficient), Java (Proficient), TypeScript (Basic), JavaScript (Basic), Swift (Basic), PHP (Intermediate)
- **AI & MLOps:**
 - ◊ **Data Engineering:** Web scraping (BeautifulSoup, Scrapy, Selenium), pipeline orchestration (Azure Data Factory), big data processing (Azure Databricks).

- ◊ **Frameworks & Tools:** PyTorch, Hugging Face, TensorFlow, Keras, Scikit-learn, Ray Tune, NumPy, Azure ML SDK, Weights & Biases (W&B).
- ◊ **Modeling & Applications:**
 - * **NLP & Sequence Models:** Tokenization, embedding, attention mechanisms, Transformer, RNN, GRU, LSTM, retrieval-augmented generation (RAG), parameter-efficient fine-tuning (LoRA, QLoRA), language modeling, text classification, and machine translation.
 - * **Reinforcement Learning:** Actor-critic methods, policy gradient methods, multi-agent RL, and safe RL.
 - * **Generative AI:** Pix2Pix, C-GAN, and CT-GAN.
 - * **Computer Vision:** Object detection (YOLO), image classification, and segmentation.
- ◊ **Performance Evaluation:** Confusion matrix, loss functions, fidelity, stability, perplexity, BLEU score, and divergence metrics.
- ◊ **Deployment:** Azure ML, Kubernetes, Docker, batch inference.
- **Software Engineering:** Full SDLC, fault-tolerant architecture, zero-downtime deployment, Agile, V-model, AS-PICE compliance, CI/CD pipelines, version control (Git), traceability tools (JAMA, Enterprise Architect), and JIRA.
- **Databases: SQL:** MySQL, Azure SQL; **NoSQL:** MongoDB; **Graph:** Neo4j (Basic)
- **DevOps & Cloud:** Jenkins, GitHub; AWS (EC2, Lambda, S3), Azure (AKS, Data Factory, Databricks), Docker, Kubernetes, and Linux server management.
- **Frameworks:** Node.js, FastAPI, Django, React Native, Laravel, Bootstrap
- **Testing & Validation:** Test automation, unit testing (Pytest, Google Test), integration testing, software-in-the-loop (SIL).
- **Communication & Leadership:** Cross-functional collaboration, stakeholder engagement, academic mentoring, technical documentation, Agile ceremonies, and research supervision.

PROJECTS

🔗 AdvEx-RL — Safe RL Policy Optimization (IJCAI 2023)

Developed and published a task-agnostic safe reinforcement learning algorithm (AdvExRL), improving robustness in dynamic environments.

🔗 Communication-Aware Distributed SGD for HPC

Improved training performance by 25% using communication-avoiding techniques in parallel stochastic gradient descent on multi-GPU systems.

🔗 Google Map Generation using Pix2Pix GAN

Trained a conditional GAN (Pix2Pix) for satellite-to-map image translation with custom dataset preprocessing and augmentation.

🔗 Stock Market Analysis with YFinance API

Built a real-time stock market dashboard with forecasting using Python, pandas, yfinance, and matplotlib.

PROFESSIONAL CERTIFICATIONS

- **Microsoft Azure for AI and Machine Learning**, Issued by Microsoft
- **Introduction to Containers w/ Docker, Kubernetes & OpenShift**, Issued by IBM
- **Generative AI Language Modeling with Transformers**, Issued by IBM
- **Generative AI Engineering and Fine-Tuning Transformers**, Issued by IBM
- **Generative AI and LLMs: Architecture and Data Preparation**, Issued by IBM
- **Gen AI Foundational Models for NLP & Language Understanding**, Issued by IBM
- **Sequence Models**, Issued by DeepLearning.AI
- **PAX Application Training**, COHU Inc.

LEADERSHIP AND MANAGEMENT

- Led test automation and release strategy for Seeing Machines' embedded ML system.
- Supervised undergraduate research at RUET, guiding students to national conferences.
- Managed academic-industry collaborations and internship coordination.

VISA STATUS

Currently hold a Postgraduate (PhD) Spouse Visa (Subclass 500) with **no work limitations**.

REFERENCES

Available upon request