

Mohammad Sayad Haghighi

Associate Professor

University of Tehran

Senior Member of IEEE

Emails: sayad@ut.ac.ir, sayad@ieee.org

Tel: +98 912 2027251, +61 3 9088 0300

Skype ID: msayadh, LinkedIn: <http://linkedin.com/in/sayadh> , Lab: <http://www.anslab.org>

EDUCATION

- **Doctor of Philosophy (Ph.D.)**, Major: Network Security, K. N. Toosi University of Technology, Iran, 2011
 - Postdoctoral Research Fellow, NSCLab, Deakin University, 2013
 - Research Fellow, INSS, Macquarie University, 2010
- **Master of Science**, Major: Cryptography, Sharif University of Technology, Iran, 2005.
- **Bachelor of Science**, Major: Telecommunications, University Tehran, Iran, 2002.

RESEARCH INTERESTS

- Network Security
- Blockchain
- Wireless Distributed Networks

SCIENTIFIC PUBLICATIONS

Journals:

- Q1, F. Farivar, A. Jolfaei, M. Manthouri, **M. Sayad Haghighi**, "Application of fuzzy learning in IoT-enabled remote healthcare monitoring and control of anesthetic depth during surgery", in **Information Sciences**, 2023
- Q1, I. Mirzadeh, **M. Sayad Haghighi**, A. Jolfaei, "Filtering Malicious Messages by Trust-aware Cognitive Routing in Vehicular Ad Hoc Networks", in **IEEE Transactions on Intelligent Transportation Systems**, 2022.
- Q1, G. Ebrahimpour, **M. Sayad Haghighi**, M Alazab, "Can Blockchain be Trusted in Future Industry 4.0 Study of a Novel Misleading Attack on Bitcoin", **IEEE Transactions on Industrial Informatics**, 2022
- Q1, W Zhou, Y Ding, A Jolfaei, **M. Sayad Haghighi**, S Wen, "A Privacy-Preserving Approach to Identify COVID-19 Infection Origins via Volunteered Share of Health Data Records by Mobile Users", **IEEE Sensors Journal**, 2022.
- Q1, H. Alghafari, **M. Sayad Haghighi**, "Decentralized Joint Resource Allocation and Path Selection in Multi-hop Integrated Access Backhaul 5G Networks", Elsevier **Computer Networks**, 2022
- Q1, M. Ebrahimi, M.H. Tadayon, **M. Sayad Haghighi**, A. Jolfaei, "A Quantitative Comparative Study of Data-Oriented Trust Management Schemes in Internet of Things", **ACM Transactions on Management Information Systems**, 2022.
- Q1, H Alghafari, **M Sayad Haghighi**, A Jolfaei, "High Bandwidth Green Communication with Vehicles by Decentralized Resource Optimization in Integrated Access Backhaul 5G Networks", **IEEE Transactions on Green Communications and Networking**, 2022.
- Q1, F. Gaolei, L. Yu, M Alazab, S Wen, **M. Sayad Haghighi**, G. Hu, "Digging the Underlying Layers of Intelligent Transportation Systems Network by Mobile Crowdsourcing", **IEEE Transactions on Emerging Topics in Computational Intelligence**, (to appear) 2022.
- Q1, A. Mohammadali, **M. Sayad Haghighi**, "A Privacy-Preserving Homomorphic Scheme with Multiple Dimensions and Fault Tolerance for Metering Data Aggregation in Smart Grid", in **IEEE Transactions on Smart Grid**, 2021

