Masoud Mehrabi Koushki

Curriculum Vitae

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Education

Sep 2017-Present
Ph.D. in Electrical and Computer Engineering
University of British Columbia

Supervisor: Prof. Konstantin Beznosov

Dissertation Title: Towards Usable Implicit Authentication for Smartphones

Courses: Qualitative Research Methods, Experimental Designs and Analysis, Correlational Designs and Analysis, Cybersecurity Research Seminar: Usable Security and Privacy, Security and Privacy of Cryptocurrencies and Their Applications, Principles of Mobile Application Development and Analysis, Applied Machine Learning, Trustworthy Machine Learning

GPA: 93%

Sep 2011-Sep 2013
M.Sc. in Computer Engineering
Sharif University of Technology
Graduated summa cum laude

Supervisor: Prof. Ali Movaghar

Thesis Title: Cooperative Data Aggregation in Wireless Sensor Networks

Select Courses: Network Security, Advanced Data & Network Security, Advanced Operating Systems, Advanced Computer Networks, Computer Network Modelling & Analysis, Mobile Communications, Algorithmic Game Theory

GPA: 95%

Sep 2007-Sep 2011
B.Sc. in Computer Engineering
University of Isfahan
Graduated summa cum laude

Thesis Title: Fairer Bandwidth Allocation for Resilient Packet Rings

Supervisor: Prof. Behrouz Shahgholi

Select Courses: Advanced Programming (C++ & Java), Algorithm Design, Database Design, Data Structures, Discrete Math, Applied Ethics, Operational Research, Computer Networks, Expert & Decision Support Systems

GPA: 93%

Research Interests

- Smartphone Security
- Usable Security and Privacy
- Game Theory and Applications
- Human Computer Interaction

Research Experience

Jan 2018-Present

Laboratory for Education and Research in Secure Systems Engineering (LERSSE)
Graduate Researcher Assistant

My research investigates methods for improving user experience when it comes to secure physical access to smartphones. Research methods I have employed include: (1) usability evaluation techniques: heuristic evaluation, cognitive walkthroughs, think-alouds, A/B testing, and qualitative interviews; and (2) quantitative research: online surveys and user and task satisfaction questionnaires. Data analysis techniques I have employed include: (1) qualitative methods: grounded theory and thematic analysis; and (2) quantitative methods: ANOVA, logistic regression, t-, chi-squared and friedman tests.

Mar 2014-Sep 2017

APA Research Center, Isfahan University of Technology
Project Supervisor / Researcher

I conducted research on automated malware detection, packet inspection, and DDoS mitigation. Methods I employed includ: (1) classifying and clustering: C4.5, k-means and DBScan; and (2) supervised machine learning: logistic and ordinal regressions and tree-based models.

Sep 2011-Sep 2013

Performance & Dependability Lab (PDL), Sharif University of Technology
Graduate Research Assistant

I conducted research on cooperative Multiple-Input-Multiple-Output (MIMO) and data aggregation in Wireless Sensor Networks (WSN). The problem I focused on was effective cluster formation for cooperative MIMO, for which I proposed a Game Theory-based solution.

Publications

- M. Mehrabi Koushki, B. Obada-Obieh, J. Huh, K. Beznosov, On Smartphone Users' Difficulty with Understanding Implicit Authentication, *The ACM CHI Conference on Human Factors in Computing Systems (CHI), 2021.*
- A. Voskobojnikov, O. Wiese, M. Mehrabi Koushki, V. Roth, K. Beznosov, The U in Crypto Stands for Usable: An Empirical Study of User Experience with Mobile Cryptocurrency Wallets, *The ACM CHI Conference on Human Factors in Computing Systems (CHI), 2021.*
- M. Mehrabi Koushki, B. Obada-Obieh, J. Huh, K. Beznosov. Is Implicit Authentication on Smartphones Really Popular? On Android Users' Perception of "Smart Lock for Android". *The International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI), 2020.*
- M. Mehrabi Koushki, B. Obada-Obieh, J. Huh, K. Beznosov. On Smartphone Users' Perception of Smart Lock for Android (Poster). *Symposium on Usable Privacy and Security (SOUPS), 2019.*
- H. Yousefi, M. Mehrabi Koushki, K. G. Shin, Maximizing Quality of Aggregation in WSNs Under Delay and Interference Constraints, *The Annual IEEE International Conference on Sensing, Communication, and Networking (SECON), 2018.*

