Seyed Mohammad Sheikholeslami

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Work Experience

Graduate Research Associate

University of Toronto (2022-2026)

- Designing novel frameworks for distributed learning over smart networks with a focus on multi-modality data heterogeneity, machine learning performance, latency, energy and scalability.
- Optimized multi-modal federated learning for a hierarchical end-to-end network to balance communication and computations between IoT devices, edge servers and cloud data center that led to reduced latency and energy consumption.
- Optimized federated learning for Smart Home with a hybrid RF/VLC technology, balancing communication, computation, and model performance reaching a 17% performance improvement overall.

Research Internship

Huawei Technoligies, Canada (Summer 2023)

- Collaboration in data collection and cleaning for context-aware multi-modal human activity recognition.
- Designed methods to enable multi-modal distributed learning deep neural networks to activity recognition.
- Proposed an intermediate fusion architecture to collaboratively train a model with multiple devices.
- Presenting the material in formal meetings and writing technical insight reports.

Graduate Research Assistant

University of Tehran (2017-2020)

- Minimizing the energy cost of cloud service provider and its geo-distributed data centers by optimizing the workload scheduling in presence of uncertainty.
- Optimizing the integration of energy storage systems and renewable resource in green data centers for energy cost minimization.
- Employing privacy-preserving reinforcement learning for decision-making among multiple datacenters belonging to a cloud service provider.

Teaching Assistant

University of Toronto (2022-2026)

- TAed over 500 hours of Engineering and Computer Science courses at University of Toronto.
- Taking the Lead TA role and managing other TAs to deliver the required tasks in timely manner.
- Conducted weekly tutorials for undergraduate and graduate students on AI and math topics.

Education

PhD in Electrical (Communications) Engineering, University of Toronto, Canada (www.utoronto.ca)

- **Supervisor:** Professor Konstantinos N. Plataniotis
- **Thesis title:** Muti-modal Federated Learning over 6G Networks

2022-2026

Master of communication systems, University of Tehran, Tehran, Iran (https://ut.ac.ir/en).

- **Thesis title**: *Smart grid data center energy cost reduction with workload management.*

09/2017 - 09/2020

Bachelor of Electrical Power Engineering, Bu-Ali Sina University, Hamedan Iran (http://basu.ac.ir/en).
09/2013 - 09/2017

Publications

- **[Access'25] SM. Sheikholeslami**, Pc. Ng, J. Abouei, and K. N. Plataniotis "Multi-Modal Federated Learning Over Cell-Free Massive MIMO Systems for Activity Recognition," *IEEE Access*, vol. 13, 2025.
- **[ICASSP'24] SM. Sheikholeslami**, Pc. Ng, H. Lui, Y. Yu and K. N. Plataniotis "Towards collaborative multimodal federated learning for human activity recognition in smart workplace environments," *ICASSP*, 2024.
- **[ICHMS'24]** J. Seyed-Mohammadi, **SM. Sheikholeslami**, J. Abouei, A. Mohammadi, K. N. Plataniotis, "MoFLeuR: Motion-based Federated Learning Gesture Recognition," IEEE International Conference on Human-Machine Systems, Toronto, ON, Canada, 2024.
- **[CAMSAP'23]** K. Atapour, S. J. Seyed-mohammadi, **SM. Sheikholeslami**, J. Abouei, A. Mohammadi, K. N. Plataniotis, "Multi-Model Federated Learning Optimization Based on Multi-Agent Reinforcement Learning," International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, 2023.
- **[EPSR'23]** A. Alinezhadi, **SM. Sheikholeslami**, K. Atapour, J. Abouei, and K. Plataniotis "Intelligent Privacy-Preserving Demand Response for Green Data Centers," *Elsevier Electric Power Systems Research*, 2023.
- **[Access'22] SM. Sheikholeslami**, A. Rasti, J. Seyed-Mohammadi, J. Abouei, and K. N. Plataniotis "Communication-Efficient Federated Learning for Hybrid VLC/RF Indoor Systems," *IEEE Access*, 2022.
- **[JIOT'22]** A. Rasti-Meymandi, **SM. Sheikholeslami**, J. Abouei, and K. N. Plataniotis "Graph Federated Learning for CIoT Devices and Home Applications," *IEEE Internet of Things Journal*, vol. 10, April. 2023.
- **[SG'22] SM. Sheikholeslami**, A. M. Rabiei, M. Mohammad-Taheri, and J. Abouei, "Cloud Data Center Demand Response: An Optimized Workload Management Approach," *IET Smart Grid*, 2022.
- **[Access'21] SM. Sheikholeslami**, F. Fazel, J. Abouei, K. N. Plataniotis, "Sub-Decimeter VLC 3D indoor localization with handover probability analysis," *IEEE ACCESS*, 2021.

Professional Skills

- Deep learning models for multi-modal data (Pytorch, Tensorflow, etc.)
- Implementing communication networks from Physical to Transport layers.
- Distributed signal processing including image, inertial, audio data (Python, MATLAB)
- Data analysis, visualization, and statistical inference (R programming)

Honors and Awards

- Edward S. Rogers Graduate Fellowship at the University of Toronto (2022-2025)
- Graduate Research Fellowship at the University of Toronto (2022-2025)
- Graduate Research Fellowship at the University of Tehran (2017-2020)