- Q1, M. Ebrahimi, **M. Sayad Haghighi**, A. Jolfaei, N. Shamaeian, M.H. Tadayon, "A Secure and Decentralized Trust Management Scheme for Smart Health Systems, **IEEE Journal of Biomedical and Health Informatics**, 2021.
- Q1, F. Farivar, **M. Sayad Haghighi**, A. Jolfaei, S. Wen, "Covert Attacks Through Adversarial Learning: Study of Lane Keeping Attacks on the Safety of Autonomous Vehicles", **IEEE/ASME Transactions on Mechatronics**, 2021
- Q1, T. Wang, H. Ke, A. Jolfaei, S. Wen, **M. Sayad Haghighi**, S. Huang, "Missing Value Filling Based on the Collaboration of Cloud and Edge in Artificial Intelligence of Things", **IEEE Transactions on Industrial Informatics**, 2021
- Q1, F. Farivar, **M. Sayad Haghighi**, A. Jolfaei, S. Wen, "On the Security of Networked Control Systems in Smart Vehicle and its Adaptive Cruise Control", in **IEEE Transactions on Intelligent Transportation Systems**, 2021
- Q1, D. Wang, S. Wen, A. Jolfaei, **M. Sayad Haghighi**, S. Nepal, Y. Xiang, "On the Neural Backdoor of Federated Generative Models in Edge Computing", **ACM Transactions on Internet Technology**, 2021
- **M. Sayad Haghighi**, O. Nader, A. Jolfaei, "A Computationally Intelligent Hierarchical Authentication and Key Establishment Framework for the Internet of Things", **IEEE Internet of Things Magazine**, 2020
- Q1, **M. Sayad Haghighi**, M. Ebrahimi, S. Garg, A. Jolfaei, "Intelligent Trust-based Public Key Management for IoT by Linking Edge Devices in a Fog Architecture", **IEEE Internet of Things Journal**, 2020
- Q1, X. Zhu, S. Wen, A. Jolfaei, **M. Sayad Haghighi**, S. Camtepe, Y. Xiang, "Vulnerability Detection in IIoT Applications: A Fuzzing Method on their Binaries", **IEEE Transactions on Network Science and Engineering**, 2020
- Q1, **M. Sayad Haghighi**, F. Farivar, A. Jolfaei, "A Machine Learning-based Approach to Build Zero False-Positive IPSs for Industrial IoT and CPS with a Case Study on Power Grids Security", **IEEE Transactions on Industry Applications**, 2020
- Q1, **M. Sayad Haghighi**, A. Sheikhsafari, A. Jolfaei, F. Farivar, S. Ahmadzadeh, "Automation of Recording in Smart Classrooms via Deep Learning and Bayesian Maximum a Posteriori Estimation of Instructor's Pose", **IEEE Transactions on Industrial Informatics**, 2020
- Q1, M. Nematollahzadeh, S. Ozgoli, A. Jolfaei, **M. Sayad Haghighi**, "Modeling of Human Cognition in Consensus Agreement on Social Media and its Implications for Smarter Manufacturing", in **IEEE Transactions on Industrial Informatics**, 2020
- Q1, B. Jafarian, N. Yazdani, **M. Sayad Haghighi**, "Discrimination-aware Trust Management for Social Internet of Things", in **Elsevier Computer Networks**, 2020.
- Q2, S. Kouroshnezhad, A. Peiravi, **M. Sayad Haghighi**, A. Jolfaei, "An Energy-aware Drone Trajectory Planning Scheme for Terrestrial Sensors Localization", **Elsevier Computer Communications**, 2020
- Q1, F. Farivar, **M. Sayad Haghighi**, A. Jolfaei, "Artificial Intelligence for Detection, Estimation, and Compensation of Malicious Attacks in Nonlinear Cyber Physical Systems and Industrial IoT", **IEEE Transactions on Industrial Informatics**, 2019.
- Q1, **M. Sayad Haghighi**, Z. Aziminezhad, "Highly Anonymous Mobility-Tolerant Location-based Onion Routing for VANETs", **IEEE Internet of Things Journal**, 2019.
- Q2, **M. Sayad Haghighi**, F. Farivar, A. Jolfaei, M. Tadayon, "Intelligent robust control for cyber-physical systems of rotary gantry type under denial of service attack", **Journal of Supercomputing**, 2019
- Q1, Z. Zandesh, M. Ghazi Saeedi, M. V. Devarakonda, **M. Sayad Haghighi**, "Legal Framework for Health Cloud: A Systematic Review", **International Journal of Medical Informatics**, 2019.
- Q1, S. Koroushnejad, M. Peyravi, **M. Sayad Haghighi**, "On Maximizing the Localization Efficiency of Wireless Sensor Networks with an Energy Aware Mobile Anchor", Elsevier **Ad hoc Networks**, 2019.
- Q2, A. Seyedhasani, **M. Sayad Haghighi**, A. Khonsari, "Inference of Private Social Network Links using Prior Information and Transmissible Data", Elsevier **Journal of Parallel and Distributed Computing**, 2018.
- Q1, A. Mohammadali, **M. Sayad Haghighi**, M. H. Tadayon, A. Mohammadi, "A Novel Identity-based Key Establishment Scheme for Advanced Metering Infrastructure in Smart Grid", in **IEEE Transactions on Smart Grid**, 2016
- Q1, **M. Sayad Haghighi**, S. Wen, Y. Xiang, B. Quinn, W. Zhou, "On the Race of Worms and Patches: Modeling the Spread of Information in Wireless Sensor Networks", in **IEEE Transactions on Information Forensics and Security**, Dec. 2016

