Faria Jaheen

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LinkedIn, Github

PROFILE

Vision-driven AI Innovation Leader and PhD Researcher with 12 + years of global experience bridging artificial intelligence, generative AI, and cloud-native systems across healthcare, robotics, and enterprise modernization. Proven expertise in agent orchestration, large language models, prompt engineering, and cloud-native deployment of GenAI solutions. Recognized for building compliance-aware, scalable, and production-grade AI agents aligned with enterprise governance, risk management, and business objectives in regulated domains. Recognized for leading multidisciplinary teams through high-impact innovation cycles. Demonstrated excellence in advanced research into production-grade solutions that enhance accuracy, throughput, interpretability, and strategic decision-making.

EDUCATION

• University of Ottawa — Ottawa, Ontario

Ph.D, Electrical Engineering and Computer Science — Sep 2019 - Dec 2025
CGPA: 9.41 out of 10
Concentration: Artificial Intelligence

• American International University-Bangladesh (AIUB) — Kuril, Bangladesh

Masters of Science, Electrical and Electronic Engineering — Jan 2018
CGPA: 3.88 out of 4
Distinction: Magna Cum Laude
Concentration: Applied Microwave Engineering

Bachelor of Science, Electrical and Electronic Engineering — Jan 2013
CGPA: 3.95 out of 4
Distinction: Summa Cum Laude
Concentration: Microwave Engineering

PROFESSIONAL EXPERIENCE

AI/ML Researcher & PhD Candidate — Sep 2019 – Dec 2025
University of Ottawa — Ottawa, Ontario

Doctoral Research & Scholarly Contributions

- Directed the development of AI-driven kinematic and trajectory-planning frameworks for modular 6–9 DoF C-arm fluoroscopy systems integrated with surgical tables, enabling precision imaging and explainable robotic motion control.
- Engineered generative and agentic AI architectures (Transformers, GANs, VAEs) to model complex multi-joint robotic systems, performing collision-free workspace analysis across six clinical projections ($>$ 130 K poses).
- Architected scalable ML pipelines combining analytical inverse kinematics and deep neural networks achieving $>$ 95% accuracy and 30% runtime reduction via GPU acceleration.

- Deployed end-to-end AI and simulation pipelines on Azure ML Studio, containerized with Docker/Kubernetes, and implemented MLOps automation to streamline continuous validation and Continuous Integration and Continuous Delivery integration processes.
- Architected cloud-native micro-services using Azure App Service, AWS, and API Management to operationalize research models for healthcare and robotics.
- Designed large-scale AI pipelines using Python, TensorFlow, and PyTorch, deployed via Azure ML Studio and Kubernetes.
- Collaborated with interdisciplinary teams to transform legacy MATLAB/ROS systems into scalable intelligent solutions, reducing computation latency.

Agentic AI Research & Independent Innovation Projects

Agentic AI Career-Conversation Chatbot

- Developed an enterprise-grade autonomous AI agent supporting recruiter and advisor-style conversational workflows using LangChain, FastAPI, and OpenAI APIs.
- Implemented guardrails, prompt routing, and evaluation layers to ensure safe, reliable, and context-appropriate responses.
- Deployed chatbot infrastructure using Dockerized cloud services (AWS/GCP) with CI/CD integration, version-controlled deployments, telemetry logging, and performance monitoring for stable production inference.

AI-Powered Digital Twin

- Developed a fully autonomous, reasoning-capable Agentic AI Digital Twin designed to emulate my professional, research expertise, and communication style through multi-agent cognition and cloud-native deployment.
- Designed retrieval-augmented reasoning pipelines combining embedding-based lookups, context prioritization, and dynamic routing to maintain persona fidelity and domain alignment.
- Containerized the agentic system using Docker, deployed via AWS micro-services, and integrated autoscaling, environment versioning, and modular API endpoints for robust production performance.

