Vaibhav Sharma

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Education

- **University of Minnesota – Twin Cities, Minneapolis, USA**
  PhD, Computer Science and Engineering, GPA: 3.93/4 *2015 – 2019 (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*

Work Experience

- **Research Assistant, University of Minnesota – Twin Cities**, Sept 2015 – present
  Developed a symbolic execution-based tool for automatic synthesis of binary wrapper code which creates equivalence between two functions
  - Extended FuzzBALL (https://github.com/bitblaze-fuzzball/fuzzball) for performing equivalence checking between two functions
  - Evaluated different classes of wrappers on real-world functions
- **Teaching Assistant, Michigan State University**, Aug 2013 – Aug 2015
  Delivered in-class presentations, conducted lab sessions, for 3 undergraduate-level courses, including "Introduction to Computer Security"
- **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

Publications

- **Vaibhav Sharma**, Kesha Hietala, Stephen McCamant, "Finding Semantically-Equivalent Binary Code by Synthesizing Adaptors," *International Symposium on Software Testing and Analysis (ISSTA)*, 2017 (Submitted, pre-print available on request)
- **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 (Submitted, pre-print available on request)
- **Vaibhav Sharma**, Kesha Hietala, Stephen McCamant, "Finding Semantically-Equivalent Binary Code by Synthesizing Adaptors," *Midwest PL Summit*, 2016 (poster)
- **Vaibhav Sharma** and Richard Enbody, "Context-Aware Implicit Authentication For Mobile Devices" *MSU Engineering Graduate Research Symposium*, 2015 (poster)

Awards

- Richard Reid Fellowship (College of Engineering, Michigan State University), Summer 2014

Academic Projects

- "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
  - Presented a new modality for authenticating users based on interactions with elements of the Android User Interface
  - Evaluated the modality with data collected from real users and with different classification algorithms
- "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

- Contributed bug fixes, system call support to FuzzBALL
- Supported development of an Android app for navigating the Michigan State University campus

Skills

- *Programming Languages*: C, C++, OCaml
- *Revision Control Systems*: Git
- *Operating Systems*: various Linux flavors