Sina Sajadmanesh

CONTACT INFORMATION

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RESEARCH SUMMARY

My research interests lie at the intersection of privacy, deep learning, and graph analysis. More specifically, I use privacy enhancing technologies, such as differential privacy and federated learning, with graph representation learning algorithms, including graph neural networks, to make them more private, secure, and robust for real-world applications.

EDUCATION

École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland — May 2019 – May 2023
Ph.D. in Electrical Engineering   GPA: 5.75 / 6
    Thesis Topic: *Learning over Graphs: From Social to Privacy-Preserving Methods*
    Adviser: Prof. Daniel Gatica-Perez
    Relevant Courses: Artificial Neural Networks (Deep Reinforcement Learning), Deep Learning for Natural Language Processing

Sharif University of Technology, Tehran, Iran — Sep 2014 – Sep 2016
M.Sc. in Information Technology Engineering   GPA: 18.1 / 20
    Thesis Topic: *Link Prediction in Heterogeneous Multi-Layer Social Networks*
    Adviser: Prof. Hamid R. Rabiee
    Relevant Courses: Machine Learning, Complex Dynamical Networks, Performance Modeling of Computer Systems, Advanced Network Security, Database Security and Privacy

University of Isfahan, Esfahan, Iran — Sep 2009 – Feb 2014
B.Sc. in Computer Software Engineering   GPA: 16.19 / 20 (Last four semesters: 17.4 / 20)
    Project: *Design and Implementation of an Android App for Voice Control of Household Devices*
    Adviser: Prof. Ahamd R. Naghsh-Nilchi
    Relevant Courses: Data Structures, Algorithms, Probability and Statistics, Artificial Intelligence, Information Retrieval, Software Engineering, Databases, Operating Systems, Computer Networks

RESEARCH EXPERIENCE

Research Assistant — May 2019 – present
Social Computing Group, **Idiap Research Institute**, Martigny, Switzerland
- Developing privacy-preserving graph neural network models using differential privacy to reduce the privacy risks of using graph representation learning algorithms in real applications.

Research Assistant — Nov 2014 – May 2019
Data Science and Machine Learning Lab, **Sharif University of Technology**, Tehran, Iran
- Private Deep Learning: Worked on a hybrid approach based on Siamese fine-tuning and split learning to make non-private pre-trained deep learning models privacy-preserving at the inference stage.
- Food and Cuisines: Analyzed a large-scale collection of recipes published on the web and their content, aiming to understand cuisines and culinary habits around the world.
- Social Media Mining: Developed time-aware link prediction algorithms over heterogeneous social networks using recurrent neural networks and non-parametric machine learning.

TEACHING EXPERIENCE

Guest Lecturer — Fall 2017
Department of Computer Engineering, **Sharif University of Technology**, Tehran, Iran
    Course: Fundamentals of Programming (Python)
    Website: http://ce.sharif.edu/courses/96-97/1/ce153-12/

Teaching Assistant
Department of Computer Engineering, **Sharif University of Technology**, Tehran, Iran
- Artificial Intelligence (Head TA) — Spring 2017
- Advanced Topics in Artificial Intelligence - Statistical Learning Theory — Spring 2016
- Engineering Probability and Statistics — Spring 2016

Faculty of Computer Engineering, **University of Isfahan**, Esfahan, Iran
- Artificial Intelligence — Fall 2013
- Advanced Computer Programming 2 - JavaFx and Android — Fall 2012
- Computer Programming - Java — Fall 2011
- Computer Programming - C++ — Fall 2010

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INDUSTRIAL EXPERIENCE	**Big-Data Engineer**	Sep 2018 – May 2019

INDUSTRIAL EXPERIENCE

Big-Data Engineer — Sep 2018 – May 2019
Sharif ICT Innovation Center, Tehran, Iran
- Responsible for building a native big-data processing platform using state of the art technologies, such as Spark, Cassandra, JanusGraph, Elasticsearch, etc.

Software Engineer Intern — Summer 2012
Amin Computer Co., Esfahan, Iran
- Responsible for designing and developing an Android application for company's web-based human resource management system.

