Ehsan Edalat

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RESEARCH INTERESTS

- Language-Based Security
- Web and Mobile Security
- Differential Privacy
- Software Vulnerability Testing
- Formal Methods for Information Security

EDUCATION

- AUT - PhD Candidate, Software - Sep 2018, Feb 2024 - GPA: **17.86** / 20
  Supervisor: Mehran S. Fallah
- AUT - MSc, Information Security - Sep 2015, Jan 2018 - GPA: **17.31** / 20
  Supervisor: Babak Sadeghiyan
- AUT - BSc, Software - Sep 2011, Sep 2015 - GPA: **17.36** / 20
  Supervisor: Babak Sadeghiyan

RESEARCH EXPREINCES

- ***Differential Privacy in Personalized Web Search*** - PhD Thesis Proposal, Formal Security Lab - (Sep 2018 – Feb 2024)
  Many internet applications personalize their services to the interests of users. They indeed process the natural language words in the log of interactions of a user with the application and extract a user profile that in some way represents the concepts the user is interested in. The user profile, however, may naturally reflect the private interests of the user. Hence, the users urge the applications to preserve their privacy, even though they are interested in the personalization services as far as possible. To formulate such requirements, we work on a novel notion of privacy that is built on the differential privacy notion.
- ***Concolic Execution for Detecting Injection Vulnerabilities in Mobile Apps*** - MSc Thesis, Data Security Lab - (Nov 2015 - Jan 2018)
  We present a method for detecting injection vulnerabilities in Android Apps with Concolic Execution and taint analysis. With static analysis, we extract desirable paths for detection analysis. With the idea of using Mock classes, we alleviate event-driven and path explosion challenges due to the Android framework. For the evaluation of our tool, we use ten self-designed and 140 F-Droid repository Apps. The overall result shows that 11 Apps are vulnerable to SQL injection.
- ***Design and Implementation of Extensible Software in Order to Retrieve Deleted Information from Smart Phones*** - BSc Project, Data Security Lab - (Mar 2015 - Sept 2015)
  In this work, we implement a tool for mobile forensics. With this tool, deleted information on sensitive mobile apps such as SMS, Emails, Browser bookmarks, and histories are retrieved. Additionally, our software supports deleted photos and files on internal storage. The primary approach of this work is three different methods of extracting deleted records from SQLite.

PUBLICATIONS

- **E. Edalat**, M. Fallah ***"Differential Privacy with Semantic Neighboring: A Notion of Privacy for Personalization Services"***, techrxiv preprint techrxiv.173738347.74509154, 2025. [link]
- **E. Edalat**, ***"Differential Privacy in Personalized Web Search"***, PhD Thesis Proposal, 2021 (In Persian). [link]
- **E. Edalat**, B. Sadeghiyan, F. Ghassemi ***"ConsiDroid: A Concolic-Based Tool for Detecting SQL Injection Vulnerability in Android Apps"***, arXiv preprint arXiv:1811.10448, 2018. [link]
- **E. Edalat**, B. Sadeghiyan, ***"Concolic Execution for Detecting Injection Vulnerabilities in Mobile Apps"***, MSc Thesis, 2018 (In Persian). [link]
- **E. Edalat**, M. Aghvamipanah, B. Sadeghiyan ***"Guided Concolic Execution of Android Apps for Automatic Generation of Test Inputs"***, International Conference on Electrical Engineering (ICEE), 2018 (In Persian). [link]

- **E. Edalat**, B. Sadeghiyan ***"Concolic Execution for Detecting SQL Injection Vulnerability in Android Apps"***, Computer Society of Iran Computer Conference (CSICC), 2018 (In Persian). [link]
- **E. Edalat**, B. Sadeghiyan, ***"Design and Implementation of Extensible Software in Order to Retrieve Deleted Information from Smart Phones"***, BSc Thesis, 2015 (In Persian). [link]

WHITE PAPERS (IN PERSIAN)

- E. Edalat, "***What are Audit Logs in Android OS"***, Mahsan, 2023.
- E. Edalat, ***"How to Preserve User's Privacy in Enterprise Mobile Management (EMM)?"***, Mahsan, 2023.
- E. Edalat, ***"Survey: Security and Privacy Features Implemented in Android 14"***, Mahsan, 2023.
- E. Edalat, ***"What is the Zero Trust Paradigm and How to Implement it in a Network?"***, Mahsan, 2023.
- E. Edalat, ***"Survey: Security and Privacy Features Implemented in Android 13"***, Mahsan, 2022.
- E. Edalat, ***"How Users' Data are Being Theft in Android Cell Phones?"***, Mahsan, 2022.
- E. Edalat, ***"Google Play Services: Features and Threats"***, Mahsan, 2021.
- E. Edalat, ***"Designing End-to-End Encryption Protocols for Messaging Including Text, Voice, and Video Calls."***, Mahsan, 2020.
- E. Edalat, ***"Secure Cell Phone: Threats and Solutions"***, Mahsan, 2020.

