

## Amir Naseredini

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<https://sahnaseredini.github.io>

### Teaching and Research Interests

- Rowhammer Attack
- Formal Security
- Programming Languages
- Pi-Calculus & Applied Pi-Calculus
- Lambda-Calculus
- Secure Information Flow
- Vulnerability Analysis
- Microarchitectural Attacks
- Security Protocols
- Cryptographic Hash Functions

### Education

#### University of Sussex, Brighton, UK

Ph.D. in Informatics (Computer Science), Sep. 2018 - present

- Research student at FoSS Group at the University of Sussex

#### Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran

M.S. in Information Security, Sep. 2015 - Feb. 2018

- Master's Thesis: "Algebraic Cryptanalysis of ARX-Design Hash Functions", (Ranked 3rd among 10 classmates)

#### University of Kurdistan, Sanandaj, Iran

B.S. in Information Technology, Sep. 2011 - July 2015

- Overall GPA: 18.47/20
- 1<sup>st</sup> Student Award, in Computer Eng. and Information Technology Department

### Honors and Awards

- Awarded with the School of Engineering and Informatics' Fully-Funded Scholarship by University of Sussex, September 2018
- Selected as a Talented Student, two times (University of Kurdistan): Dec 2013 to Dec 2015.
- Ranked #27 in the PhD National Entrance Test of Iran (Among 1093 persons).
- Ranked #2 in the M.S. National Entrance Test of Iran, With Respect to my B.S. GPA.
- Ranked #6 in Lahijan ACM Contest, on site, March 2014.

### Publications and Presentations

- A. Naseredini, M. Berger, M. Sammartino, S. Xiong, "ALARM: Active LeArning of Rowhammer Mitigations", Hardware and Architectural Support for Security and Privacy (HASP) 2022, October 1, 2022 -- co-located with MICRO 2022
- A. Naseredini, S. Gast, M. Schwarzl, P. Bernardo, A. Smajic, C. Canella, M. Berger, D. Gruss, "Systematic Analysis of Programming Languages and Their Execution Environments for Spectre Attacks", 8th International Conference on Information Systems Security and Privacy (ICISSP2022), February 2022
- "Systematic Analysis of Programming Languages and Their Execution Environments for Spectre Attacks". Presented at the Computer Science department, University College London (UCL), UK, February 2022
- "Systematic Analysis of Programming Languages and Their Execution Environments for Spectre Attacks". Presented at the Informatics department, University of Sussex, UK, March 2021
- A. Naseredini, B. Sadeghiyan, "Security Assessment of ARX-Design Hash Functions against Algebraic Cryptanalysis ", 26th Iranian Conference on Electrical Engineering (ICEE2018), May 2018

- “Cryptographic Hash Functions: Definition, History and Cryptanalysis”. Presented at CE department, Amirkabir University of Technology (Tehran Polytechnic), Iran, May 2017

## **Research Experience (Notable Projects)**

### **Google, London, UK**

- **Security Engineer Intern, Sep. 2022 - Present**
  - Work under the supervision of Alexandra Sandulescu.

### **Royal Holloway University of London, London, UK**

- **Postdoctoral Research Assistant, March. 2022 - Sep. 2022**
  - Conduct research on “Formal Security” under the supervision of Dr. M. Sammartino.

### **University of Sussex, Brighton, UK**

- **Researcher, Sep. 2018 - present**
  - Conduct research on “Formal Security” under the supervision of Dr. M. Berger.

### **TU Graz, Graz, Austria**

- **Visiting Researcher, Sep. 2020 - March 2021**
  - Conducted research on “Microarchitecture Attacks” under the supervision of Dr. D. Gruss.

