Tabassum Mahmud

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EDUCATION

Ph.D. Student in Computer Engineering   Fall2019-Present
Iowa State University   GPA:3.73/4
Ames, IA

B.Sc. in Electrical and Electronic Engineering   Mar2013-Dec2017
Chittagong University of Engineering and Technology   GPA:3.71/4
Bangladesh

EXPERIENCE

Research Assistant-Data Storage Lab, ECpE, ISU   Fall2019 - Present

- Surveyed existing techniques for bug detection, e.g. Symbolic Execution (S2E, KLEE), Dynamic Analysis (Fuzzing), Static Analysis.
- Explored configuration related issues in the storage stack and storage applications.

Network Engineer-Fiber@Home, Dhaka, Bangladesh   Mar2018 - Nov2018

- Worked in the integration section of Info-Sarkar-III project.

RESEARCH INTEREST

Systems Security, Storage Systems, Distributed Systems

RESEARCH PROJECT

- **Configuration bug detection in the storage stack and storage applications** [on going]
  In this project, we studied configuration bugs in the storage stack and identified the pattern and critical cross-component configuration dependencies. Our aim is to identify the critical cross-component dependencies in the storage stack automatically and use those to check the behavior of the programs when following and violating the dependencies.

PUBLICATIONS

- Understanding Configuration Dependencies of File Systems
  Tabassum Mahmud, Duo Zhang, Om Rameshwar Gatla and Mai Zheng. Proceedings of the 14th ACM Workshop on Hot Topics in Storage and File Systems (HotStorage), 2022. *Best Paper Nominee*
- Understanding Configuration Issues in Storage Systems
  Tabassum Mahmud, Mai Zheng. Work in Progress (WiP) & Poster Sessions, 20th USENIX Conference on File and Storage Technologies (FAST), 2022.

SKILLS

- **Programming Language**
  C, Python
- **Software Testing**
  LLVM, American Fuzzy Lop (AFL), KLEE, S2E
- **Technology**
  Git, Docker
- **Systems**
  File Systems architecture (Specially EXT4), File System Utility Packages (Specially E2fsprogs), File System Testing Suite (xfsprogs)

COURSES TAKEN

- Applied Formal Methods (ComS 507) (Fall-21)
- Distributed Systems (CprE 550) (Spring-21)
- Design and Analysis of Algorithms (ComS 511) (Fall-20)
- Network Protocols and Security (CprE 530) (Fall-20)
- Statistical Theory for Research Workers (Stat 588) (Spring-20)
- Advanced Data Storage (CprE 563)(Spring-20)
- Real-Time Systems (CprE 554) (Fall-19)

COURSE PROJECTS

- **Verifying File Systems against Error Codes in POSIX Specifications**: Checking POSIX specifications in the file system using Dafny.
- **Remote System Monitoring Using RPC**: Writing a network management application that tracks Host statistics and allows quering by RPC-based system.
- **Distributed Order Management Service**: Building a distributed order management system for restaurants using **COBRA**.
- **Blockchain-enabled Flight Travel Insurance System** : Building and deploying **Ethereum** based Blockchain-enabled flight travel insurance system.
- **Evaluating Crash Consistency Guarantees of Persistent Memory Programs**: Evaluated crash consistency guarantees of persistent memory programs using **KLEE**.
- **Real-Time MAC Protocol**: Study of real-time MAC protocols in wireless sensor network.

AWARDS AND SCHOLARSHIP

- Received **USENIX** diversity grant to attend `FAST'20, FAST'22` conference
- Received "**Best Paper Nominee**" at HotStorage'22

OTHER PROFESSIONAL ACTIVITIES

- Served as sub-reviewer for the 36th IEEE International Parallel Distributed Processing Symposium (IPDPS), 2022
- Served as sub-reviewer for the 8th National Workshop for REU Research in Networking and Systems (REUNS), 2022
- Attended **CCS iMentor 2021** Workshop