

Education

- 2024–2027 **UPV Universitat Politècnica de València**, *Department of Telecommunication Engineering, Valencia, Spain*, Ph.D. in Electrical Engineering and Communication Networks
Research topic: Integration of Terrestrial and Non-terrestrial Networks for Aerial and Ground Wireless Connectivity (Using Deep Reinforcement Learning).
Advisor: Dr. David López-Pérez
GPA: 9/10
Ph.D. Courses:
 - Next-Generation Wireless Networks — Grade: 9/10
 - Next-Generation Wireless Systems Applications — Grade: 9/10
- 2011–2014 **University of Tehran**, *Department of Electrical and Computer Engineering, Tehran, Iran*, M.Sc. in Electrical Engineering (Communication Systems)
Thesis: Parallel Cooperative Spectrum Sensing in Cognitive Radio Networks.
Advisor: Dr. Amir Masoud Rabie
GPA: 14.56/20 (2.912/4)
- 2006–2011 **University of Tabriz**, *Department of Electrical and Computer Engineering, Tabriz, Iran*, B.Sc. in Electrical Engineering (Electronics)
Thesis: Energy Optimization in Triac and Diac Based Light Dimmers.
Advisor: Dr. Tohid Alizadeh
GPA: 15.02/20 (3.008/4)

Research Interests

Artificial Intelligence & Machine Learning (CNNs, Federated Learning, Deep Reinforcement Learning (Proximal Policy Optimization, Twin Delayed Deep Deterministic Policy Gradient)), ChatGPT and Large Language Models, Optimization, Wireless Communications and MIMO Systems.

Publications

Journal Articles

1. **Akhtarshenas, A.**, Vahedifar, M. A., Ayoobi, N., Maham, B., Alizadeh, T., et al. (2024). “*Federated Learning: A Cutting-Edge Survey of the Latest Advancements and Applications.*” *Computer Communications*, 228, 107964.
2. **Akhtarshenas, A.**, Toosi, R. (2022). “*An Open-Set Framework for Underwater Image Classification Using Autoencoders.*” *SN Applied Sciences*, 4(8), 229.

Conference Papers

1. **Akhtarshenas, A.**, Ayoobi, N., López-Pérez, D., Toosi, R., Amoozadeh, M. (2024). “*CNN Autoencoder Resizer: A Power-Efficient LoS/NLoS Detector in MIMO-Enabled UAV Networks.*” In *2024 IEEE 35th International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*.
2. Alizadeh, T., **Akhtarshenas, A.**, Karimi, N., Soleimani, H., Alizadeh, A. (2024). “*PLC Programming Instruction: A Review of Popular Software Platforms for Enhanced Learner Outcomes.*” In *2024 9th International Conference on Mechatronics Engineering (ICOM)*, pp. 76–82.
3. **Akhtarshenas, A.**, Toosi, R., López-Pérez, D., Alizadeh, T., Hosseini, A. (2025). “*Efficient Malicious UAV Detection Using Autoencoder-TSMamba Integration.*” In *Iberian Conference on Pattern Recognition and Image Analysis*, pp. 309–320.

4. Vahedifar, M. A., **Akhtarshenas, A.**, RafatPanah, M. M., Sabbaghian, M. (2025). "Shapley-Based Data Valuation with Mutual Information: A Key to Modified K-Nearest Neighbors." In *2025 IEEE 35th International Workshop on Machine Learning for Signal Processing*.
5. Ibáñez, M. R., **Akhtarshenas, A.**, López-Pérez, D., Geraci, G. (2025). "Optimizing UAV Aerial Base Station Flights Using DRL-Based Proximal Policy Optimization." In *2025 IEEE International Conference on Communications Workshops (ICC Workshops)*.
6. **Akhtarshenas, A.**, Svistunov, G., Zheng, K., López-Pérez, D. "Wind-Resilient Trajectory Optimization for UAV-BS Networks: TD3 for Continuous Service Availability." Accepted for presentation at *IEEE GLOBECOM 2026*, arXiv:2606.18556, 2026.
7. Spampinato, L., Togola, M., Bernabé, M., **Akhtarshenas, A.**, Amorosa, L. M., López-Pérez, D. "Indirect Estimation of SINR via SSB and CSI-RS RSRP in 5G NR." Accepted for presentation at *IEEE COINS 2026*, 2026.

Submitted / Under Review

1. Svistunov, G., **Akhtarshenas, A.**, López-Pérez, D., Giordani, M., Geraci, G., Yanikomeroglu, H. "Bridging Earth and Space: A Survey on HAPS for Non-Terrestrial Networks." Submitted to *IEEE Communications Surveys & Tutorials*, arXiv:2510.19731, 2025.
2. **Akhtarshenas, A.**, Ibáñez, M. R., Bernabé, M., López-Pérez, D., Debbah, M. "Centralized PPO-Based DRL for Multi-UAV-BS Positioning and Trajectory Optimization in Disaster Response Networks." Submitted to *IEEE Transactions on Machine Learning in Communications and Networking*, 2026.
3. **Akhtarshenas, A.**, Mostafavi Tehrani, S. H., Toosi, R., Alizadeh, T., López-Pérez, D. "A Comprehensive Survey of Reinforcement Learning Algorithms: Taxonomy, Mathematical Foundations, and Practical Insights." Submitted to *CAAI Transactions on Intelligence Technology*, 2026.
4. **Akhtarshenas, A.**, Svistunov, G., Bernabé, M., Zheng, K., López-Pérez, D. "PPO-Based Dynamic Positioning of HAPS-BS in Wind-Disturbed Stratospheric Maritime Networks." Submitted to *IEEE GLOBECOM 2026*, arXiv:2605.05240, 2026.