### **Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran**

- **Researcher, Feb. 2017 - Sep. 2018**
  - Researched on “Computer Security Assessment” and “Smartphone and Computer forensics” under the supervision of Dr. B. Sadeghiyan and Dr. S. Niksefat
- **Researcher, Sep. 2015 - Feb. 2018**
  - Conducted research on Algebraic Cryptanalysis under the supervision of Dr. B. Sadeghiyan at Data Security Research laboratory (DSRLab)
- **Researcher, 2017**
  - Researched and administered research on “SMC and OT Protocols” under the supervision of Dr. S. Niksefat
- **Researcher, 2016**
  - Researched and implemented “Analysis and Verify KryptoKnight Protocol using CASPA Tool” under the supervision of Dr. B. Sadeghiyan

## **Teaching Experience**

### **University of Sussex, Brighton, UK**

- **Associate Tutor, Sep. 2018 - present**
  - Assisted Dr. I. Mackie in “Comparative Programming” module, ran weekly lab sessions (2019-21)
  - Assisted Dr. N. De Beaudrap in “Compilers and Computer Architecture” module (2020-21)
  - Assisted Prof. D. Weir in “Databases” module
  - Assisted Dr. B. Reus in “Further Programming” module, ran weekly lab sessions
  - Assisted Dr. G. Parisi in “Operating Systems” module, ran weekly lab sessions
  - Assisted Dr. B. Reus in “Limits of Computation” module, ran weekly lab sessions
  - Assisted Dr. I. Khan in “Introduction to Computer Security” module, ran weekly lab sessions (2018-20)
  - Assisted Dr. D. Dmitrenko in “Programming for Engineers” module (graduate module)

- Assisted Prof. I. Wakeman in "Further Programming" module
- Delivered a lecture about "Rowhammer attack" and "Penetration Testing" to "Introduction to Computer Security" class (139 third-year undergraduate students), 21 November 2019
- Delivered a lecture about "Penetration Testing" to "Introduction to Computer Security" class (144 third-year undergraduate students), 7 December 2018

## **Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran**

- **Lecturer, 2016 - 2017**
  - Taught "Operating Systems Laboratory" module, lectured, and administered all grades
  - Taught "Computer Workshop" module, lectured, and administered all grades
- **Teaching Assistant, 2016 - 2017**
  - Assisted Dr. B. Sadeghiyan in "Applied Cryptography" module (graduate module)
  - Assisted Professor M. Dehghan TakhtFooladi in "Data Structures" module
  - Assisted Dr. E. Nazerfard in "Fundamental of Programming" module

## **University of Kurdistan, Sanandaj, Iran**

- **Teaching Assistant, 2012 - 2015**
  - Assisted Dr. P. Moradi in "Programming in C/C++" module
  - Assisted Dr. P. Moradi in "Data Structures" module
  - Assisted Dr. A. Khorramian in "Data Structures" module
  - Assisted Dr. A. Abdollahpouri in "Programming in Java" module
  - Assisted Dr. A. Abdollahpouri in "Design and Analysis of Algorithms" module

## **Skills**

### **Programming Language**

- |           |         |
|-----------|---------|
| ● Rust    | ● Java  |
| ● Haskell | ● C/C++ |
| ● Python  | ● C#    |

### **Information Security Tools**

- |              |                  |
|--------------|------------------|
| ● Metasploit | ● Burp Suite     |
| ● Nmap       | ● Tenable Nessus |
| ● Wireshark  | ● Netsparker     |

### **Operating Systems**

- |                                |           |
|--------------------------------|-----------|
| ● Linux (Ubuntu, Kali, Fedora) | ● Android |
| ● Windows (all kinds)          | ● iOS     |

## **Membership and Service**

- Student Volunteer at PLDI 2020
- Student Volunteer at ECOOP and Curry On 2019
- ACM Membership: May 2013 to Apr 2016
- IEEE Membership: 01-Jan-2012 to 31-Dec-2012
- IEEE Computer Society Membership: 01-Jan-2012 to 31-Dec-2012
- IT association Chairman and primary member, University of Kurdistan: Sep 2013 to Sep 2014

## **Languages**

- |                               |  |
|-------------------------------|--|
| ● Kurdish: Native proficiency | ● English: Full Professional proficiency |
| ● Persian: Native proficiency | ● Arabic: Elementary proficiency         |