WORK EXPERIENCES

- **Naad**, Aug 2024 – Now
- Security team lead in different security fields. (such as Network Security, Blue team operations, and OT Security)
- **Mahsan**, Aug 2020 – Sep 2024
  Security team lead in different security fields. (such as Red team and Blue team operations, Pentest, Fuzzing, and R&D projects)
- **Vice-Presidency for Science and Technology**, Nov 2020 - Jan 2022
  Security Consultant and Examiner
- **Kolah Sefid** (Bug Bounty Platform), Jan 2018 - Oct 2019
  Chief Technical Officer (CTO), Technical Referee (Web App Security), and Consultant
- **Kahkeshan Moshaver**, Jun 2018 - Jul 2019
  Security Consultant and Provider of Security Protection Profiles
- **AUT CERT Lab**, May 2014 - Oct 2019
  Web App Security Pentester, Forensics, Software Developer and Instructor
- **Idea Pardazan (6thsoloution)**, Summer 2015
  Android Developer
- **Rayan Pardazan Nikro Emertat (RAPNA)**, Summer 2014
  Software Engineer and Web Developer (PHP server-side for an Android application) - Summer Internship

TEACHING EXPERIENCES

As Course Responsible and Lecturer:

- **Advanced Programing**: Fall 2021, Spring 2021, Fall 2020, Spring 2020, Fall 2019

As Lab Instructor:

- **Advanced Programing Lab**, Spring 2018
- **Principles of Programing Lab**, Fall 2017
- **Computer Lab**, Fall 2016

As Teaching Assistant:

- **Databases**, under supervision of Saeedeh Momtazi, Spring 2016
- **Databases**, under supervision of Maryam AmirHaeiri, Fall 2015, 2016
- **Computer Networks I**, under the supervision of Babak Sadeghiyan, Spring 2017
- **Compilers**, under the supervision of MohammadReza Razzazi, Spring 2015

- **Computer Networks II**, under the supervision of Masoud Sabaei, Spring 2015
- **Internet Engineering**, under the supervision of Bahador Bakhshi, Fall 2014
- **Advanced Programing**, under the supervision of Bahman Pourvatan, Spring 2014
- **Data Structures**, under the supervision of Mehdi Dehghan, Fall 2013

TALKS and Workshops

- "**Secure Architecture of OT Networks**" in **SepehrAmn**, Feb 2025.
- **"Are Your Smartphone Location Data being Theft?"** in **GradTalks**, CE, AUT, Dec 2021.
- **"What is the Academic Research?"** in **VisionUp**, CE, AUT, Dec 2021.
- **"How to Read a Paper?"** in **GradTalks**, CE, AUT, Jun 2020.
- Workshop Instructor of **AUT Linux Festival (Penetration testing with Kali Linux)**, CE, AUT, Feb 2020.
- **"Arms Race in Cyber Security: Vulnerabilities in Operating Systems"** in **Information Security Talks**, CE, AUT, May 2019.
- **"Arms Race in Cyber Security: Social Engineering and Steal Information"** in **Information Security Talks**, CE, AUT, Jun 2019.
- Founder and Coordinator of **Information Security Talks**, CE, AUT, Feb. 2019.
- **"Concolic Execution in Software Testing"** in **GradTalks**, CE, AUT, Feb 2017.

HONORS

- Offered for **Direct Admission** to graduate school (**PhD**) in Computer Engineering - Software, from two top universities of Iran, University of Tehran and Amirkabir University of Technology, without taking the Nationwide University Entrance Exam for PhD as a reward of academic records and achievements, Tehran, Iran, 2018.
- Announced as the **Outstanding Student** and Achieved **2st** place among 2015- entries in Information Security major, Amirkabir University of Technology, Tehran, Iran, 2016 and 2017.
- Admitted to **Tarbiat-Modares University** and Achieved **49th** place among all applicants of the Nationwide University Entrance Exam for MSc in Information Technology (Approximately 30000 applicants), Iran, 2015.
- Qualified for **Direct Admission** to graduate school (**MSc**) of Computer Engineering, Amirkabir University of Technology, without taking the Nationwide University Entrance Exam for MSc as a reward of academic records and achievements, Tehran, Iran, 2014.
- Achieved **18th** place among about 100 undergraduate students (8th place in Software Engineer Major) in Computer Engineering, Amirkabir University of Technology, Tehran, Iran, 2013.
- Achieved top **2%** place among all applicants of the Nationwide University Entrance Exam for BSc in Math. and Engineering (Approximately 260000 applicants), Iran, 2011.
- Achieved top **1.5%** place among all applicants of the Nationwide University Entrance Exam for BSc in Foreign Languages - English (Approximately 108000 applicants), Iran, 2011.

TECHNICAL SKILLS

- **Programing Languages:** Java, Python, C/C++, C#, PHP, ML, OCaml, Haskell
- **Pentest:** Nessus, MetaSploit, BurpSuit, NetSparker, Accunetix, and SQLMap
- **Blue Team:** Splunk Enterprise, Splunk ES, Wazuh, and Suricata
- **Database Systems:** MySQL, MongoDB, MSSQL
- **Web Development:** HTML, CSS, JavaScript, PHP, Yii, J2EE
- **Operating System:** Windows, Linux (Ubuntu and Kali)
- **Others:** Symbolic Path Finder (SPF), Soot, MaudePSL, SELinux, MS Threat Modeling Tool, and PREfast

REFERENCES

- **Ahmad Boorghany, PhD**
  Security Services Department, Naad
  Email: boorghany@ce.sharif.edu
- **Hossein Nikoonia, PhD**
  System Security Department, Mahsan

Email: nikoonia@mahsan.co

- **Mehran S. Fallah, Associate Professor**
  CE, AUT
  Email: msfallah@aut.ac.ir