Overall Lead Teaching Assistant (Graduate Course) **Sep 2022 – Apr 2023**
Sep 2023 – Apr 2024
Sep 2024 – Apr 2025
Sep 2025 – Dec 2025

University of Ottawa **Ottawa, Ontario**

- Directed academic delivery for "ELG/GNG 5301: Professional Skills & Responsibility" across 7 consecutive semesters, leading 3 to 7 Teaching Assistants and mentoring over 1,200 graduate engineering students from all disciplines.
- Integrated hands-on modules merging Arduino-based projects, leadership, ethics, and communication, promoting experiential learning and applied innovation.
- Collaborated with faculty leadership to modernize curriculum and embed hybrid instructional models, optimizing delivery for in-person and virtual learning environments.
- Advanced academic integrity and research communication through seminars on technical training, documentation, plagiarism awareness, and literature review methodology.
- Designed and facilitated graduate-level workshops on professional skills, technical project execution, applied innovation, and hands-on training with emerging technologies such as Arduino.

STEM Educator (AI Courses) **May 2024 – Oct 2025**
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- Designed and delivered advanced courses on Machine Learning, Generative AI, and data-driven decision making for young to adult learners in engineering.
- Built case-based labs using LangChain, OpenAI, and Python backends, including practical demonstrations of agentic AI workflows.
- Provided advisory to engineering professionals on deploying AI securely in workplace contexts.

Teaching Assistant (Undergraduate Course) **Sep 2020 – Dec 2020**
Sep 2021 – Dec 2021
University of Ottawa **Ottawa, Ontario**

STEM Applications Developer **May 2021 – July 2021**
STEM World Educational Services Inc. **Ottawa, Ontario**

Adjunct Lecturer **Jan 2015 – Jan 2016**
Uttara University **Uttara, Bangladesh**

Lecturer **Feb 2014 – Dec 2015**
Atish Dipankar University of
Science and Technology (ADUST) **Dhaka, Bangladesh**

PEER REVIEWED PUBLICATIONS

1. F. Jaheen, and A. A. N. Ovi (2013), "Novel design of miniaturized triple band square microstrip patch antenna with F slot for fixed service satellite and microwave C band applications." In Progress In Electromagnetics Research Symposium Proceedings.
2. F. Jaheen, A. A. N. Ovi and M. Akhi (2016), "Slot loaded square microstrip patch antenna for dual band operation." Electrical and Electronic Engineering, 6(1), 11-17.
3. F. Jaheen and M.T. Ali (2017), "Evaluation of SAR and Temperature Elevation in Human Head for Advanced Wireless Services (AWS) Application," Journal of Microwave Engineering & Technologies, ISSN: 2349-9001 (online), Volume 3, Issue 3.
4. F. Jaheen, V. Gutta and P. Fallavollita (2025), "C-arm and Patient Table Integrated Kinematics and Surgical Workspace Analysis," in IEEE Access, doi: 10.1109/ACCESS.2025.3615843.
5. F. Jaheen, V. Gutta and P. Fallavollita (2025), "Trajectory Planning for Multiple Degrees of Freedom C-arm Systems," in IEEE Access, doi: 10.1109/ACCESS.2025.3623567.
6. F. Jaheen, V. Gutta and P. Fallavollita (2025), "Modelling C-arm fluoroscopy and Operating table Kinematics via Machine Learning". Frontiers in Robotics and AI.

CORE SKILLS

- Agentic AI & GenAI: LangChain, LangGraph, AutoGen, CrewAI, ReAct, OpenAI APIs, MS Copilot Studio
- LLMs & ML: Prompt engineering, LLM fine-tuning, RAG, Transformers, PyTorch, TensorFlow, Hugging Face
- Backend & APIs: Python, FastAPI, Flask, RESTful APIs
- Cloud & DevOps: Azure, AWS, GCP, Docker, Kubernetes, CI/CD (GitHub Actions, Azure DevOps)
- Monitoring & Safety: Agent evaluation, telemetry logging, performance monitoring, guardrails, responsible AI
- Enterprise Integration: CRM/API integration, microservices, secure data pipelines