

Fatima Raadia

Michigan, USA

+1-(313) 848-6786 · fatimaraadia14@gmail.com · [LinkedIn:/fatima-raadia](https://www.linkedin.com/in/fatima-raadia) · Michigan, USA

Summary

Computer Science PhD researcher and Software Engineer with hands-on experience in ADAS, Real-time Embedded Systems, and algorithm development. Proficient in C++, Python and MQTT (mosquitto) for designing real-time communication systems, camera streaming, and data visualization. Experienced in networked systems, software optimization, security protocols, and collaborative problem-solving to deliver innovative, performance-driven solutions.

Education

Wayne State University, Detroit, MI

March 2025 (Expected)

PhD in Computer Science, GPA: 3.87

Research Interests: [Real-Time Systems](#), [ADAS](#), [Edge Computing](#), [Security & Optimization](#)

North South University, Dhaka, Bangladesh

BSc in Computer Science & Engineering, GPA: 3.76 (Magna Cum Laude)

Skills

Programming:	C++, Python, MATLAB, OpenCV, Java, Assembly Language
Embedded Systems:	FreeRTOS, Embedded C, MQTT (mosquitto), Arduino, Raspberry Pi, Linux
HMI Development:	Data Visualization, Camera Streaming, Low-Latency Communication Systems
Networking & Protocols:	TCP/IP, MQTT, CAN, HTTP-based APIs
AI/ML:	TensorFlow, PyTorch
Tools:	Jenkins, Git, PSPIICE, LabVIEW, Simulink
Security & Optimizations:	Security-aware Real-Time Scheduling, Secure Task Allocation, Access Control
Soft Skills:	Collaborative, Adaptive, Creative, Problem Solver

Professional Experience

Software Engineering Intern – Valeo, North America

Sept 2024 – Present

ADAS, Camera Systems, & HMI

- Collaborated with cross-functional teams to support software deliverable definitions, ensuring release documentation and configuration management.
- Engineered reliable data transmission in real-time using Mosquitto MQTT for low-latency communication between camera, tracking systems, and cluster displays.
- Worked on ADAS (Advanced Driver Assistance Systems) and camera systems, optimizing data synchronization and integration for enhanced performance.
- Deployed and monitored CI/CD pipelines using Jenkins for real-time performance tracking and debugging.
- Provided on-site support at customer locations for component integration, troubleshooting, and debugging during bench and vehicle testing phases.
- Streamlined vehicle testing workflows by creating automated scripts in Python, improving testing efficiency.
- Designed and implemented robust data pipelines for camera sensor processing, ensuring real-time synchronization and calibration.
- Coordinated with hardware teams to align software development with sensor hardware specifications.
- Delivered hands-on training to development teams on CI/CD usage, release processes, and troubleshooting practices.

Graduate Research Assistant – Wayne State University
Real-Time & Embedded Systems

Jan 2023 – Aug 2024

- Investigated safety-critical embedded systems to identify vulnerabilities and optimize system-level security.
- Designed and implemented advanced algorithms to ensure schedulability for real-time task systems.
- Optimized security mechanism switching, achieving up to 30% reduction in overhead while maintaining timing constraints.
- Conducted performance evaluations on autonomous mobile robot tasksets, offloading tasks to edge servers to ensure system reliability.
- Developed real-time scheduling frameworks for edge-assisted systems, enhancing deadline adherence under overloaded conditions.
- Published 4 peer-reviewed articles on real-time systems and scheduling in top-tier international conferences.

Graduate Teaching Assistant – Wayne State University
Computer Science

Jan 2020 – Dec 2022

- Taught courses in Object oriented programming (OOP), Algorithms, and Ethics; mentored students to excel in real-world programming challenges.
- Awarded the GTA Excellence Award (2021–2022) for exceptional contributions to teaching and mentoring.

Projects

Advanced HMI Development with Camera Streaming and Network Protocol Integration

- Developed an HMI system integrating live streaming from a camera with tracking data from Seeing Machines software for enhanced functionality.
- Utilized Mosquitto and MQTT, a lightweight messaging protocol, to achieve efficient, low-latency communication between the camera, tracking system, and cluster display.
- Enhanced data visualization and reliability, delivering an optimized, user-centric interface for real-time monitoring.

Scheduling Models Based on Security Considerations

- Refined real-time secure task models for safety-critical embedded systems, balancing timing and security requirements.
- Optimized security mechanism switching overhead, achieving up to 30% improvement in performance.
- Designed strategies to ensure timely responses, enhancing reliability in dynamic task systems.
- Collaborated on refining models and protocols, contributing expertise in real-time systems and security.

Schedulability for Edge-Assisted Overloaded Systems

- Developed scheduling frameworks to manage real-time constraints in overloaded processors.
- Implemented task offloading to edge servers, preventing missed deadlines and improving system reliability.
- Enhanced offline analysis techniques for efficient scheduling and task allocation.
- Provided technical insights to optimize algorithms for high-performance real-time systems.

Research Publications

- “An Improved Security-Cognizant Scheduling Model,” 27th IEEE International Symposium On Real-Time Distributed Computing (ISORC-2024).
- “A Scheduling Model Inspired by Security Considerations,” 26th IEEE International Symposium On Real-Time Distributed Computing (ISORC-2023).
- “Real-Time Schedulability Analysis,” 18th IEEE International Conference on Embedded Software and Systems (ICESS-2022).
- “ILP Representations of Multi-Phase Limited-Preemption Tasks,” 2nd IEEE OPERA Workshop, co-located with 45th IEEE Real-Time Systems Symposium (RTSS).