

HOSSEIN HAJIPOUR

PRESENT ADDRESS

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CONTACT INFORMATION

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OBJECTIVE

Building intelligent systems that are safe and interpretable, capable of understanding and generating code in multiple languages using various types of inputs, including natural language, programs, and input/output examples.

RESEARCH INTEREST

ML for Code Generation and Code Understanding, Safe ML for Code, Machine Learning, and Computational Intelligence.

PROFESSIONAL EXPERIENCE

- **CISPA Helmholtz Center for Information Security**, Ph.D. Researcher, Sep 2018 - Now.
 - Conducting research on neural program generation, including ML-based program repair, reverse engineering, and analyzing safety aspects of code language models.
- **Max Planck Institute for Informatics**, Research Assistant, Jan 2018 - Aug 2018.
 - Project: Developing a novel learning-based approach for monocular reconstruction of arbitrary 3D shapes.
- **Max Planck Institute for Informatics**, Research Assistant, Apr 2017 - Dec 2017.
 - Project: Developing a deep learning approach for automatic rendering artifacts correction of 2D images.
- **Cluster of Excellence MMCI**, Back-end Developer, Oct 2015 - Mar 2017.
 - Project: Implementing a bot to crawl and aggregate information of more than 1000 web pages.
- **ICT Institute of Persian Gulf University**, Full-stack Developer, Oct 2014 - Sep 2015.
 - Project: Designing and implementing a social network to support more than 1M users.

EDUCATION

Saarland Univeristy, Saarbruecken, Germany Sep 2018 - Dec 2023 (Expected)
CISPA Helmholtz Center for Information Security
Ph.D. in Computer Science
Advisor : Prof. Mario Fritz

Saarland Univeristy, Saarbruecken, Germany Oct 2015 - Jul 2018
M.Sc. in Computer Science, **GPA**: 1.2 (94 out of 100)
Thesis: Weakly-supervised Surface Reconstruction Using Floating Radial Basis Functions.
Advisor : Prof. Christian Theobalt

Persian Gulf University, Booshehr, Iran Feb 2010 - June 2014
B.Sc. in Computer Engineering, **GPA**: 17.05 (85 out of 100)

PUBLICATION

1. **Hossein Hajipour**, Thorsten Holz, Lea Schnherr, and Mario Fritz. “Systematically Finding Security Vulnerabilities in Black-Box Code Generation Models.” arXiv, Feb 2023, [Link](#).
2. **Hossein Hajipour**, Ning Yu, Cristian-Alexandru Staicu, and Mario Fritz. “SimSCOOD: Systematic Analysis of Out-of-Distribution Behavior of Source Code Models.” arXiv, Oct 2022, [Link](#).
3. **Hossein Hajipour**, Apratim Bhattacharya, Cristian-Alexandru Staicu, and Mario Fritz. “SampleFix: Learning to Generate Functionally Diverse Fixes.” MLiSE at ECML PKDD’21, Springer. Sep 2021, [Link](#).
4. **Hossein Hajipour**, Mateusz Malinowski, and Mario Fritz. “IReEn: Reverse-Engineering of Black-Box Functions via Iterative Neural Program Synthesis.” MLiSE at ECML PKDD’21, Springer. Sep 2021, [Link](#).
5. **Hossein Hajipour**, Apratim Bhattacharyya, and Mario Fritz. “SampleFix: Learning to Correct Programs by Efficient Sampling of Diverse Fixes.” CAP at NeurIPS’20. Dec 2020, [Link](#).
6. **Hossein Hajipour**, Hamed B.Khourmuji, and Habib Rostami. “ODMA: A Novel Swarm-Evolutionary Metaheuristic Optimizer Inspired by Open Source Development Model and Communities.” Soft Computing, Springer. 2016, [Link](#).
7. Hamed B.Khourmuji, **Hossein Hajipour**, and Habib Rostami. “BODMA: A Novel Metaheuristic Algorithm for Binary Optimization Problems Based on Open Source Development Model Algorithm.” IST’14. Sep 2014, [Link](#).
8. **Hossein Hajipour**, Hamed B.Khourmuji, Habib Rostami, and Rozita J.Oskouei. “ODMA: A New Metaheuristic Optimization Algorithm Based On Open Source Development Model.” ISDA’12. Nov 2012, [Link](#).

ACADEMIC EXPERIENCE

- Reviewing: ACL’23, S&P’23, EuroS&P’22, CCS’22, EMNLP’(22, 23).
- Teaching Assistant of “Machine Learning in Cyber Security.” CISPA Helmholtz Center for Information Security. 2018, 2019, 2020.
- Instructor of “Introduction to Web Application” ICT Institute of Persian Gulf University. 2015.
- Teaching Assistant of “Algorithm Design.” and “Data Structures and Algorithms.” Persian Gulf University. 2014, 2013.

HONORS AND AWARDS

- Fully funded Ph.D. studentship from CISPA Helmholtz Center for Information Security, 2018.
- German-French Ph.D. Workshop on Secure Big Data scholarship, 2018.
- Master thesis scholarship from Saarland University. 2018.
- Ranked 2nd among about 50 computer engineering students at Persian Gulf University.

SKILLS

- **Programming**
 - Python, C, C++ , CUDA.
- **Tools/Frameworks**
 - PyTorch, HuggingFace Transformers, NumPy, SciPy, Git.
- **Theory**
 - Large Language Models, Deep Learning, Program Synthesis, Statistical Learning.
- **Languages**
 - English (Fluent), German (Basic), Farsi/Persian (Native).