Quazi Marufur Rahman

Senior AI Enginer – Computer Vision and LLM | Transoft Solutions Inc
PhD in Robotic Vision | Centre for Robotics | Queensland University of Technology
@ maruf.csdu@gmail.com | LinkedIn | qmaruf.me

About Me

Senior AI Engineer with 14 years of experience building production AI systems across computer vision, LLM applications, and agentic automation. Specialised in designing multi-agent systems, RAG pipelines, and tool-using LLM workflows that transform manual and rule-based processes into predictive, AI-driven systems. Strong Python engineer with hands-on experience shipping LLM products using OpenAI APIs, local models, LangChain, LlamaIndex, MCP, and ChromaDB in production environments.

Work Experience

Transoft Solutions Inc Canada
Senior AI Enginer – Computer Vision and LLM *Jan 2025 – Present*

- Lead AI architecture across transportation safety products, defining LLM, CV, and agentic system design for enterprise-scale deployment.
- Designed and deployed multi-agent LLM systems for engineering workflows using OpenAI APIs and local models, enabling document search, tool execution, web search, and automated report generation. Built agent orchestration using LangChain, LlamaIndex, MCP, and ChromaDB with structured tool calling.
- Built production RAG pipelines for technical knowledge systems with embedding optimization, vector search tuning, and retrieval evaluation for high-accuracy reasoning over large document corpora.
- Developed computer vision systems for transportation analytics including detection, segmentation, and tracking models deployed in production with high real-world robustness.
- Owned end-to-end ML lifecycle including data strategy, model development, deployment pipelines, monitoring, and continuous system improvement.

Deal Analysis Software Intelligence (DASI) Toptal (Contract)
Senior Backend Engineer *Jun 2025 – Nov 2025*

- Led the architecture and deployment of a serverless AI commerce platform that transforms user room images into structured furniture intelligence and delivers real-time product recommendations across Amazon, eBay, Walmart, and Google Shopping.
- Directed integration of ChatGPT and Hugging Face models for furniture description generation, combined with multiple marketplace scraping APIs to optimize reliability, latency, and cost.
- Designed and implemented an advanced inpainting feature for interactive furniture selection and replacement, leveraging computer vision and cloud-based AI image generation.
- Built secure, subscription-ready payment infrastructure with Stripe, including checkout flows, database integration, and backend logic for platform monetization.
- Refactored monolithic scraping services into modular, scalable components, improving maintainability, cross-marketplace support, and operational efficiency.

Advanced Mobility Analytics Group Brisbane, Australia
AI Team Lead *Feb 2021 – Dec 2024*

- Led architecture and delivery of three production AI video analytics platforms for proactive road safety, contributing to the prevention of 692+ crashes and 113+ injuries across deployed regions.
- Architected scalable AWS-based video processing infrastructure (Batch, SageMaker, Lambda, Step Functions) capable of large-scale analysis (1,000+ hours/day), reducing turnaround time by 40%.
- Designed and deployed real-time multi-object detection and tracking systems on edge devices supporting 20+ road user classes, improving automated violation and conflict detection accuracy by 15%.
- Owned the full ML lifecycle (data strategy, experimentation, deployment, monitoring) across detection, segmentation, pose estimation, and tracking systems in production.
- Led cross-functional teams across CV, engineering, QA, and delivery, driving platform-level performance improvements of 20% and ensuring reliable end-to-end deployment.

Tiger IT Bangladesh Ltd Dhaka, Bangladesh

Senior Machine Learning Engineer *Apr 2014 – Feb 2018*

- Designed end-to-end Bengali license plate detection system. This computer vision and **deep learning** system can identify vehicle license plates in real time for speed detection.
- Developed **machine learning algorithms** using Scikit-Learn and Python to measure face image sharpness and the presence of eyeglass for face verification system to meet ICAO standard. Designed a faster facial recognition algorithm that uses 10% less memory than the state-of-the-art approaches.
- Designed a deep neural network using autoencoder for a faster speaker recognition system with higher accuracy. Led the **research and development** of a palm print detection algorithm to search query images from a large database efficiently. Our proposed algorithm was 5% faster and 10% better than the previously deployed system.

KAZ Software Ltd Dhaka, Bangladesh

Software Engineer *Oct 2013 – Apr 2014*

- Developed a web-based knowledge aggregation platform using KnockoutJS and NodeJS, designing both frontend and backend systems to store and query a Neo4j-based knowledge graph.
- Designed scalable RESTful APIs and optimized graph database queries to support efficient relationship traversal and real-time user-driven search experiences.
- Led software development lifecycle activities including planning, requirements analysis, development, testing, deployment, and post-release maintenance in a client-facing environment.

Nascenia IT Ltd Dhaka, Bangladesh

Software Engineer *Jun 2012 – Oct 2013*

- Led development of multiple web-based products using Django, Ruby on Rails, SQL, and JavaScript, delivering full-stack solutions from architecture design to production deployment.
- Designed and implemented RESTful APIs for internet-connected home appliance controller systems, enabling secure device communication and remote management.
- Participated in project planning, system architecture discussions, and database design; maintained development, staging, and production environments to ensure high system reliability and data integrity.