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Associate Professor

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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

PUBLICATIONS

Journals:

- Q1, X. Xiao, Y. Guo, A. Jolfaei, C. Chen, M. Sayad Haghighi, S. Wen, Y. Lin, "DetecVFuzz: Enhancing Security in Consumer Electronic Devices through Scalable Vulnerability Testing of Virtual Devices", **IEEE Transactions on Consumer Electronics**, 2025
- Q1, R. Mirzaei, N. Yazdani, M. Sayad Haghighi, "Enhancing Network Tunnels Anonymity through Increasing Combined Traffic in a Clustered Structure", **Computers & Security**, 2025
- Q1, B. Jafarian, N. Yazdani, M. Sayad Haghighi, "Using attentive temporal GNN for dynamic trust assessment in the presence of malicious entities", **Expert Systems with Applications**, 2025
- Q1, G. Ebrahimpour, M. Sayad Haghighi, "Is Bitcoin Future as Secure as We Think? Analysis of Bitcoin Vulnerability to Bribery Attacks Launched through Large Transactions", **ACM Transactions on Privacy and Security**, 2024
- Q1, M. Mahdavi, M.H. Tadayon, M. Sayad Haghighi, Z. Ahmadian, "IoT-Friendly, Pre-computed and Outsourced Attribute Based Encryption", **Future Generation Computer Systems**, 2024
- Q1, S. Barchinezhad, M. Sayad Haghighi, V. Puig, "Identification and Analysis of Stochastic Deception Attacks on Cyber Physical Systems", **Journal of the Franklin Institute**, 2024
- Q1, X. Hu, H. Cai, M. Alazab, W. Zhou, M. Sayad Haghighi, S. Wen "Federated Learning in Industrial IoT: A Privacy-Preserving Solution that Enables Sharing of Data in Hydrocarbon Explorations", **IEEE Transactions on Industrial Informatics**, 2023.
- Q1, I. Mirzadeh, M. Sayad Haghighi, A. Jolfaei, "Filtering Malicious Messages by Trust-aware Cognitive Routing in Vehicular Ad Hoc Networks", **IEEE Transactions on Intelligent Transportation Systems**, 2023.
- Q1, M. Sayad Haghighi, F. Farivar, A. Jolfaei, W. Zhou, "Cyber Attacks via Consumer Electronics: Studying the Threat of Covert Malware in Smart and Autonomous Vehicles", **IEEE Transactions on Consumer Electronics**, 2023.
- Q1, H. Ghiassirad, F. Farivar, M. Shoorehdeli, M. Sayad Haghighi, "Building Robust Neural Networks under Adversarial Machine Learning Attacks by using Biologically-inspired Neurons", **Information Sciences**, 2023.

- Q1, Z. Deng, Y. Hou, A. Jolfaei, W. Zhou, F. Farivar, M. Sayad Haghighi, "Multihead Attention-Based Multiscale Graph Convolution Network for ITS Traffic Forecasting", **IEEE Systems Journal**, 2023
- 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", **Information Sciences**, 2023.
- Q1, M. Mahdizadeh, B. Bahrak, M. Sayad Haghighi, "Decentralizing the lightning network: a score-based recommendation strategy for the autopilot system", **Applied Network Science**, 2023
- 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**, 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 SLoT Applications: A Fuzzing Method on their Binaries", **IEEE Transactions on Network Science and Engineering**, 2020
- Q1, S. Kouroshnezhad, A. Peiravi, M. Sayad Haghighi, A. Jolfaei, "Energy-efficient drone trajectory planning for the localization of 6G-enabled IoT devices", **IEEE Internet of Things Journal**, 2020
- Q1, M. Sayad Haghighi, A. Sheikhjafari, 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", **IEEE Transactions on Industrial Informatics**, 2020
- Q1, B. Jafarian, N. Yazdani, M. Sayad Haghighi, "Discrimination-aware Trust Management for Social Internet of Things", **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. Tadayon, A. Mohammadi, "A Novel Identity-based Key Establishment Scheme for Advanced Metering Infrastructure in Smart Grid", **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:

- Y. Zhang, Z. Zhu, D. He, M. Xue, S. Ji, M. Sayad Haghighi, S. Wen, Z. Peng, "Detecting Union Type Confusion in Component Object Model", in **USENIX Security Symposium**, 2023
- 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
- M. Sayad Haghighi, M. Abdollahi, "Protecting Cyber Physical Systems against Malicious Intruders: A General Detection and Compensation Strategy", Int. ISC Conference on Information Security and Cryptology (**ISCISC**), 2020
- 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 (**IEEE ICIT**), 2019.
- S. Barchinezhad, M. Sayad Haghighi, "Compensation of Linear Attacks to Cyber Physical Systems through ARX System Identification", 10th Information and Knowledge Technology Conference (**IKT**), 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**), 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. (**IEEE WCNC**), 2013
- N. Panahi, M. Sayad Haghighi, "Adaption of LEACH Routing Protocol to Cognitive Radio Sensor Networks", in Int. Symposium on Telecommunications (**IST**), 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 Conf. (**IEEE LCN**), 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 (**IEEE SUTC**), 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 (**ICACT**), 2008
- M. Sayad Haghighi, M. Najimi, K. Mohamedpour, Y. Darmani, "An Adaptive Network Allocation Vector for IEEE 802.11-based Multi-hop Networks", in Int. Conf. on Future Generation Communication and Networking (**FGCN**), 2008
- M. Sayad Haghighi, K. Mohamedpour, "Securing Wireless Sensor Networks against Broadcast Attacks", in Int. Symposium on Telecommunications (**IST**), 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**
Jun. 2022 – Present
 - **Research Fellow and Casual Lecturer**,
School of Science, Computing and Engineering, **Swinburne University of Technology, Australia**,
May 2018 – Present
 - **Head of the Department of IT**
School of Electrical and Computer Engineering, **University of Tehran, Iran**
Jun. 2019- Jul. 2022
 - **Assistant Professor**,

School of Electrical and Computer Engineering, **University of Tehran, Iran**

Jan. 2016 – May 2022

- **Assistant Professor,**
Department of Information Security, **ICT Research Institute (ITRC), Iran,**
Aug. 2013 - Dec. 2015
- **Research Fellow,**
School of Information Technology, **Deakin University, Australia,**
Feb. 2017 – Sep. 2017
- **Postdoctoral Research Fellow,**
School of IT, **Deakin University, Australia,**
Oct. 2012 - June 2013
- **Honorary Research Fellow,**
Department of Computing, **Macquarie University, Australia,**
Jun. 2011 – Dec. 2016
- **Research Fellow,**
Department of Computing, **Macquarie University, Australia,**
Aug. 2009 - May 2010

PROJECTS & GRANTS

- **Principal Investigator,** Developing the Architecture of a National-scale User-centric Identity Management Framework, Ministry of ICT, 2023
- **Principal Investigator,** Intrusion Detection in Smart and Autonomous Vehicles, *Ministry of Science, IPM*, 2023
- 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