

Khandaker Menon Zaman Pranto

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Dhaka, Bangladesh

PROFESSIONAL SUMMARY

ML Engineer building production AI systems end to end: reinforcement learning agents, Bayesian digital twins, and 3GPP synthetic data pipelines. Core contributor to [Maveric](#), an open-source Linux Foundation Connectivity platform for AI-native 5G/6G network optimization, with models deployed on AWS EKS as a multi-tenant SaaS. Started in data annotation and QA, so data quality thinking runs through every model shipped. Portfolio: [watermenon09.github.io/Personal-Portfolio](#)

CORE COMPETENCIES

Machine Learning & Deep Learning (PyTorch)

Reinforcement Learning (PPO, Stable-Baselines3)

LLM Tooling (Claude API, MCP, Prompt Engineering)

MLOps & Model Deployment (Docker, Kubernetes, AWS EKS)

Data & Streaming Pipelines (Kafka, FastAPI)

Bayesian Modeling & Digital Twins (GPyTorch)

Observability (Prometheus, OpenTelemetry)

Python, SQL, C/C++

WORK EXPERIENCE

Cloudly IO

Aug 2024 – Present

AI/ML Engineer (Feb 2025 – Present) · AI/ML Intern (Aug 2024 – Jan 2025) — Dhaka, Bangladesh

- Core contributor to **Maveric**, an open-source Linux Foundation Connectivity platform for AI-native RAN optimization; models ship as O-RAN-compatible xApps/rApps.
- Own the end-to-end **Mobility Robustness Optimization pipeline**: built the rApp (analytical + RL modes), trained **PPO agents** (Stable-Baselines3) on real-world 5G signal traces, and parallelized the previously linear pipeline for a **45–55% runtime reduction**.
- Sped up the handover protocol **5.5x on ARM and 18x on Intel** through NumPy vectorization and concurrent computation.
- Built an RF propagation prediction service using **GPyTorch Gaussian process regression** (Bayesian digital twin), backed by a 3-tier inference cache (Redis → MongoDB → Postgres) with UUIDv5 run-ID deduplication.
- Engineered **3GPP-compliant synthetic data generation**: golden topology and UE generators (Hata/UMa/UMi path loss, antenna gain patterns, shadow fading), plus RF-aware spatial traffic and mobility generation.
- Contributed to the real-data PM ingestion program: served/edge/outage **UE placement package**, CSV schema parity, and pipeline error-logging instrumentation.
- Hardened **Kafka**-backed training jobs with partition-aware consumers, exact-offset commits, and idempotent redelivery handling.
- Deployed and operate models on a **multi-tenant SaaS platform on AWS EKS** (Cognito RBAC, Postgres Row-Level Security, tenant-scoped S3), instrumented with OpenTelemetry tracing and Prometheus metrics.
- Own the digital twin and data simulation workstream, coordinating 1 engineer and 2 interns.

Intelligent Machines

Aug 2019 – Mar 2022

Junior QA Analyst (Oct 2020 – Mar 2022) · Annotation Team Lead (Aug 2019 – Sep 2020) — Dhaka, Bangladesh

- Led annotation of large-scale image and video datasets for facial recognition and object detection, owning data quality and team coordination.
- Designed and executed QA test plans, documented bugs, and ran regression testing across releases.

PROJECTS

Facial Emotion Recognition — CNN-Based Emotion Classifier

Fine-tuned ResNet on FER2013 for 7-class facial emotion classification, using class-weighted CrossEntropyLoss to counter heavy class imbalance. Built the full training pipeline (RAdam optimizer, ReduceLROnPlateau scheduling, checkpointing, TensorBoard logging) with multi-GPU distributed training over PyTorch NCCL and Test-Time Augmentation at inference.
PyTorch · ResNet · FER2013 · NCCL multi-GPU · TensorBoard · github.com/WaterMenon09/Facial-Emotion-Recognition

MalwareSentinel — Real-Time Adaptive AI Firewall

RL-based firewall that detects malicious traffic in real time, with adaptive models for device-specific anomaly detection and a collaborative threat intelligence sharing system across distributed devices.
Reinforcement Learning · Real-time inference · Distributed learning · github.com/WaterMenon09/MalwareSentinal

ACHIEVEMENTS

- U-19 Volleyball National Team Player (Middle Blocker) — Feb 2017 – Mar 2020
- 3rd Place — National Singles Rowing Championship 2022
- Participant — Breaking Barriers for Agentic Networks Hackathon (Nov 2025)

EDUCATION

BSc in Computer Science & Engineering — North South University Mar 2020 – Dec 2024

CERTIFICATIONS

Supervised Machine Learning: Regression and Classification	Stanford (Andrew Ng)
Introduction to Containers with Docker, Kubernetes & OpenShift	IBM
Claude Code in Action	Anthropic
Claude Cowork	Anthropic
Claude Code 101	Anthropic
Claude 101	Anthropic

SKILLS

Languages: Python, C/C++, Java, SQL

ML/DL: PyTorch, TensorFlow, Scikit-learn, Stable-Baselines3, GPyTorch, OpenCV, NumPy, Pandas

LLM Tooling: Claude API, Claude Code, MCP, prompt engineering

Infra & MLOps: FastAPI, Kafka, Docker, Kubernetes, AWS (EKS, S3, Cognito), Redis, PostgreSQL, MinIO, Git, DVC, MLflow, W&B, OpenTelemetry, Prometheus

Specialized: Bayesian digital twins, OpenAI Gym / Gymnasium, RL agents, RAN optimization, O-RAN x/rApps, 3GPP synthetic data generation, time-series, feature engineering, Linux