

# MD HASANUR RAHMAN

University of Iowa  $\diamond$  mdhasanur-rahman@uiowa.edu  $\diamond$  hasanur-rahman.github.io

## CURRENT POSITION

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**University of Iowa**  
Department of Computer Science  
PhD Student

*2021-present*

## RESEARCH INTERESTS

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HPC Fault Tolerance, Program Analysis, Machine Learning Application

## EDUCATION

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**University of Iowa**  
PhD in Computer Science  
Advisor: Dr. Guanpeng Li

*2021-present*

**Bangladesh University of Engineering and Technology**  
BSc in Computer Science and Engineering

*2015-2019*

## PUBLICATIONS

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### **Peppa-X: Finding Program Test Inputs to Bound Silent Data Corruption Vulnerability in HPC Applications**

Md Hasanur Rahman, Aabid Shamji, Shengjian Guo, Guanpeng Li

*ACM International Conference for High-Performance Computing, Networking, Storage and Analysis (SC'21) Acceptance rate: 27%*

## RESEARCH EXPERIENCE

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### **Characterizing Error Propagation across Multiple Inputs in HPC Applications** *2021*

- Developed an automated program analysis framework that depicts the upper bound of program SDC (silent data corruption) probability based on error propagation characteristics over multiple inputs.
- Proposed a LLVM-based dynamic input fuzzing technique that identify the SDC-bound inputs for benchmarking HPC resilience.

### **Optimizing Time Complexity to Search for Minimum Spanning Tree** *2019*

- Proposed an efficient search technique that identifies the minimum spanning tree from a given weighted graph based on iteration-based reduction properties of graphs
- Reduced the time complexity of the search by a log factor in weighted graph benchmarks

## WORK EXPERIENCE

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**University of Iowa**  
*Research Assistant*

*2021-present*  
*Iowa*

**Samsung Research**  
*Software Engineer*

*2019-2021*  
*Bangladesh*

## PROFESSIONAL SERVICE

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**Subreviewer**      ISSRE (2021), PRDC (2021)