Yousef Emami, PhD.

Personal Data

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Profile Highlights

- **Research:** Dedicated professional focusing on integrating machine learning and UAV communication, resulting in advancements in aerial communication systems over a span of 5 years.
- **Publications:** 12 publications across prestigious journals, coupled with a high h-index and significant citations.
- **Funding:** Heavily engaged with multiple funded projects by renowned funding bodies such as FCT and the European Union.
- **Teaching:** Prior teaching experience as unit leader for BSc students at Azad University of Shooshtar and Payame Noor University.
- **Awards:** Received multiple prestigious awards
  - Silver medal from British Invention Society
  - Best student award in the field of math and physics
- **Industry:** I had two years of professional experience in enterprise projects.

Research Interests

- Wireless Communications
- UAV Communications
- Machine Learning
- Reinforcement Learning
- Game Theory

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"
GPA: 14.13/20

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 Engineeging, **Azad University of Dezful**, Dezful, Iran
Thesis Title: "Security in IEEE 802.11"
Advisor: Prof. Dr. Alireza Osareh
GPA: 14.70/20

Research, Teaching, and Industry Experience

Mar 2024 - Present — Senior Researcher, **Sharif AI Research Center, Tehran, Iran.**
Responsibilities:
- Researching Wireless AI
- Researching Autonomous Vehicles

Sep 2018 - Sep 2023 — 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 Problem:
- ARNET aims to design wireless communication protocols to enhance network reliability and security in Airborne Relaying NETworks (ARNET) for Long-Term Evolution (LTE) users on the ground.
- Develop novel communication protocols for hierarchically organized cooperative UAVs to enhance airborne relaying network reliability with guaranteed network connectivity.

Feb 2003 - Jul 2003 — Teaching Assistance, **Computer Engineering Department, Azad University of Dezful, Dezful, Iran.**
Title of the Unit: Fundamental of computer programming
Responsibilities:
- Deliver practical sessions
- Guiding students
- Responsible for assessments of practices

Sep 2016 - Jul 2018 — Teaching, **Department of Computer Engineering, Azad University of Shooshtar, Gotvand, Iran**.
Responsibilities:
- Teach computer networks, data structure, programming
- Conducting lab sessions on multimedia and networking

Sep 2016 - Jul 2018 — Teaching, **Department of Computer Engineering, Payame Noor University, Gotvand, Iran**.
Responsibilities:
- Teach computer networks, Internet engineering
- Conducting lab sessions on Networking and Microsoft tools

Oct 2009 - Oct 2010 — IT Manager, **Nasr consortium, Phase 12 EPC1, Assaluyeh, Iran**.
Responsibilities:
- Planning and implementing IT infrastructures
- Managing IT infrastructures

Publications

Google Citations: 160, h-index 8

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).

Journal Articles:

3. **Yousef Emami**, Kai Li, Luis Almeida, Wei Ni, Zhu Han "Human-In-The-Loop Machine Learning for Safe and Ethical Autonomous Vehicles: Principles, Challenges, and Opportunities", In Submission,
4. **Yousef Emami**, Kai Li, Luis Almeida, Wei Ni, "On the Use of Immersive Digital Technologies for Designing and Operating UAVs", Submitted to IEEE Internet of Things,
5. **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,https://doi.org/10.1109/TVT.2024.3394235. (Impact Factor: 6.23)
6. **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. (Impact Factor: 6.23)
7. 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. (Impact Factor: 3.55)
8. 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. (Impact Factor: 2.81)

9. 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. (Impact Factor: 12.42)

Proceedings and Conferences:

10. **Yousef Emami**, Kai Li,Yong Niu , and Eduardo Tovar, "AoI Minimization using Multi-agent Proximal Policy Optimization in UAVs-assisted Sensor Networks", IEEE ICC, 2023.
11. **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.
12. **Yousef Emami**, Kai Li and Eduardo Tovar, "Buffer-aware scheduling for uav relay networks with energy fairness", IEEE VTC,2020.
13. Kai Li, **Yousef Emami**, and Eduardo Tovar, "Privacy-preserving control message dissemination for PVCPS", ACM IPSN, 2019.

Honors & Awards

1. Silver Medal Awarded by British Invention Society, London, for the best Patent on ultrasonic waves. (2007).
2. Best Student Award Awarded by student branch, Iran for best student in the field of math and physics (2001).

Conference attended & Presentations

Conferences attended

1. **Venue**: International Symposium on Computer Networks and Distributed Systems, Sharif University of Technology, Iran, 2013.
2. **Venue**: IEEE International Conference on Communications (ICC), Monteral, Canada, (Online), 2021.

Paper Presentations

1. "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.
2. " AoI minimization using proximal proxy optimization in UAVs-assisted sensor networks"
   Venue: International Conference on Communications (ICC), Rome, Italy, 2023.

Projects

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

Professional Services

Member, Computer Society of Iran

Member, IEEE

Member, ACM

International Journals/Conferences: Verified Reviewer @ Publons

1. IEEE Communications Magazine
2. IEEE Transactions on Vehicular Technology
3. IEEE Transactions on Industrial Informatics
4. Computer Communications
5. IEEE Access

Technical Skills

Operating system	Linux, Windows, Windows server 2003
Languages	MATLAB, Latex, Python, PyTorch, Scikit-learn, C++