- Q1, **M. Sayad Haghighi**, Y. Xiang, V. Varadharajan, B. Quinn, "A Stochastic Time-domain Model for Burst Data Aggregation in IEEE 802.15.4 Sensor Networks", in **IEEE Transactions on Computers**, 2015
- Q1, Sh. Wen, **M. Sayad Haghighi**, J. Zhang, Y. Xiang, W. Zhou, W. Jia, "A Sword with Two Edges: Propagation Studies on Both Positive and Negative Information in Online Social Networks", in **IEEE Transactions on Computers**, 2015
- Q2, M. Tadayon, H. Khanmohammadi, **M. Sayad Haghighi**, "A New Dynamic and Verifiable Multi-Secret Sharing Scheme based On Hermite Interpolation Polynomial", **IET Information Security Journal**, 2014
- Q1, **M. Sayad Haghighi**, K. Mohamedpour, V. Varadharajan, B. Quinn, "Stochastic Modeling of Hello Flooding Attack in Slotted CSMA/CA Wireless Sensor Networks", in **IEEE Transactions on Information Forensics and Security**, 2011
- Q2, A. Mohammadi-nodooshan, Y. Darmani, R. Jalili, M. Nourani, **M. Sayad Haghighi**, "A Robust and Efficient SIP Authentication Scheme", in **Scientia Iranica Transactions in Computer Science and Electrical Engineering**, 2010

Conferences:

- VC. Bui, S. Wen, J. Yu, X. Xia, **M. Sayad Haghighi**, Y. Xiang, "Evaluating Upgradable Smart Contract", IEEE International Conference on Blockchain (**IEEE Blockchain**), Dec. 2021
- S. Barchinezhad, **M. Sayad Haghighi**, "Compensation of Linear Attacks to Cyber Physical Systems through ARX System Identification", 10th Information and Knowledge Technology Conference, 2019
- F. Farivar, **M. Sayad Haghighi**, S. Barchinezhad, A. Jolfaei, "Detection and Compensation of Covert Service-Degrading Intrusions in Cyber Physical Systems through Intelligent Adaptive Control", in **IEEE International Conference on Industrial Technology (ICIT)**, 2019.
- A. Arabsorkhi, **M. Sayad Haghighi**, R. Ghorbanloo, "A Conceptual Trust Model for the Internet of Things Interactions", the **8th Int. Symp. on Telecommunications (IST'16)**, 2016
- N. Toorchi, M. Ahmadian, **M. Sayad Haghighi**, Y. Xiang, "A Markov Model of Safety Message Broadcasting for Vehicular Networks", in **IEEE Wireless Communications and Networking Conf. (WCNC'13)**, 2013
- N. Panahi, **M. Sayad Haghighi**, "Adaption of LEACH Routing Protocol to Cognitive Radio Sensor Networks", in **Int. Symposium on Telecommunications (IST'12)**, 2012
- **M. Sayad Haghighi**, K. Mohamedpour, V. Varadharajan, "Analysis of Packet Loss for Batch Traffic Arrivals in IEEE 802.15.4-based Networks", in **IEEE Local Computer Networks Conference**, 2011
- **M. Sayad Haghighi**, K. Mohamedpour, V. Varadharajan, A. Mohammadi, "Overhearing Gain Analysis in Low-Traffic CDMA Wireless Sensor Networks", in **IEEE International Conf. on Sensor and Ubiquitous Networks and Trustworthy Computing (SUTC'10)**, 2010
- S. Kouroshnezhad, S. Zokaei, H. Yeganeh, **M. Sayad Haghighi**, "Slot Reservation Demand Assignment Multiple Access Control Protocol For Signaling Of Telephony Traffic Via Geo Satellite", **Int. Conf. on Advanced Communication Technology (ICTACT'08)**, 2008
- **M. Sayad Haghighi**, M. Najimi, K. Mohamedpour, Y. Darmani, "An Adaptive Network Allocation Vector for IEEE 802.11-based Multi-hop Networks", in **2nd Int. Conf. on Future Generation Communication and Networking (FGCN'08)**, 2008
- **M. Sayad Haghighi**, K. Mohamedpour, "Securing Wireless Sensor Networks against Broadcast Attacks", in **Int. Symposium on Telecommunications (IST'08)**, 2008
- **M. Sayad Haghighi**, S. Ghaemmaghami, "An Optimal SVD-Based Watermarking Framework through Linear Programming", in **EuroIMSA'05**, Switzerland, 2005
- **M. Sayad Haghighi**, S. Ghaemmaghami, "Towards Energy Optimization of Transparent Watermarks Using Entropy Masking", in **EuroIMSA'05**, Switzerland, 2005

