Yousef Emami, PhD., SMIEEE

Personal Data

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Profile Highlights

- **Research Expertise and Leadership:** Eight years of intensive research experience in artificial intelligence, machine learning, and UAV-assisted communication systems, with a strong record of research innovation and scientific contributions. Demonstrated research leadership through initiating, developing, and coordinating multidisciplinary research activities, frequently serving as first author and leading collaborative publications in prestigious IEEE journals and international conferences.
- **International Collaboration and Research Supervision:** Led and co-led international research initiatives involving researchers and collaborators from Portugal, Canada, Iran, Australia, USA and China. Experienced in establishing research collaborations, defining research directions, providing intellectual and methodological guidance, coordinating multidisciplinary teams, and mentoring research collaborators.
- **Publications and Research Impact:** Authored and co-authored 25 scientific publications in peer-reviewed international journals and conferences, with a strong citation record and a high h-index, demonstrating sustained research productivity and international scientific impact.
- **Research Funding and Project Development:** Actively contributed to an externally funded research project supported by prestigious funding bodies, including the Portuguese Foundation for Science and Technology (FCT) and the European Union.
- **Teaching and Academic Experience:** Experienced in undergraduate teaching, including serving as a Unit Leader for BSc courses at Azad University of Shooshtar and Payame Noor University.
- **Awards and Recognition:** Recipient of several academic and professional distinctions, including:
  - Silver Medal, British Invention Society.
  - Best Student Award in Mathematics and Physics.
- **Industry Experience:** Two years of professional experience contributing to enterprise-level projects, providing practical exposure to industrial problem-solving, technology development, and the application of engineering expertise in real-world environments.
- **Interview:** Featured in a Radio Javan interview in 2007 discussing one of my patented inventions.

Research Interests

- Research interests lie at the intersection of wireless communications, UAV communications, machine learning, and game theory, with a focus on applying reinforcement learning, large language models (LLMs), and LLM-centric agentic AI to develop intelligent, autonomous, and adaptive solutions for UAV networks, emphasizing communication optimization and resource allocation.
- Future research plans focus on advancing the security and resilience of UAV-assisted sensor networks, exploring innovative applications of UAVs in beyond-5G and 6G wireless networks, and investigating the integration of UAV technologies into vehicular networks.

Research, Teaching, and Industry Experience

Sep 2023 – Present Research Collaborator, **Research Centre in Real-Time and Embedded Computing Systems (CISTER), Polytechnic Institute of Porto, Porto, Portugal**
Responsibilities:

- Conduct research on artificial intelligence for UAV systems, including deep reinforcement learning, LLM-based in-context learning, and LLM-centric agentic AI for UAV communications and data collection.
- Lead and coordinate international collaborations and publish findings in leading IEEE journals and magazines, including IEEE Transactions on Vehicular Technology, IEEE Internet of Things Journal, and IEEE Wireless Communications.

Sep 2023 – 2025 Researcher, **Sharif University of Technology, Tehran, Iran**
Responsibilities:

- Investigated LLM-based approaches and agentic AI architectures for UAV applications.
- Conducted research on LLMs, UAV communications, and their integration into intelligent autonomous systems.
- Led research activities and published findings in high-impact international journals.

Sep 2018 – 2023 Researcher, **Research Centre in Real-Time and Embedded Computing Systems (CISTER), Polytechnic Institute of Porto, Porto, Portugal**
Project Title: Airborne Relaying Networks for Reliable and Secure Mobile Communications
Funding: €233,000
Research Responsibilities:

- Developed and implemented reinforcement learning (RL)-based solutions to achieve the project's research objectives, focusing on reliable and secure communication in Airborne Relaying Networks (ARNET).
- Designed novel communication protocols and resource allocation strategies for hierarchically organized cooperative UAVs to enhance network reliability, connectivity, and communication performance for ground-based Long-Term Evolution (LTE) users.
- Conducted research and published the project's outcomes in leading IEEE journals and magazines, including IEEE Transactions on Vehicular Technology, IEEE Wireless Communications, and IEEE Networking Letters.

