Vaibhav Sharma

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Education

- **University of Minnesota – Twin Cities, Minneapolis, USA**
  PhD, Computer Science and Engineering, GPA: 3.93/4 *2015 – 2020 (Expected)*

  Advisor: Professor Stephen McCamant

- **Michigan State University, East Lansing, USA**
  M.S., Computer Science and Engineering, GPA: 3.95/4 *2013 – 2015*

  Thesis: Continuous User Authentication and Identification Using User Interface Interactions
  Advisor: Professor Richard Enbody

- **Mumbai University, India**
  B.E., Computer Engineering, Aggregate: 68% *2003 – 2007*

Publications

- **Vaibhav Sharma**, Taejoon Byun, Stephen McCamant, Sanjai Rayadurgan, Mats Heimdahl, "Contract Discovery From Black-box Components," *Workshop on Automated Specification Inference (WASPI)*, 2018
- **Vaibhav Sharma**, Stephen McCamant, "Synthesizing Adapters For Binary Code Using Symbolic Execution," *Second International Workshop on Usages of Symbolic Execution (USE)*, 2018, **Best Presentation Award**
- **Vaibhav Sharma**, Kesha Hietala, Stephen McCamant, "Finding Substitutable Binary Code for Reverse Engineering by Synthesizing Adaptors," *11th IEEE Conference on Software Testing, Verification, and Validation (ICST)*, 2018
- **Vaibhav Sharma** and Richard Enbody, "User Authentication And Identification From User Interface Interactions on Touch-Enabled Devices," *10th ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec)*, 2017, **Best Paper Award Runner-up**
- **Vaibhav Sharma**, Michael W. Whalen, Stephen McCamant, Willem Visser, "Veritesting Challenges in Symbolic Execution of Java," *Java Pathfinder Workshop*, 2017
- **Vaibhav Sharma**, Taejoon Byun, Stephen McCamant, Sanjai Rayadurgam, Mats Heimdahl , "Discovering Instructions for Robust Binary-level Coverage Criteria," *Proceedings of 2017 ACM International Workshop on Testing Embedded and Cyber-Physical Systems (TECPS)*, 2017
- Taejoon Byun, **Vaibhav Sharma**, Sanjai Rayadurgam, Stephen McCamant, Mats P.E. Heimdahl, "Towards Rigorous Object-Code Coverage Criteria," *The 28th International Symposium on Software Reliability Engineering (ISSRE)*, 2017
- **Vaibhav Sharma**, Kesha Hietala, Stephen McCamant, "Finding Semantically-Equivalent Binary Code by Synthesizing Adaptors," *Midwest PL Summit*, 2016 (poster)

Work Experience

- **Software Developer Engineer Intern, Amazon Web Services**, June 2018 – August 2018

  I interned in the Automated Reasoning Group at Amazon Web Services for automating penetration testing of services at AWS.

- **Research Assistant, University of Minnesota – Twin Cities**, Sept 2015 – present

  Extended a binary-level symbolic execution-based tool (FuzzBALL) for automatic synthesis of binary wrapper code which creates equivalence between two functions

- **Teaching Assistant, Michigan State University**, Aug 2013 – Aug 2015
  Delivered in-class presentations, conducted lab sessions, for 3 undergraduate-level courses
- **Samsung Research India - Bangalore**, Browser Development, June 2012 – June 2013
  Developed web page rendering modules in WebKit2EFL browser engine used in the Tizen operating system
- **Bally Technologies**, Operating System Development, March 2010 – June 2012
  Integrated a WebKitGtk+ browser engine with the slot machine operating system
- **Amdocs Development Center India**, Order Management, Aug 2007 – March 2010
  Maintained a Tuxedo-based backend of an order management system used by telecommunication companies

Awards

- Best Presentation Award, USE 2018
- Best Paper Runner-up Award, WiSec 2017
- NSF Conference Travel Grant, ACM Conference Travel Grant, WiSec 2017
- Richard Reid Fellowship (College of Engineering, Michigan State University), Summer 2014

Academic Projects

- "Increasing Symbolic PathFinder Performance with Bounded Static Symbolic Execution," Google Summer of Code, Summer 2017, UMN
- "Link Prefetching: A Defense Against Website Fingerprinting on Tor," Course project, Introduction to Computer Security, Fall 2015, UMN
- "Continuous User Authentication and Identification Using User Interface Interaction On Mobile Devices", Master's Thesis, Summer 2015, MSU
- "Fraudulent Resume Detection," Course project, Data Mining, Fall 2014, MSU
- "Using GA-based Feature Selection In Ensemble Classifier For Network Intrusion Detection," Course Project, Evolutionary Computation, Fall 2014, MSU
- "NFC-Powered Wireless Multi-hop Sensor Network," Course Project, Advanced Computer Networks and Communication, Fall 2013, MSU
- "Optimal Placement of Annotation Labels in Geometric Objects," B.E. Thesis, 2007

Graduate Courses

- Programming Languages, Introduction to Compilers, Security/Privacy in Computing
- Introduction to Computer Security, Data Mining, Pattern Recognition

Service

- Website administrator for Java Pathfinder (December 2017-present)
- Contributed optimization features, bug fixes, system call support to FuzzBALL (2014-present)
- Supported development of an Android app for navigating the Michigan State University campus (2013-2015)