Professional Experience

Mar 2014-
Sep 2017
Center for Information Technology, Isfahan University of Technology
Project Manager / Senior Software Engineer

I was the project manager and principal designer of a DDoS mitigation system. I was also a lead module designer for an encrypted traffic analysis and an statistical intrusion detection system. Additionally, I performed static and dynamic Malware analyses, vulnerability assessments and penetration testing.

Sep 2012-
Sep 2013
Data & Network Security Lab (DNSL), Sharif University of Technology
Malware Analysis Specialist

I conducted behavioural Malware analysis. I also designed reverse engineering, forensics, and steganography challenges for the Sharif CTF competition. Through this experience, I got familiar with reverse engineering and malware analysis tools and techniques.

Teaching Experience

Fall 2018
Fall 2021
University of British Columbia
Teaching Assistant

I was a teaching assistant for CPEN 442: Introduction to Computer Security. My duties included: (1) instructing weekly laboratory and turorial sessions, (2) designing and marking homework assignments, (3) designing and marking mid-term and final exams, and (4) designing student contests (based on cryptocurrencies).

Mar 2016-
May 2016
Isfahan University of Technology
Instructor

I was a co-lecturer for Data and Network Security. This course was mandatory for all B.Sc. students majoring in Computer Engineering. I gave lectures on software and operating system security and vulnerability assessment.

Jun 2014-
Sep 2014
Isfahan University of Technology
Instructor

I taught Vulnerability Analysis. This was a public paid course focusing on types of software vulnerabilities (e.g., buffer overflow, format string), how to detect, analyze and rectify them.

Feb 2012-
May 2012
Sharif University of Technology
Teaching Assistant

I was the teaching assistant for Advanced Computer Networks. This was a graduate level course, mandatory for all Computer Engineering M.Sc. students. My duty was marking assignments.

Technical Skills

- **Quantitative Data Analysis:**
    - R
    - SPSS
    - Jamovi

- **Qualitative Data Analysis:**
    - NViVo
    - atlas.ti

- **Scientific Programming:**
    - Matlab and OO-Matlab
    - Scientific Python (SciPi)
    - GNUOctave

- **Machine Learning:**
    - scikit-learn
    - TensorFlow

- **Programming Languages:**
    - C/C++ (with Qt and Boost)
    - Java (OSGI, Android)
    - Python

- **Web Development:**
    - Backend: Vaadin, Django, Flask
    - Frontend: jQuery

- **Reverse Engineering:**
    - Static Analysis: IDA Pro, Ghidra, JEB
    - Dynamic Analysis: gdb, Windbg, Cuckoo

- **Penetration Testing:**
    - Automated web: w3af, arachni, AppScan, WebInspect
    - Manual web: Burp suite, Charles, BeFF
    - Vulnerability: OpenVAS, Nessus

- **Miscellaneous:**
    - Linux: bash, awk, vim
    - Virtualization: ESX, KVM
    - Relational DB: MySQL, SQLite
    - NoSQL: MongoDB, Redis
    - Version Control: git, svn, hg
    - Tex, LaTex, XeTex

Honors, Achievements and Awards

- Received distinguished employee title from APA Research Center, Isfahan University of Technology
- Ranked 8th place amongst more than 5000 competitors in Iran's Nation-wide PhD entrance exam
- Graduated summa cum laude from Sharif University of Technology
- Graduated summa cum laude from Unversity of Isfahan

Languages

- **Persian**: Native
- **English**: Fluent (IELTS Band: 8.5/9)
- **Arabic**: Basic Understanding
- **Turkish**: Basic Understanding