Sep 2016 – Jul 2018 Lecturer (Unit Leader), **Department of Computer Engineering, Azad University of Shooshtar, Gotvand, Iran**
Teaching Responsibilities:

- Taught C++ programming, data structures, and computer networks.
- Conducted laboratory sessions in programming, computer graphics, and networking.
- Provided practical instruction and guidance to students in programming and computer engineering concepts.

Sep 2016 – Jul 2018 Lecturer (Unit Leader), **Department of Computer Engineering, Payame Noor University, Gotvand, Iran**
Teaching Responsibilities:

- Taught computer networks and Internet engineering.
- Conducted laboratory sessions in programming, computer networking, and Internet technologies.
- Delivered practical instruction using networking and Microsoft tools.

Oct 2009 – Oct 2011 **IT Manager**, **Nasr Consortium, Phase 12 EPC1, Assaluyeh, Iran**
Tablieh Construction Co., Gotvand Dam, Iran
Responsibilities:

- Planned, implemented, and maintained IT infrastructure to support organizational operations.
- Managed IT systems and network resources to support daily organizational activities.
- Provided technical support and maintained the reliability and availability of IT services.

Feb 2003 – Jul 2003 Teaching Assistant, **Computer Engineering Department, Azad University of Dezful, Dezful, Iran**
Course: Fundamentals of Computer Programming
Responsibilities:

- Delivered practical programming sessions.
- Guided students through programming exercises and assignments.
- Assessed students' practical work and performance.

Educational Profile

Sep 2018 - Nov 2023 Ph.D. in Electrical and Computer Engineering, **Porto University**, Porto, Portugal
Advisor: Prof. Dr. Kai Li
Thesis Title: "Deep Reinforcement Learning for Joint Cruise Control and Intelligent Data Acquisition in UAVs-Assisted Sensor Networks"
Thesis Grade:Approved with Distinction

Sep 2013 - Sep 2015 Master of Science in Computer Networks, **Shiraz University of Technology**, Shiraz, Iran
Thesis Title: "An energy efficient and traffic aware data fusion scheme in underwater wireless sensor networks"
Advisor: Prof. Dr. Reza Javidan
GPA: 15.31/20

Sep 2002 - Feb 2007 Bachelor of Science in Computer Engineering, **Azad University of Dezful**, Dezful, Iran
Thesis Title: "Security in IEEE 802.11"
Advisor: Prof. Dr. Alireza Osareh
GPA: 14.70/20

Publications

Google Scholar Citations,Nov 2026 422, h-index 12

Patent Applications:

1. **Yousef Emami**, Ali Shanesazan zadeh, and Koosar Hayati, "Invention of an ElectroMechanical Lock", Iranian Patent (Iranian Patent Application Number: 42978, Date: 2007).
2. **Yousef Emami**, Ali Shanesazan zadeh, and Koosar Hayati, "Invention of a sonic-wave system that prevents from beetle entrance to buildings", Iranian Patent (Iranian Patent Application Number: 46146, Date: 2008).

Published Journal Articles:

(a) **Yousef Emami**, Kai Li, Luis Almeida, Wei Ni, and Zhu Han, "Human-In-The-Loop Machine Learning for Safe and Ethical Autonomous Vehicles: Principles, Challenges, and Opportunities", IEEE Internet of Things Journal.

(b) **Yousef Emami**, Kai Li, Luis Almeida, Wei Ni, and Zhu Han, "LLM-Centric Agentic AI for UAV Swarms: System-Level Architecture and Perception–Reasoning Security", IEEE Internet of Things Magazine.

(c) **Yousef Emami**, Radha Reddy, MG Guitan, and Azadeh Pourkabirian, "Advancing Autonomous Emergency Response Systems: A Generative AI Perspective", IEEE Internet of Things Magazine.

