



# Soroush Omidvar Tehrani

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## Education

- 2017–2020 **M.Sc. in Computer Engineering (Network branch)**, *Department of Computer Engineering*, Ferdowsi University of Mashhad, Iran.  
- Total GPA: 17.53/20 (3.77/4) → Ranked 3<sup>rd</sup> - Last year GPA: 18.53/20 (4/4)
- 2013–2017 **B.Sc. in Computer Engineering**, *Department of Computer Engineering*, Ferdowsi University of Mashhad, Iran.  
- Total GPA: 16.56/20 (3.29/4) → Ranked 2<sup>nd</sup> - Last 2 years GPA: 17.73/20 (3.69/4)

## Research Interests

**Machine Learning | IoT-based Data Mining | Distributed Systems**

## Publications

- 2021 **Anomaly in Power Consumption** (in Persian), *Soroush Omidvar Tehrani*, Mohammad Hossein Yaghmaee Moghaddam, ISBN: 978-622-7605-38-9, Toloo Majd, Iran
- 2021 **Filter Based Time-Series Anomaly Detection in AML using AI Approaches**, Alireza Rahimi, Afshin Shahrestani, Sina Ramezani, Pedram Zamani, *Soroush Omidvar Tehrani*, Mohammad Hossein Yaghmaee Moghaddam, 5<sup>th</sup> International Conference on Internet of Things and Applications (IoT 2021), held in Isfahan, Iran
- 2020 **Decision Tree based Electricity Theft Detection in Smart Grid**, *Soroush Omidvar Tehrani*, Mohammad Hossein Yaghmaee Moghaddam, Mohsen Asadi, 4<sup>th</sup> International Conference on Internet of Things and Applications, held in Mashhad, Iran
- 2019 **Extracting Effective Features for Descriptive Analysis of Household Energy Consumption using Smart Home Data**, Hadise Moradi, *Soroush Omidvar Tehrani*, Behshid Behkamal, Haleh Amintoosi, High Performance Computing and Big Data Analytics Congress, held in Tehran, Iran
- 2019 **Analysis of electricity consumption in smart homes using time hierarchy** (in Persian), *Soroush Omidvar Tehrani*, Hadise Moradi, Behshid Behkamal, Haleh Amintoosi, 3<sup>rd</sup> International Conference on Internet of Things and Applications, held in Isfahan, Iran
- 2018 **FUMBOT: Design, Implementation and Detection**, *Soroush Omidvar Tehrani*, Haleh Amintoosi, 9<sup>th</sup> OIC-CERT Annual Conference & 4<sup>th</sup> Conference on Cyberspace Security Incidents and Vulnerabilities, held in Shiraz, Iran

## Honors

- 2021 Winner of the best M.Sc. IoT-related thesis award among all Iranian competitors in 5<sup>th</sup> International Conference on Internet of Things and Applications
- 2020 Ranked 3<sup>rd</sup> among M.Sc. Computer Engineering students
- 2019 Winner of the best paper award in the High Performance Computing and Big Data Analytics (TopHPC) congress
- 2017 Ranked 2<sup>nd</sup> among B.Sc. Computer Engineering students and got accepted for M.Sc. at Ferdowsi University without entrance qualification exam

## Master Thesis

Title *Data Stream-Based Anomaly Detection for Smart Meters in Smart Grid*

Supervisor Dr. Mohammad Hossein Yaghmaee Moghaddam  
 Advisor Dr. Mohsen Asadi

Description One aspect of using IoT in smart homes is measuring the power consumption of the devices (using smart meters) and recognizing their usage patterns. Smart meters data could help decision-makers for power consumption management, and due to the large volume of data, big data and data mining methods should be used for their analysis. Decision making and anomaly detection based on received data Increase the need of online processing. In this project, the anomaly detection process is performed distributed and online based on the Spark data processing system. The main phases of this work are identifying the suspicious area, feature extraction, clustering users' data, and categorizing their consumption for each cluster. Related methods to the examination of power consumption network, statistical features, and machine learning algorithms have been used in this project, and the system performance has been evaluated with different measures.