TEACHING EXPERIENCE

- **"Computer Networks"**
SIT202 Lab, Deakin University, Australia (in English)
- **"Advanced Network Security"**
University of Tehran, Iran
- **"Network Security"**

- University of Tehran & K. N. Toosi University of Technology, Iran
- **“Wireless Ad hoc Networks”**
University of Tehran, Iran
- **“Computer Networks”**
Shahid Beheshti University, Iran, & K. N. Toosi University of Technology, Iran
- **“Computer Networks Lab”**
K. N. Toosi University of Tech., Iran

WORK EXPERIENCE

▪ Academia

- **Associate Professor,**
School of Electrical and Computer Engineering, **University of Tehran, Iran**
Aug. 2022 - Present
- **Head of the Department of IT**
School of Electrical and Computer Engineering, **University of Tehran, Iran**
May 2019- July 2022
- **Assistant Professor,**
School of Electrical and Computer Engineering, **University of Tehran, Iran**
Jan. 2016 – Aug. 2022
- **Assistant Professor,**
Department of Information Security, **Iran Telecom Research Center (ITRC), Iran**
Aug. 2013 - Dec. 2015
- **Research Assistant,**
Network Security & Computing Research Lab (NSCLab), **Swinburne University of Technology, Australia,**
May 2020 – Aug. 2020
- **Research Fellow,**
Network Security & Computing Research Lab (NSCLab), **Deakin University, Australia,**
Oct. 2012 - June 2013
- **Honorary Research Fellow,**
Information and Networked Systems Security(INSS), **Macquarie University, Australia**
Jun. 2011 – Dec. 2016
- **Research Fellow,**
Information and Networked Systems Security(INSS), **Macquarie University, Australia**
Aug. 2009 - May 2010

▪ Industry

- **Cyber Security Consultant,** Iran Telecom Research Centre (Research Institute for ICT)
Dec. 2015 – Jan. 2019
- **Senior Cyber Security Consultant,** ITO, Ministry of ICT, Iran
Sep. 2014 – Jan. 2015
- **Cyber Security Consultant,** NOCR, Ministry of Interior, Iran
Aug. 2014 – Jan. 2015
- **Senior IT Consultant,** Bank Tejarat
Sep. 2013 – Mar. 2014
- **IT Consultant/Telecom Specialist,** Telecommunication Company of Iran (TCI)
Mar. 2012 – Oct. 2012
- **Cyber Security Consultant,** Cyberspace Research Inst. (Iran Telecom Research Center),
Nov. 2011 – Oct. 2012
- **VoIP Billing System Planner,** IDRO & Sharif University of Technology,
July 2006 – Jan. 2007

LANGUAGE PROFICIENCY

- English: IELTS (AC) : 8.0 / 9, (L: 8.5, S: 7, R:8.5, W: 7), Oct. 2013

PROJECTS & GRANTS

- Analysis and Design of Attacks for Blockchain-based Cryptocurrencies, **Iran's National Science Foundation (INSF)**, 2022
- Data-oriented Trust Management in Vehicular Ad hoc Networks, **Iran's Ministry of Science, IPM**, 2022
- Security Analysis of Cryptocurrencies & Investigation of their Robustness with a Focus on Bitcoin Attacks, **Iran's Ministry of Science, IPM**, 2021
- Intrusion Detection and Compensation in Industrial CPS, **Iran's Ministry of Science, IPM**, 2019
- Mild Strabismus Correction by Virtual Reality, **Farabi Eye Hospital**, 2019
- Automatic rule-set generation for IDS-assisted firewalls, **Iran's Ministry of Science, IPM**, 2018
- Distributed Trust Management system for IoT, **Iran's National Science Foundation (INSF)**, 2017
- Intrusion Detection System in Cyber-Physical Systems, **National Elites Foundation**, Iran, 2016
- Smart Campus/Shopping Mall, seed grant joint with **Deakin University**, 2015
- eCommerce Implementation Project (TejaratYar), Industrial Project, **Tejarat Bank**, 2014
- Malware Behavior Analysis in Sensor Networks, **Deakin University**, 2012-2013
- Threat Mitigation Framework for Wireless Sensor Networks, **Iran Telecom Research Center**, 2010