Afsaneh Mahanipour

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Education

University of Kentucky, KY, USA **Aug. 2021 – Dec. 2025 (Expected graduation date)**
Ph.D. in Computer Science *GPA: 4/4.00*

Shahid Bahonar University of Kerman, Kerman, Iran **Aug. 2015 – Jan. 2018**
M.Sc. in Electrical Engineering (Communication Systems) *GPA: 4/4.00*

Shahid Bahonar University of Kerman, Kerman, Iran **2011 – 2015**
B.Sc. in Electrical Engineering (Communication Systems) *GPA: 3.82/4.00*

Publications

Conference Papers

1. **Mahanipour, A.**, Imran, A., & Khamfroush, H., "Federated Reprogramming Knowledge Distillation for Medical Image Classification", MICCAI Workshop on Distributed, Collaborative and Federated Learning, 28th International Conference on Medical Image Computing and Computer Assisted Intervention, 2025.
2. **Mahanipour, A.**, & Khamfroush, H., "Embedded Federated Feature Selection with Dynamic Sparse Training: Balancing Accuracy-Cost Tradeoffs", IJCNN 2025, International Joint Conference on Neural Networks, 2025.
3. **Mahanipour, A.**, & Khamfroush, H., "Semi-Supervised Federated Feature Selection for Multi-Label Data Using Fuzzy Information Theory", GLOBECOM 2025, IEEE Global Communications Conference, 2025.
4. **Mahanipour, A.**, & Khamfroush, H., "Fuzzy Federated Multi-Label Feature Selection: Reinforcement Learning and Ant Colony Optimization", IEEE Big Data 2024, IEEE International Conference on Big Data, 2024.
5. **Mahanipour, A.**, & Khamfroush, H., "FMLFS: A federated multi-label feature selection based on information theory in IoT environment", SMARTCOMP 2024, IEEE International Conference on Smart Computing, 2024.
6. **Mahanipour, A.**, & Khamfroush, H., "Enhancing IoT Security: A Novel Feature Engineering Approach for ML-Based Intrusion Detection Systems", DCOSS-IoT 2024, 20th International Conference on Distributed Computing in Smart Systems and the Internet of Things, IEEE, 2024.
7. **Mahanipour, A.**, & Khamfroush, H., "Multimodal Multiple Federated Feature Construction Method for IoT Environments", GLOBECOM 2023, IEEE Global Communications Conference, 2023.
8. **Mahanipour, A.**, & Khamfroush, H., "Wrapper-Based Federated Feature Selection for IoT Environments", International Conference on Computing, Networking and Communications (ICNC2023), IEEE, 2023.
9. **Mahanipour A.**, Nezamabadi-Pour, H. and Nikpour, B., "Using Fuzzy-Rough set Feature Selection for Feature Construction based on Genetic Programming", The 3rd Conference on Swarm Intelligence and Evolutionary Computation (CSIEC2018), IEEE, 2018.

10. Ghasemi, M., **Mahanipour, A.** and Saneei, M., "Fast Optimization for VCOs Using Gravitational Search Algorithm", The 26th Conference on Electrical Engineering (ICEE2018), IEEE, 2018.
11. **Mahanipour, A.**, & Nezamabadi-Pour, H., "Improved PSO-Based Feature Construction Algorithm Using Feature Selection Methods", The 2nd Conference on Swarm Intelligence and Evolutionary Computation (CSIEC2017), IEEE, 2017.
12. Fouladi Mahani, F., **Mahanipour, A.**, and Mokhtari, A., "Optimization of Plasmonic Color Filters for CMOS Image Sensors by Genetic Algorithm", The 2nd Conference on Swarm Intelligence and Evolutionary Computation (CSIEC2017), IEEE, 2017.
13. **Mahanipour, A.**, Kashef, S., and Nezamabadi-pour, H., "Feature Selection Using Advanced Binary Ant Colony Optimization by Adding Dynamic Vision", The 2nd Conference on Swarm Intelligence and Evolutionary Computation (CSIEC2017), ISC, 2017, (In Persian).

Journal Papers

14. **Mahanipour, A.**, & Nezamabadi-pour, H., "A Multiple Feature Construction Method Based on Gravitational Search Algorithm", Expert Systems with Applications, 199-209, 2019.
15. **Mahanipour, A.**, & Nezamabadi-Pour, H., "GSP: An Automatic Programming Technique with Gravitational Search Algorithm", Applied Intelligence, 1502-1516, 2019.
16. Fouladi Mahani, F., **Mahanipour, A.** and Mokhtari, A., "Optimized Design of Nanohole Array-Based Plasmonic Color Filters Integrating Genetic Algorithm with FDTD Solutions", Journal of AI and Data Mining, 2019.