## Selected Teaching Experiences

- 2015–2020 **The Theory of Formal Languages and Automata**, *Teacher Assistant and Project Supervisor*, Department of Computer Engineering.  
 Supervised by Dr. Abdorreza Savadi (2015-2020), Dr. Saeid Abrishami (2018,2019)
- 2019–2020 **Computer Networking**, *Teacher Assistant and Project Supervisor*, Department of Computer Engineering.  
 Supervised by: Eng. Farnad Ahangari
- 2017 **Artificial Intelligence**, *Teacher Assistant and Project Supervisor*, Department of Computer Engineering.  
 Supervised by: Dr. Ahad Harati
- 2016 **Fundamentals of Compiler Design**, *Teacher Assistant and Project Supervisor*, Department of Computer Engineering.  
 Supervised by: Dr. Haleh Amintoosi
- 2015 **Digital System Design**, *Project Supervisor*, Department of Computer Engineering.  
 Supervised by: Dr. Mariam Zomorodi Moghadam
- 2014 **Discrete Mathematics**, *Teacher Assistant*, Department of Computer Engineering.  
 Supervised by: Dr. Mostafa Nouri Baygi

## Related Courses

Data Mining: 19.5/20	Distributed Systems: 18.3/20
Artificial Intelligence: 19.1/20	Advanced Computer Networks: 18/20
Basics of Wireless Networking: 19/20	Secure Computer Systems: 20/20

## Selected Projects

- 2019–2021 **Cryptocurrency mining and electricity theft detection**, Employer: Khorasan province electrical distribution company, Dr. Mohammad Hossein Yaghmaee Moghaddam, written with Spark, Python, php (Ongoing)
- 2017–2019 **Design and implementation of power usage smart metering system and consumption management methods based on received data**, As a M.Sc. Project infrastructure, Dr. Mohammad Hossein Yaghmaee Moghaddam and IoT team of IPPBX Lab, written with Java, C, php
- 2019 **Implementation of finding relations between electricity consumption of various devices and patterns of their usage**, Course: Data Mining , Dr. Behshid Behkamal, Dr. Haleh Amintoosi and Eng. Hadise Moradi, written with Matlab
- 2019 **Performing feature selection using analysis the pattern of household energy consumption using RECS2015 dataset**, Course: Data Mining , Dr. Behshid Behkamal, Dr. Haleh Amintoosi and Eng. Hadise Moradi, written with R
- 2017 **Design and implementation of laboratory botnet (FUMBOT) which a centralized botnet, able to perform DDoS attack and utilize the bots for extracting cryptocurrency**, B.Sc. Project, Dr. Haleh Amintoosi, written with Java
- 2016 **Implementation of uninformed search algorithms (BDS, UCS, IDS, DFD, BFS) on Pac-Man game**, Course: Artificial Intelligence, Dr. Ahad Harati, written with Java
- 2016 **Developing an Android program that searches between various news sites and sends related news based on your interest**, Course: Android Programming, Dr. Samad Paydar, written with Java

2015-2018 **Implementing several language recognition programs based on ANTLR**, Course: The Theory of Formal Languages and Automata, Dr. Abdorreza Savadi, written with Antlr

## Programming and Computer Skills

Python Professional, 2018 - Present  
Spark Professional, 2019 - Present  
Java Professional, 2013 - Present  
Matlab Intermediate, 2017 - Present

Android Intermediate, 2015 - 2019  
Antlr Intermediate, 2014 - 2019  
C++ Basic, 2014

Familiar with:

LATEX, Git, Linux commandline (based on LPIC1), Linux Shell Programming, Go, VHDL, Markup Languages, ARM ST Microcontrollers

## Memberships

2019 - 2021 IPPBX Lab, Department of Computer Engineering, Ferdowsi University of Mashhad.

2016 - 2019 CCL Lab, Department of Computer Engineering, Ferdowsi University of Mashhad.

## References

**Dr. Mohammad Hossein Yaghmaee Moghaddam**

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**Dr. Saeid Abrishami**

Email: s-abrishami@um.ac.ir

**Dr. Abdorreza Savadi**

Emails: savadi@um.ac.ir