(d) **Yousef Emami**, Hao Zhou, MG Guitan, Kai Li, and Luis Almeida, "FRSICL: LLM-Enabled In-Context Learning Flight Resource Allocation for Fresh Data Collection in UAV-Assisted Wildfire Monitoring", IEEE Internet of Things Journal.

(e) **Yousef Emami**, Hao Zhou, MG Guitan, Kai Li, Luis Almeida, and Zhu Han, "From Prompts to Protection: Large Language Model-Enabled In-Context Learning for Smart Public Safety UAV", IEEE Wireless Communications Magazine.

(f) **Yousef Emami**, Hao Zhou, SeyedSina Nabavi, and Luis Almeida, "LLM-Enabled In-Context Learning for Data Collection Scheduling in UAV-Assisted Sensor Networks", IEEE Internet of Things Journal.

(g) **Yousef Emami**, Kai Li, and Luis Almeida, "Diffusion Models for Smarter UAVs: Decision-Making and Modeling", IEEE Vehicular Technology Magazine.

(h) **Yousef Emami**, Hao Gao, Kai Li, Luis Almeida, Eduardo Tovar, and Zhu Han, "Age of Information Minimization using Multi-agent UAVs based on AI-Enhanced Mean Field Resource Allocation", IEEE Transactions on Vehicular Technology, 2024. DOI: 10.1109/TVT.2024.3394235.

(i) Kai Li, Wei Ni, **Yousef Emami**, and F. Dressler, "Data-Driven Flight Control of Internet-of-Drones for Sensor Data Aggregation Using Multi-Agent Deep Reinforcement Learning", IEEE Wireless Communications, vol. 29, no. 4, pp. 18–23, 2022.

(j) **Yousef Emami**, Bo Wei, Kai Li, Wei Ni, and Eduardo Tovar, "Joint Communication Scheduling and Velocity Control in Multi-UAV-Assisted Sensor Networks: A Deep Reinforcement Learning Approach", IEEE Transactions on Vehicular Technology, vol. 70, no. 10, pp. 10986–10998, 2021.

(k) Kai Li, **Yousef Emami**, Wei Ni, Eduardo Tovar, and Zhu Han, "Onboard Deep Deterministic Policy Gradients for Online Flight Resource Allocation of UAVs", IEEE Networking Letters, vol. 2, no. 3, pp. 106–110, 2020.

(l) Kai Li, Wei Ni, **Yousef Emami**, Yiran Shen, Ricardo Severino, David Pereira, and Eduardo Tovar, "Design and Implementation of Secret Key Agreement for Platoon-Based Vehicular Cyber-Physical Systems", ACM Transactions on Cyber-Physical Systems, vol. 4, no. 2, pp. 1–20, 2019.

Submitted Journal Articles:

(a) **Yousef Emami**, Mohammadhossein Homaei, Hao Zhou, Miguel Gutiérrez Gaitán, Atefeh Hajijamali Arani, and Rui Zhang, "LAPF: LLM-Agent-Based Path Finder Using the UAVScenes Dataset", submitted to IEEE Transactions on Mobile Computing.

(b) **Yousef Emami**, Seyedsina Nabavirazavi, Jingjing Zheng, Hao Zhou, Miguel Gutierrez Gaitan, Kai Li, and Luis Almeida, "Joint Communication Scheduling and Velocity Control for Multi-UAV-Assisted Post-Disaster Monitoring: An Attention-Based In-Context Learning Approach", submitted to ACM Transactions on Cyber-Physical Systems.

(c) Mohammadhossein Homaei, **Yousef Emami**, Sajad Homayoun, Rahim Taheri, Hao Zhou, Miguel Gutierrez Gaitan, and Bo Wei, "Defense-in-Depth at the Perception-Reasoning Interface of LLM-Centric Agentic UAV Swarms", submitted to IEEE Transactions on Vehicular Technology.

