

# Mustakimur Rahman Khandaker

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## Technical Skills

### Coding Language:

- C/C++: *Research, Industry, Competitive Programming.* 15 years
- Rust: *Research, Teaching.* 5 years
- Python, OCaml: *Research, Tooling.* 8 years
- Java, Android: *Industry, Oracle Certified Java Programmer.* 6 years
- JavaScript, PHP: *Web Development, Tooling.* 4 years
- x86-64, MIPS, ARM: *Research, Teaching.* 7 years

### Compiler:

- Clang/LLVM: *Instrumentation, Optimization.* 7 years
- SVF: *Pointer Analysis.* 4 years

### Program Analysis:

- AFL, afl.rs, honggfuzz: *Vulnerability Discovery.* 5 years
- Intel pin, Valgrind, Dyninst, TinyInst: *Instrumentation.* 4 years
- Unicorn, Triton, Angr: *Emulation, Symbolic Engine.* 6 years
- Qiling: *Firmware Rehosting.* 1 years
- Yara: *Signature Matching.* 1 years

### Reverse Engineering:

- Radare2, Capstone, Ghidra, Binary Ninja: *Disassembler.* 4 years
- GDB, LLDB, ADB: *Debugger.* 13 years

### Trusted Computing:

- Intel SGX, ARM TrustZone: *Secure Enclave, Trusted Apps.* 3 years
- Intel MPX, MPK, TSX, ARM PAC: *Memory Protection.* 3 years

### System:

- Linux Kernel: *Syscall, Driver.* 3 years
- KVM, QEMU: *Virtualization, Hypervisor.* 2 years
- AWS: *Cloud Computing.* 1 years
- SQLite: *Database.* 4 years
- OpenGL: *Graphics.* 3 years

### DevOps Tools:

- Docker: *Containerization.* 4 years
- Github, Github Actions: *Version Control, Integrated CI/CD.* 8 years
- Perforce, Coverity: *Code Review, Static Analysis.* 3 years

## Open Source Projects

### COIN-Attacks: Find Enclave Vulnerability

C/C++, Python (2020)

### OS-CFI: Origin-sensitive CFI

C/C++ (2019)

### CFI-LB: Callsite-sensitive CFI

C/C++, Python (2018)

### Admission Website

Rust, JavaScript (2020)

### cmdFuzz: Command-line Args Fuzzing

C/C++, Python (2023)



**Mustakimur Rahman Khandaker**

- Joined GitHub 12 years ago
- Followed by 40 users
- Contributed to 18 repositories
- Community stats
  - Member of 0 organizations
  - Following 23 users
  - Sponsoring 0 repositories
  - Starred 181 repositories
  - Watching 59 repositories
- 39 Repositories
  - Prefers GPL-3.0 license
  - 3 Releases
  - 0 Packages
  - 7.38 GB used
- 0 Sponsors
- 100 Stargazers
- 34 Forkers
- 50 Watchers

These metrics include private contributions  
Last updated 20 Dec 2024, 00:29:49 with leighlindemetrics@3.34.0

***trustCFG: SGX Enclave for Trustworthy CFI***

*C/C++ (2023)*

***constraintCFI: Constraint-sensitive CFI***

*C/C++ (2023)*

***rustVuln: Rust Vulnerability Challenges***

*Rust (2022)*

***Compiler Workshop***

*C/C++ (2021)*

***Rust Course Materials***

*Rust (2021)*

***UGA CTF Workshop***

*Python (2022)*



**Industry Projects**

- **Arctecture Draw, Sketch, Paint (Samsung)** Oct 2014 - Jun 2015
  - Android application UI development: menu, canvas, tools, color picker, layer management, etc.
  - Layer creation, merging, and transformation.
  - Undo/Redo, save/load, and export features.
- **SPlanner Feature (Samsung, South Korea)** Mar 2014 - May 2014
  - Drag and Drop Event Creation. SNote integration with stylus.
  - Event creation/revision/cancellation from Samsung Chat.
- **Fix PIMS Issue (Samsung, Bangladesh)** Dec 2012 - Jun 2015
  - Resolved 500+ issues for Clocks, World Clock, Diary, Calculator, and Calendar.
  - Lead a team of 2 junior engineers including their training, work assignment, and code review.
- **New Hiring Workshop (Samsung, Bangladesh)** Dec 2013 - Jun 2015
  - Conducted 15+ workshops on Android development, debugging, and testing.
  - Interviewed 20+ candidates for Android development positions.

