Nazmus Shakib Sayom

nsssayom@gmail.com — github.com/nsssayom — linkedin.com/in/nsssayom — sayom.me

Summary

Ph.D. student in Computer Science at the University of Utah with extensive experience in embedded Linux and software development, currently researching cyber-physical systems security with a focus on surrogate-based falsification and safety policy verification for autonomous and multi-robot systems.

Education

Ph.D., Computer Science Aug 2024 – Present
University of Utah Expected: 2029
Research Area: Cyber-Physical Systems Security
Advisor: Luis A. Garcia

B.Sc., Computer Science & Engineering 2017 - 2020
American International University-Bangladesh Summa Cum Laude, CGPA: 3.96

Research Experience

Graduate Research Assistant Aug 2024 - Present
University of Utah, Salt Lake City, USA

- Property-guided falsification for CPS control stacks: build property-scoped reductions of control logic and physical dynamics to accelerate violation discovery; validate counterexamples on full systems (e.g., PX4, ArduPilot).
- Safety policy verification in multi-robot systems with multiple stakeholders: formalize policies, model role/permission constraints, analyze conflicts, and assess runtime monitoring.

Industry Experience

Linux Developer Dec 2022 – Jul 2024
meldCX, Dhaka, Bangladesh (Remote)

- Built embedded Linux distributions for ARM SoCs/SoMs with OTA update capabilities, incorporating security hardening measures to meet stringent fintech requirements.
- Developed a multi-threaded, memory-safe Linux service that securely exposed device driver functions over the network, enabling safe integration with consumer-facing applications.
- Collaborated with QA teams and device vendors to improve driver reliability, strengthen system stability, and support successful product demonstrations.
- Defined hardware requirements and benchmarked release candidates to ensure optimal performance and compliance with security and reliability standards.

Senior Software Engineer Apr 2021 - Dec 2021
HelloTask Platform Ltd., Dhaka, Bangladesh

- Led design and development of a jobs platform for blue-collar workers.
- Built an IVR broadcasting and input-collection system for users without internet access.

Embedded Systems Engineer Jun 2020 - Mar 2021
HelloTask Platform Ltd., Dhaka, Bangladesh

- Prototyped a self-checkout store network to improve customer experience and security.
- Built a centralized out-of-home advertising delivery platform using IoT and computer vision analytics.

Lecturer (ETE/ICE) Jan 2022 - Dec 2022
Daffodil International University, Dhaka, Bangladesh

- Taught Operating Systems, Embedded Systems, and Computer Fundamentals.
- Co-authored two conference papers in deep learning; secured funding for low-cost educational technology research.

Technical Skills

Languages: C/C++, Python, Bash, JavaScript/TypeScript
Systems/Frameworks: Embedded Linux, Yocto, Kernel Development, FastAPI, Node.js, NestJS, PyTorch
Tools: Git, CMake, Docker, OpenCV, SQL, MongoDB, GraphQL, InfluxDB
Protocols: UART, I2C, SPI, LoRaWAN, BLE, REST, MQTT, WebSocket
Hardware: Raspberry Pi (3/4/CM4), ESP32, STM32, Toradex SoMs/Boards, ARM, Arduino
Security: Secure boot, OTA signing, AppArmor/SELinux, iptables/nftables, TLS/PKI

Honors & Awards

- Summa Cum Laude, American International University–Bangladesh (AIUB)
- Dean's List, Spring and Fall 2019, AIUB
- Champion, App Development, AIUB CS Fest 2017