(d) **Yousef Emami**, Hao Zhou, Radha Reddy, Atefeh Hajijamali Arani, Biliang Wang, Kai Li, Luis Almeida, and Zhu Han, "Large Language Model-Assisted UAV Operations and Communications: A Multifaceted Survey and Tutorial", submitted to IEEE Internet of Things Journal.

(e) **Yousef Emami**, Kai Li, Luis Almeida, and Wei Ni, "On the Use of Immersive Digital Technologies for Designing and Operating UAVs", submitted to IEEE Transactions on Intelligent Transportation Systems.

Proceedings and Conferences:

(a) **Yousef Emami**, Kai Li,Yong Niu , and Eduardo Tovar, "Beyond DRL: LLM-enabled In-Context Learning for Aerial Data Collection in Public Safety UAV", IEEE IWCMC, 2026.

(b) **Yousef Emami**, Kai Li,Yong Niu , and Eduardo Tovar, " AoI minimization using Proximal Proxy Optimization in UAVs-assisted sensor networks", IEEE ICC, 2023.

(c) **Yousef Emami**, Bo Wei, Kai Li, Wei Ni, and Eduardo Tovar, "Deep Q-Networks for Aerial Data Collection in Multi-UAV-Assisted Wireless Sensor Networks", IEEE IWCMC, 2021.

(d) **Yousef Emami**, Kai Li and Eduardo Tovar, "Buffer-aware scheduling for uav relay networks with energy fairness", IEEE VTC,2020.

(e) Kai Li, **Yousef Emami**, and Eduardo Tovar, "Privacy-preserving control message dissemination for PVCPS", ACM IPSN, 2019.

Honors & Awards

(a) Silver Medal Awarded by British Invention Society, London, for the best Patent on ultrasonic waves. (2007).

(b) Best Student Award Awarded by student branch, Iran for best student in the field of math and physics (2001).

Conference attended & Presentations

Conferences attended

(a) **Venue**: International Symposium on Computer Networks and Distributed Systems, Sharif University of Technology, Iran, 2013.

(b) **Venue**: IEEE International Conference on Communications (ICC), Montreal, Canada, (Online), 2021.

Paper Presentations

(a) "Deep Q-networks for aerial data collection in multi-UAV-assisted wireless sensor networks"
Venue: International Wireless Communications and Mobile Computing (IWCMC), Harbin, China, 2021.

(b) " AoI minimization using Proximal Proxy Optimization in UAVs-assisted sensor networks"
Venue: International Conference on Communications (ICC), Rome, Italy, 2023.

Technical Program Committee (TPC) Membership

- TPC Member, IEEE Vehicular Technology Conference (VTC) 2027.
- TPC Member, Energy Management for Sustainable Internet-of-Things and Cloud Computing (EMSICC) 2026 and 2027.

Projects

Sep 2018 - Jun 2022 "ARNET: Airborne Relaying Networks for Reliable and Secure Mobile Communications"
Sponsor: FCT and the European Union

Guest Editor

Special Issue: *Generative AI for Smarter UAVs: Enhancing Reinforcement Learning and Decision-Making*, MDPI.

Professional Services

Member, Computer Society of Iran

Senior Member, IEEE

Member, ACM

International Journal Reviewing Service:

Verified Reviewer on Web of Science / Publons: Web of Science Reviewer Profile

- Reviewed more than 180 manuscripts for various IEEE journals.
- Reviewed more than 30 manuscripts for the IEEE Internet of Things Journal.
- Reviewed more than 20 manuscripts for IEEE Transactions on Vehicular Technology.

Selected Journals:

- IEEE Internet of Things Journal
- IEEE Transactions on Vehicular Technology
- IEEE Transactions on Mobile Computing
- IEEE Networking Letters
- IEEE Wireless Communications Letters

Technical Skills

Operating system	Linux, Windows,
Languages	MATLAB, Latex, LangChain, Python, PyTorch, Scikit-learn, C++

References

- **Kai Li** –Aston University; Email: kaili@ieee.org
- **Luis Almeida** – University of Porto; Email: lda@fe.up.pt