Pending Papers

17. **Mahanipour, A.**, Baskin, K., Kunz, A., & Khamfroush, H., "Large Language Models for Clinical Decision Support in Empiric Antibiotic Selection against Pseudomonas aeruginosa".
18. **Mahanipour, A.**, Imran, A., & Khamfroush, H., "Decentralized Federated Reprogramming Distillation via Mixture of Experts for Medical Image Classification".
19. **Mahanipour, A.**, & Khamfroush, H., "A Single-Round Analytic Federated Time-Vision-Language Models for Time Series Forecasting".
20. **Mahanipour, A.**, & Khamfroush, H., "An Automated Multimodal Federated Learning Framework with Large Language Models".

Patents

21. Khamfroush, H., **Mahanipour, A.**, Baskin, K., & Kunz, A., "Large Language Models for Clinical Decision Support in Empiric Antibiotic Selection against Pseudomonas aeruginosa". (In processing)

Research Experience

Research Assistant, University of Kentucky **Aug. 2021 – Present**

- Developed federated data pre-processing methods, Designed a federated dynamic sparse training model for automatic feature engineering, Applied federated knowledge distillation on foundation models, and developed an automated federated data processing pipeline.

Research Assistant, Shahid Bahonar University of Kerman **Aug. 2015 – Dec. 2020**

- Developed swarm-based programming algorithms for classification/regression tasks.
- Optimized the design of voltage-controlled oscillators using machine learning methods.
- Applied machine learning techniques to optimize plasmonic filter design.

Teaching and Mentoring Experience

- **Mentoring** an undergraduate student at the University of Kentucky (May 2025-Present)
- **Teaching Assistant.** CS 215: Introduction to Program Design, Abstraction and Problem Solving, Spring 2024, University of Kentucky.
- **Main Instructor.** CS 275: Discrete Mathematics, Summer 2023, University of Kentucky.
- **Teaching Assistant.** CS 275: Discrete Mathematics, Fall 2023, Spring 2023, Spring 2022, Fall 2021, University of Kentucky.
- **Teaching Assistant.** CS 371: Introduction to Computer Networking, Fall 2022, University of Kentucky.
- **Mentoring** two master students and one undergraduate student at Shahid Bahonar University of Kerman
- **Teaching Assistant.** EE 461: Introduction to Electronics, Fall 2017, Shahid Bahonar University of Kerman

Awards and Honors

Lighthouse Beacon Foundation Scholar (Total award: $8,500) 2025

Cyber-Physical Systems (CPS) Rising Star (Selected as 1 of 30 from 200 nominees). 2025

NeTS Early Career Workshop Participant, NSF Headquarters. 2025

Best Leadership Team Award, Association of Data and Computation (ADC), University of Kentucky. 2024 – 2025

Outstanding Teaching Assistant Award, Department of Computer Science, University of Kentucky. 2023 – 2024

Volunteer -IEEE International Conference on Communications (ICC). 2024

NSF Student Travel Grant Award, IEEE Percom Conference. 2023

NSF Student Travel Grant Award, ACM/IEEE SEC Conference. 2022

Erasmus+ Gradana Machine Learning and Data Mining Winter School Participant, University of Bonn, Germany. 2018

Reviewing

- IEEE Conference on Computer Communications (INFOCOM)
- IEEE International Conference on Communications (ICC)
- IEEE Global Communications Conference (GLOBECOM)
- IEEE Consumer Communications & Networking Conference (CCNC)
- IEEE International Conference on Sensing, Communication, and Networking (SECON)
- International Conference on Distributed Computing in Smart Systems and the Internet of Things (DCOSS)
- IEEE International Conference on Smart Computing (SMARTCOMP)
- International Conference on Computing, Networking and Communication (ICNC)
- IEEE International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom)

- IEEE Future Networks World Forum (FNWF)
- International Joint Conference on Neural Networks (IJCNN)
- Elsevier Computer Networks
- Elsevier Expert systems with applications
- Elsevier Engineering applications of artificial intelligence

Selected Talks

- "Data engineering in centralized and distributed environments", Guest Lecture to the Data Mining class at University of Kentucky, January 2025.
- "Federated Data processing frameworks in distributed environments", Keeping Current Seminar, University of Kentucky, October 2024.

References

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