

Yeaseen Arafat

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RESEARCH INTERESTS

Third-year PhD student with interests in Systems and Software Security, focusing on automated software testing, program analysis, compiler design, and generative AI for fuzzing, program generation, and bug triage.

EDUCATION

🎓 The University of Utah

Ph.D. in Computer Science

Aug 2023 – Present

M.S. in Computer Science

Aug 2023 – Dec 2025 (Expected)

🎓 Bangladesh University of Engineering and Technology (BUET)

B.Sc. Engg. in Computer Science and Engineering

Feb 2015 – April 2019

PROFESSIONAL EXPERIENCE

Graduate Research Assistant

May 2024 – Present

FuTURES³ Lab, The University of Utah.

Utah, USA

- Built a fuzzing framework for code translators across multiple input-output language pairs (C→Rust/Go, Go→Haxe).
- Developed **TeTRIS**, a general-purpose mutational fuzzing framework to uncover semantic translation bugs in source-to-source code translators (e.g., C2Rust, CxGo, Go2Hx).
- Developed a multi-language (C, Go, Haxe) parser with static analysis on uniform ASTs to enable automated semantic-preserving program generation.

Lecturer

June 2019 – July 2023(On Leave)

Department of Computer Science and Engineering, Southeast University

Dhaka, Bangladesh

- Taught core undergraduate CS courses and supervised thesis/final year projects in machine learning and data analysis, while contributing to curriculum development.

Undergraduate Student Researcher

Apr 2018 – Apr 2019

Bangladesh University of Engineering and Technology

- Designed an ML-based intrusion detection system in the MAC layer of Network Simulator-2, using statistical features (e.g., packet ratios, inter-arrival times) to differentiate malicious and benign nodes.

OPEN SOURCE CONTRIBUTIONS

- **Bug Discovery:** Discovered and reported **60+ developer-confirmed** previously-unknown bugs across projects such as `c2rust`, `Zig translate-c`, `cxgo`, `Go compiler`, and `go2hx`. [FuTURES³ Lab's Bug Tracker]
- **Upstream Contributions:** Contributed patches through merged PRs to major open-source projects, including `llvm-project`, `c2rust`, `Polyglot` and `cxgo`. [details]
- **Responsible Disclosure:** Reported a critical key exposure vulnerability in a mobile banking app. [details]

PUBLICATIONS

Conference:

- **Yeaseen Arafat**, Stefan Nagy, “Testing Transpilers via Fuzzing”, *under review*.
- **Yeaseen Arafat**, Stefan Nagy, “TeTRIS: General-purpose Fuzzing for Translation Bugs in Source-to-Source Code Transpilers”, Annual Computer Security Applications Conference (ACSAC 2025).
- **Yeaseen Arafat**, Kazi Samin Yeaser, Ashikur Rahman, Arnab Dasgupta, “A Machine Learning based Approach for Protecting Wireless Networks Against DoS Attacks”, International Conference on Networking, Systems and Security (7th NSysS 2020), December 22-24, 2020, Dhaka, Bangladesh. [doi] [code]

TALKS AND PRESENTATIONS

- **Poster: Yeaseen Arafat**, Stefan Nagy, “TeTRIS: Fuzzing for Code Translation Bugs in Source-to-Source Code Transpilers”, Kahlert School of Computing Graduate Visit Day, February 21–22, 2025, University of Utah. [[poster](#)]
- **Paper: Yeaseen Arafat**, Kazi Samin Yeaser, Ashikur Rahman, Arnab Dasgupta, “A Machine Learning based Approach for Protecting Wireless Networks Against DoS Attacks”, International Conference on Networking, Systems and Security (7th NSysS 2020). [[talk](#)] [[slide](#)]

TECHNICAL PROJECTS

CyberShield-Spectrum | *Virtualized Security Lab*

 [GitHub](#)

- Built and tested a virtual enterprise network with VPN, firewall, IDS, and jump server configurations.
- Performed penetration testing and threat hunting using Snort, Volatility3, and FTK Imager.

KerFuzz: Linux Kernel Fuzzer | *C, Bash, GDB, Syzkaller*

 [GitHub](#)

- Designed a syscall-level kernel fuzzing workflow using Syzkaller to discover bugs in the Linux kernel.
- Instrumented and analyzed faulting executions using GDB and custom Bash scripts for postmortem triage.

EduCComp | *Flex, Bison, YACC*

 [GitHub](#)

- Built a compiler for a C-subset, including Symbol Table, Lexical, Syntax, and Semantic Analysis.
- Implemented an Intermediate Code Generator, translating source code into x86 assembly.

Machine Learning projects | *Python*

 [GitHub](#)

- Implemented ML algorithms from scratch, including AdaBoost with Decision Trees, Perceptron, and ANN.
- Built recommender (Matrix Factorization), unsupervised models (PCA, GMM), and Channel Equalizer.

IInstagram | *MERN Stack*

 [GitHub](#)

- Built an Instagram-like web app with backend APIs (Node.js/Express), JWT auth, and image uploads (Cloudinary).
- Implemented password recovery with Twilio email integration, along with React Hooks, Router, and Context API for state management and group chat using Socket.IO.

AWARDS & SCHOLARSHIP

- **Graduate Research Fellowship**, University of Utah (Aug–Dec 2023)
- **University Merit Scholarship**, BUET (2015–2019)
- **Junior Government Scholarship**, Chittagong Education Board, Bangladesh (2009)

OUTREACH ACTIVITIES

- **Artifact Evaluation Committee Member:** [ACM CCS 2024](#), ACSAC 2025
- **Graduate Teaching Assistant:** CSE-4480 (Computer Networks), University of Utah (Spring 2024). Supported 170+ students via office hours, grading, and final evaluations.
- **Conference Attendee:** KubeCon+CloudNativeCon North America 2024 — Highlights from KubeCon 2024
- **Official Collaborator:** Invited by project maintainers of Go2Hx for ongoing contributions to bug discovery.
- **Organizing Committee Member:** ACM ICPC ASIA Regional, Dhaka Site 2019
- **Member:** ACM; Cybersecurity Club, University of Utah [[utahsec](#)]

TECHNICAL SKILLS

Programming & Systems: C/C++, Go, Rust, Python, Java, Assembly (x86, MIPS), Wasm, Bash

Security & Fuzzing: AFL++, Burp Suite, Wireshark, sqlmap, Snort, Ghidra, Pwndbg

Compilers & Analysis: LLVM, Flex/Bison/YACC, Nachos, Make, Static Analysis

Machine Learning: TensorFlow, PyTorch, scikit-learn, Pandas, NumPy

Web & DevOps: React, Node.js, Express, Docker, GitHub Actions, GraphQL, REST API

REFERENCES

Dr. Stefan Nagy

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Kahlert School of Computing
The University of Utah
PhD Supervisor
Email: snagy@cs.utah.edu

Dr. A.K.M. Ashikur Rahman

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