Soha Hussein, Ph.D.

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 https://github.com/sohah/

Research Interest

Areas	Software Engineering, Programming Languages, Security
Topics	Fuzzing, Program Analysis, Verification, Symbolic Execution, Runtime Monitoring

Computer Science Education

2017 – 2024	**University of Minnesota - USA** Ph.D. Computer Science
2017 – 2022	**University of Minnesota - USA** M.Sc. Computer Science
2006 – 2012	**Ain Shams University - Egypt** Ph.D. Computer, and Information Sciences
2000 – 2005	**Ain Shams University - Egypt** B.Sc. Computer, and Informattion Sciences

Teaching Education

2023 – 2024	**University of Minnesota - USA** Early Career Teaching and Learning
2018 – 2020	**University of Minnesota - USA** Prepare Future Faculty

Academic Appointments

2012 – Present	**Ain Shams University-Egypt** Assistant Professor, Faculty of Computer and Information Sciences, Department of Information Systems.
2021 – 2021	**University of Minnesota-USA** Graduate Instructor, College of Science and Engineering, Department of Computer Science
2017 – 2020	**University of Minnesota-USA** Research and Teaching Assistant, College of Science and Engineering, Department of Computer Science
2012 – 2014	**Carnegie Mellon University-Qatar** Research Assistant, the Faculty of Engineering, Department of Computer Science
2009 – 2011	**University of Illinois Urbana-Champaign-USA** Visiting Researcher, College of Engineering, Department of Computer Science

Industrial Appointments

Summer 2021	**Amazon-USA** Applied Scientist Intern at the Automated Reasoning Group in AWS.
2005-2008	**Intercom Enterprises - Egypt** System Analyst

Projects with Awards

2022	**SV-COMP Bronze Medal**
2021	**SV-COMP Gold Medal**
	Recognition for dedication to Student Learning
2020	**SV-COMP Gold Medal**
2019	**Grace Hopper Scholarship**

Research Funding Awards

2007 **Ain Shams Joint Research Award** funded a total of 4 years of research, with 2 as a visiting student at the University of Illinois Urbana-Champaign in the USA.

Teaching

Fall 2021 Graduate Instructor. **University of Minnesota-USA** *CSCI 1133* Introduction to Computing and Programming Concepts

Spring 2020 Visiting Lecturer. **University of Saint Thomas-USA** *CISC 480* Senior Capstone

Spring 2018 Teaching Assistant. **University of Minnesota-USA** *CSCI 3081W* Program Design and Development

Fall 2017 Teaching Assistant. **University of Minnesota-USA** *SENG 5851* Software Project Management

Teaching Assistant. **University of Minnesota-USA** *SENG 5861* Software Architecture

Professional Services

GSoC'24 Google Summer of Code organization admin and mentor for the JPF community

GSoC'23 Google Summer of Code organization admin for the JPF community

SV-COMP'21 -'23 PC member for Software and Verification Competition

SV-COMP'20 Tool Developer

Code Freeze'18-'20 Student Organizer

PLDI'12 Student Volunteer

Selected Publications

TSE'24 **[To submit] S. Hussein**, S. McCamant, M. Whalen. Generator-Based Fuzzer with Type-Based Targeted-Mutation, International Symposium on Software Testing and Analysis.

AST'23 **S. Hussein**, S. McCamant, E. Sherman, V. Sharma, M. Whalen. Structural Test Input Generation for 3-Address Code Coverage Using Path-Merged Symbolic Execution, International Conference on Automation of Software Test.

TACAS'23 **S. Hussein**, Q. Yan, V. Sharma, S. McCamant, M. Whalen. Java Ranger at SV-COMP 2023 (Competition Contribution), Tools and Algorithms for Construction and Analysis of Systems.

FormaliSE'22 **S. Hussein**, S. Rayadurgam, S. MacCamant, V. Sharma, and M. Heimdahl. Counterexample Guided Inductive Repair of Reactive Contracts. International Conference of Formal Methods in Software Engineering.

ASE'21 **S. Hussein**, V. Sharma, S. McCamant, S. Rayadurgam, M. Heimdahl. Counterexample Guided Inductive Repair of Reactive Contracts. In Proceedings of the 36th IEEE/ACM International Conference on Automated Software Engineering, Late Breaking Results track.

FSE'20 V. Sharma, **S. Hussein (joint first author)**, M. Whalen, S. McCamant, Willem Visser. Java Ranger: Statically Summarizing Regions For Efficient Symbolic Execution Of Java, Foundations of Software Engineering.

PLAS'12 **S. Hussein**, P. Meredith, and G. Rosu. Security-Policy Monitoring and Enforcement with JavaMOP. ACM SIGPLAN Seventh Workshop on Programming Languages and Analysis for Security.