**Vulnerability Report**

- CVE-2024-37824: A buffer overflow in md2roff v1.11 2024.
- External SQLite code could cause use-after-free 2019.
- Information leak mbedtls\_ssl\_flush\_output() 2019.
- Unsafe Check 2019.
- memory overflow 2019.
- Integer overflow @ swc 2021.
- assertion failed @ cli 2021.
- Integer overflow from iter sum 2024.

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|--------------------------------|---|----------------------|
| <b>Professional Experience</b> | Assistant Professor - CyberSecurity<br>School of Computing<br>University of Georgia<br>Athens, Georgia, USA   | Aug 2020 - Present   |
|                                | Research Intern - Trustworthy System<br>Baidu USA<br>Sunnyvale, California, USA   | May 2019 - Aug 2019  |
|                                | Graduate Assistant - System & Software Security<br>Florida State University<br>Tallahassee, Florida, USA  | Aug 2015 - Jun 2020  |
|                                | Sr. Software Engineer - Android<br>Samsung Research & Development Institute, Bangladesh<br>Dhaka, Bangladesh  | Dec 2012 - Jun 2015  |
| <b>Education</b>               | Ph.D. in Computer Science<br>Department of Computer Science<br>Florida State University<br><b>Dissertation:</b> Protecting Cyberspace: Vulnerability Discovery and Mitigation<br><b>Research Advisor:</b> Dr. Zhi Wang  | Aug 2015 - Jun, 2020 |
|                                | B.Sc. in Computer Science & Engineering<br>Department of Computer Science & Engineering<br>Chittagong University of Engineering & Technology<br><b>Project:</b> Location-based Early Disaster Warning and Evacuation System on Mobile Phones Using OpenStreetMap  | Apr 2008 - Oct, 2012 |
| <b>Research Projects</b>       | <ul style="list-style-type: none"> <li>• K Aldoshan, DB Stephens, <b>Mustakimur Khandaker</b>. “cmdFuzz: Fuzzing Stripped Firmware Applications with Command-line Arguments.” <i>Under Review</i>, 2025.</li> <li>• DB Stephens, KH Lee, <b>Mustakimur Khandaker</b>. “RustLIVE: Reducing the Learning Barriers of Rust Through Visualization.” <i>Frontiers in Education (FIE)</i>, 2024.</li> <li>• DB Stephens, K Aldoshan, <b>Mustakimur Khandaker</b>. “Understanding the Challenges in Detecting Vulnerabilities of Rust Applications.” <i>IEEE Secure Development Conference (SecDev)</i>, 2024.</li> <li>• Bagodiya, S., “Trustworthy Cross DSO Control Flow Integrity.” <i>ProQuest Dissertations and Theses (ISBN: 9949574514502959)</i>, 2023.</li> <li>• K. R. S. Ranawat, “On the Insecurity of Constraint-Sensitive Control Flow Transfer.” <i>ProQuest Dissertations and Theses (ISBN: 9798380162609)</i>, 2023.</li> <li>• <b>Mustakimur Khandaker</b>. “Protecting Cyberspace: Vulnerability Discovery and Mitigation.” <i>PQDT-UK &amp; Ireland.</i>, 2020.</li> <li>• <b>Mustakimur Khandaker</b>, Yueqiang Cheng, Zhi Wang, and Tao Wei. “COIN Attacks: On Insecurity of Enclave Untrusted Interfaces in SGX” <i>25th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)</i>, 2020. [<a href="#">Open Source</a>] [<a href="#">Artifact</a>]</li> <li>• <b>Mustakimur Khandaker</b>, Wenqing Liu, Abu Naser, Zhi Wang, and Jie Yang. “Origin-sensitive Control Flow Integrity” <i>Proceedings of the 28th USENIX Security Symposium (USENIX Security)</i>, 2019. [<a href="#">Open Source</a>]</li> </ul> |                      |

