Masoud Ghaffarinia

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Research Interests

◇ Computer Security ◇ Type Theory
◇ Logic ◇ Formal Methods
◇ Game Theory ◇ Cryptology

Education

The University of Texas at Dallas, Texas, USA

Ph.D. Student, Computer Science

- Current GPA: 3.953
- Supervisor: Kevin W. Hamlen

Amirkabir University of Technology (Tehran Polytechnique), Tehran, Iran

M.S., Information Technology (major in Information Security), November 2014

- Thesis Topic: "A Type System for Discretionary Access Control with Capability Revocation and Changing Ownership"
- Advisor: Mehran S. Fallah

Shiraz University of Technology, Shiraz, Iran

B.S., Information Technology, September, 2007

Publications

Masoud Ghaffarinia and Kevin W. Hamlen. Binary Software Complexity Reduction: From Artifact to Feature Removal. In *Proceedings of Workshop on Forming an Ecosystem Around Software Transformation (FEAST)*, October 2016, forthcoming.

Employment History

Research Assistant Spring 2015 - Present
◇ Research on Binary Retrofitting and Software Complexity Reduction.
- Language Security Lab (Supervised by Dr. Kevin W. Hamlen), The University of Texas at Dallas, TX, USA.

Penetration Tester August 2014 - October, 2014
◇ As a member of the penetration testing team I had the chance to participate in two of the projects concerning the penetration testing of two major Iranian Banks.
- Fanavaran Farasb, Tehran, Iran

Reverse Engineer October 2013 - August, 2014
◇ My career mainly developed in Amirkabir APA (Cert) Lab, working in a the Incident Response Team. As a reverse engineer of the group my job mainly concerned with recent exploits and new kinds of attacks.
- Amirkabir University of Technology APA (Cert) Lab, Tehran, Iran

Instructor August 2013 - December, 2013
◇ Teacher of undergraduate level course for the Bachelor of Science in Computer Engineering Program. Responsibility for lectures, exams, homework assignments, and grades.
- Operating System Laboratory, Amirkabir University of Technology, Tehran, Iran.

Technical Skills

Programming Languages:

- Imperative Languages: Java, C, C++, Familiar with: C#
- Functional Language: OCaml, Coq
- Scripting languages: Bash Scripting, Python, Familiar with:Perl
- Logic: Prolog
- Scientific: Matlab
- Machine Languages: Intel x86/x64 Machine Code

Multi-Threading and Concurrent Programming
Embedded Linux Development
Socket and Network Programming
Reverse Engineering Tools: IDA Pro, Pin Tool, OllyDbg, Crash Dump Analysis
Security Tools: Metasploit, Nessus, Nmap, Cain & Abel, Netsparker, Acunetix
Software Collaboration Platform: Git
Big Data: Hadoop

Selected Course Projects

◇ Verification of Binary Codes Properties in COQ using BAP Intermediate Language, Fall 2015, As a course project for "Language-Based Security", UTD.

◇ Implementing Distributed Mutual Exclusion Algorithms, Concerned the optimization of the Ricart and Agrawala Mutual Exclusion Algorithm and a Tree-Based Quorum Mutual Exclusion Algorithms. Both are written in Java. Spring 2015, As course projects for "Advanced Operating Systems", UTD.

◇ Differential and Linear Cryptanalysis and Testing Avalanche Criterion of LOKI91 Algorithm, Both Differential and Linear Cryptanalysis were successfully done for five round of the LOKI91 Cryptosystem. Fall 2012, As the course project for "Applied Cryptology", AUT.

◇ Implementing A Distributed File System Two phase commit protocol is exercised for the synchronization between the three replicas of each file. Spring 2015, As course projects for "Advanced Operating Systems", UTD.

Volunteer Work

◇ University and Industry Partnership Officer   August 2008 - August 2009

- Member of Scientific Student Council of Shiraz University of Technology
- Cause I care about: Science and Technology

◇ Teaching Mathematics and Computers   August 2012 - Present

- Self-Employed
- Causes I care about: Children and Education

Honors and Awards

◇ Honorary admission to study Ph.D. in Information Security, Amirkabir University of Technology, August 2014

Certificates

◇ Certificate of Attendance in Introductory Course on Penetration Testing, Amirkabir University of Technology, APA (Cert) Laboratory

Languages

- Persian: Native language
- English: Professional