PUBLICATIONS

[1] **Sina Sajadmanesh** and Daniel Gatica-Perez — Oct 2020
Locally Private Graph Neural Networks
Technical Report, ArXiv e-prints

[2] Seyed Ali Osia, Ali Shahin Shamsabadi, **Sina Sajadmanesh**, *et al* — May 2020
A Hybrid Deep Learning Architecture for Privacy-Preserving Mobile Analytics
IEEE Internet of Things Journal

[3] **Sina Sajadmanesh**, Sogol Bazargani, Jiawei Zhang, and Hamid R. Rabiee — Aug 2019
Continuous-Time Relationship Prediction in Dynamic Heterogeneous Information Networks
ACM Transactions on Knowledge Discovery from Data

[4] **Sina Sajadmanesh**, Jiawei Zhang, and Hamid R. Rabiee — Jun 2017
NPGLM: A Non-Parametric Method for Temporal Link Prediction
Technical Report, ArXiv e-prints

[5] **Sina Sajadmanesh**, Sina Jafarzadeh, Seyed Ali Ossia, *et al* — Apr 2017
Kissing Cuisines: Exploring Worldwide Culinary Habits on the Web
International World Wide Web Conference (WWW 2017) Companion

[6] **Sina Sajadmanesh**, Hamid R. Rabiee and Ali Khodadadi — Aug 2016
Predicting Anchor Links between Heterogeneous Social Networks
IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining

HONORS AND AWARDS

- **PhD admission** with fully-funded research assistantship to the Computer Science program from the University of Illinois at Urbana-Champaign., 2018
- **PhD admission** with fully-funded postgraduate studentship to the Computer Science and Engineering program from Hong-Kong University of Science and Technology., 2017
- **Ranked 3rd** in cumulative GPA among B.Sc. Computer Software Engineering students admitted for Fall 2009, University of Isfahan , 2014
- **Ranked 6th** in Iranian nationwide university entrance exam for graduate studies, field of Artificial Intelligence, among more than 100000 students, 2014
- **Ranked 15th** in Iranian nationwide university entrance exam for graduate studies, field of Computer Networks and Security, among more than 30000 students, 2014
- **Ranked 28th** in 18th National Computer Olympiad for University Students at Tarbiat Modares University , Tehran, Iran, 2013
- **Ranked 16th** in ACM-ICPC regional contest, Asia region, Tehran site, among more than 70 teams at University of Tehran , Tehran, Iran, 2011
- **Ranked 2nd** in nationwide collegiate programming contest among more than 70 teams at University of Kashan , Kashan, Iran, 2010
- **Ranked among top 0.02%** in Iran's nationwide university entrance exam for undergraduate studies., 2009

MEMBERSHIPS

ACM-ICPC Student Chapter, University of Isfahan, Esfahan, Iran — 2010 – 2012
- Organized weekly programming contests.
- Instructed data structures and algorithms to freshmen.

COMMUNITY SERVICE

Journal Reviewer
World Wide Web (2018)
Social Network Analysis and Mining (2020)
ACM Transactions on Intelligent Systems and Technology (2020)

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MEDIA COVERAGE	• How Data Mining Reveals the World's Healthiest Cuisines, **MIT Technology Review**, 3 Nov 2016 • These are the world's most diverse cuisines, **The Independent**, 11 Nov 2016 • Un algorithme compare les cuisines du monde en matière d'ingrédients et d'apports nutritionnels, **France 24**, 15 Nov 2016 • If you are what you eat: regional cuisines have a major impact on health, **ReachMD**, 4 Nov 2016 • Les cuisines du monde passées au crible des big data, **Sciences et Avenir**, 14 Nov 2016

TECHNICAL SKILLS

Programming:
Python, Java, C, C++, MATLAB, PHP, Javascript

Information Retrieval & Analytics:
Elasticsearch, JanusGraph, Cassandra

Data Science and Machine Learning:
PyTorch, PyTorch-Geometric, PyTorch-Lightning, Scikit-Learn, Pandas

REFERENCES

Prof. Daniel Gatica-Perez
Idiap Research Institute, EPFL
Website: https://idiap.ch/~gatica
Email: daniel.gatica-perez@epfl.ch

Prof. Hamid R. Rabiee
Sharif University of Technology
Website: http://sharif.ir/~rabiee
Email: rabiee@sharif.edu

Prof. Emiliano De Cristofaro
University College London
Website: https://emilianodc.com/
Email: e.decristofaro@ucl.ac.uk

Prof. Hamed Haddadi
Imperial College London
Website: https://haddadi.github.io/
Email: h.haddadi@imperial.ac.uk