- **Mustakimur Khandaker**, Abu Naser, Wenqing Liu, Zhi Wang, Yajin Zhou, and Yueqiang Cheng. “Adaptive Call-site Sensitive Control Flow Integrity” *Proceedings of the 4th IEEE European Symposium on Security and Privacy (EuroS&P)*, 2019. [[Open Source](#)] [[Best Paper Award](#)]
- Yue Chen, **Mustakimur Khandaker**, and Zhi Wang. “Secure in-cache Execution.” *International Symposium on Research in Attacks, Intrusions, and Defenses*. Springer, Cham, 2017.
- Yue Chen, **Mustakimur Khandaker**, and Zhi Wang. “Pinpointing Vulnerabilities.” *Proceedings of the 2017 ACM on Asia Conference on Computer and Communications Security*. ACM, 2017.
- **Mustakimur Khandaker**, Tauhidul Alam, and Mahfuzulhoq Chowdhury. “Location based Early Disaster Warning and Evacuation System on Mobile Phones Using OpenStreetMap.” *Open Systems (ICOS), 2012 IEEE Conference on*. IEEE, 2012.

## Funding

- **Google Scholar Award**: “Comprehensive Visualization of Rust Policies: A Self-paced Learning and Vulnerability Understanding Tool”. 2023. [[Strong, Declined.](#)]
- **NSF-SaTC: CORE: Small**: “Towards Reality of Context-sensitive Control Flow Integrity”. 2022. [[Competitive, Declined.](#)]

## Technical Blogs

- Building Your Own Clang LibTool: A Step-by-Step Tutorial
- SVF: Interprocedural Static Value-Flow Analysis in LLVM
- Intel Pin Tool: A Step-by-Step Tutorial
- Overwrite GOT Entry from Buffer Overlapping

## Honors and Awards

**Best Paper Award (2019)**: IEEE European Symposium on Security and Privacy (EuroS&P).  
**Graduate Research Assistant Award (2019)**: Department of Computer Science, Florida State University.  
**Graduate Teaching Assistant Award (2018)**: Department of Computer Science, Florida State University.  
**Outstanding Teaching Assistant Nomination (2018)**: Florida State University.  
**Topper, ACM Competitive Programming (2017-2019)**: Florida State University.

## Teaching and Advising

### Courses @ UGA

- CSCI 8245 - Secure Programming [Spring]
- CSCI 4250/6250 - CyberSecurity [Fall]
- CSCI 4760/6760 - Computer Networks [Spring]

### Advising Students

- Kawkab Aldoshan, Ph.D., 2025
- Diane Stephens, Ph.D., 2024
- Cameron Piacentini, M.Sc.(CyberSecurity), 2025
- Karan Ranawat, M.Sc.(Thesis), 2023
- Sofiya Bagodiya, M.Sc.(Thesis), 2023
- Connor Flynn, M.Sc.(CyberSecurity), 2022

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|-----------------------|--|----------------|
| <b>Services @ UGA</b> | <i>Organizer, UGA CTF Workshop</i>                             | 2021 - 2022    |
|                       | <i>Core Faculty, Institute for Cybersecurity &amp; Privacy</i> | 2020 - Present |
|                       | <i>Faculty Advisor, UGA Cybersecurity Club</i>                 | 2021 - 2022    |
|                       | <i>Faculty Member, Graduate Admission Committee, SoC, UGA</i>  | 2021 - 2023    |
|                       | <i>Faculty Member, Graduate Curriculum Committee, SoC, UGA</i> | 2022 - Present |

**External Services**

**Journal Reviewer**

- IEEE Transactions on Computers (TC-CS)
- IEEE Transactions on Dependable and Secure Computing (TDSC-CS)

**Program Committee**

- Annual Computer Security Applications Conference (ACSAC), 2022.
- The International Workshop on Security, Privacy, and Trust for Emergency Events, 2020.
- IEEE Symposium on Security and Privacy, 2019. [Shadow PC]

**References**

*Dr. Gagan Agrawal  
Professor & Director  
School of Computing  
University of Georgia  
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*Dr. David Whalley  
Professor & PhD Committee Member  
Department of Computer Science  
Florida State University  
Email: whalley@cs.fsu.edu*

*Dr. Roberto Perdisci  
Professor & Director  
Institute for Cybersecurity & Privacy  
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*Jewel Nandy  
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