Preprints / arXiv

1. **Akhtarshenas, A.**, Dini, A., Ayoobi, N. (2025). "ChatGPT or a Silent Everywhere Helper: A Survey of Large Language Models." arXiv:2503.17403.

Profiles

LinkedIn [linkedin.com/in/azim-akhtarshenas](https://www.linkedin.com/in/azim-akhtarshenas)
 Google Scholar scholar.google.com/citations?user=5eCLyxwAAAAJ
 GitHub github.com/aakhtarshenas

Technical Skills

Programming Python, MATLAB, C, Verilog
 Machine Learning & Deep Learning PyTorch, TensorFlow, TorchRL, NumPy, Pandas, Scikit-learn
 Experiment Tracking & MLOps MLflow, Weights & Biases (W&B)
 Simulation & Engineering Tools Simulink, LabVIEW, ModelSim, Proteus, PSpice, HSpice, CodeVision

Wireless & Hardware Platforms USRP boards, AVR microcontrollers, TI DSPs

Productivity Tools L^AT_EX, MS Office Suite (Word, Excel, PowerPoint), Visio

Personal Skills

Excellent communication and interpersonal skills; leadership, management, and presentation skills; strong decision-making ability; effective planning and prioritization.

PhD Summer Schools

- 2024 **Summer School on Advanced Topics in 5G/6G Communications**, Instructor: Dr. David López-Pérez, Universidad Internacional Menéndez Pelayo, Cuenca, Spain, June 1–4, 2024
- 2025 **Summer School on Advanced Topics in 5G/6G Communications**, Instructor: Dr. David López-Pérez, Universidad Internacional Menéndez Pelayo, Cuenca, Spain, June 1–4, 2025
- 2025 **IEEE/DEI Summer Ph.D. School of Information Engineering**, Instructor: Dr. Marco Giordani, Università degli Studi di Padova, Brixen, Italy, July 6–10, 2025

Experiences

Teaching Experience

- Winter 2009 **Linear Control Systems**, Instructor: Dr. Tohid Alizadeh
- Winter 2015 **Communication (2)**, Instructor: Dr. Amir Masoud Rabie
- Spring 2016 **Engineering Probability and Statistics**, Instructor: Dr. Amir Masoud Rabie
- Fall 2016 **Advanced Theory of Communication**, Instructor: Dr. Amir Masoud Rabie
- Spring 2017 **Signals and Systems**, Instructor: Dr. Amir Masoud Rabie
- Winter 2017 **Data Network**, Instructor: Dr. Vahid Shah-Mansouri
- Spring 2018 **Advanced Theory of Communication**, Instructor: Dr. Amir Masoud Rabie
- Fall 2018 **Engineering Probability and Statistics**, Instructor: Dr. Amir Masoud Rabie
- Spring 2020 **Signals and Systems**, Instructor: Dr. Amir Masoud Rabie
- Winter 2020 **Stochastic Processing & Random Variables**, Instructor: Dr. Amir Masoud Rabie
- Fall 2021 **Signals and Systems**, Instructor: Dr. Amir Masoud Rabie
- Winter 2021 **Stochastic Processing & Random Variables**, Instructor: Dr. Amir Masoud Rabie

Work Experience

- 2019 Implementation of the Internet network at Eslamshahr Azad University
- 2016–2017 Military service as technical staff at the communication room of Kooy Dormitory, University of Tehran
- 2021 Implementation of a wireless communication network under Voice over Internet Protocol (VoIP) at the College of Mechanical Engineering, University of Tehran

Awards & Honors

- 2009 Ranked 719th (regional rank) and 7200th (national rank) in the National Universities Entrance Examination among more than 308,000 contestants.
- 2013 Ranked 125th in Communications Engineering in the Graduate Entrance Examination among more than 1,500 contestants.
- 2016–2017 Ranked 1st as the communication systems operator in the dormitories of the University of Tehran as part of mandatory military service among more than 100 applicants.

Course Projects

- Fall 2010 **Energy optimization in infrared control**, *Microprocessors*
- Investigated the effects of obstacles in infrared control and methods for efficient operation.
 - Implemented energy-saving hardware solutions.
- Fall 2013 **Combined Spatial Multiplexing/STBC Systems**, *Coding Theory*
- Analyzed the paper “Improved Linear Group Detection for Combined Spatial Multiplexing/STBC Systems.”
 - Studied group-based and direct detection techniques for STBC streams.
 - Compared complexity and performance of both approaches.
- Fall 2013 **Sensor selection via convex optimization**, *Convex Optimization*
- Studied capacity maximization under different power constraints in dual-hop cooperative communication networks.
 - Analyzed “Antenna Placement Optimization for Distributed Antenna Systems.”
- Fall 2013 **Automated Bayesian system identification**, *System Identification*
- Analyzed “Automated Bayesian system identification in NARX Model.”
 - Designed and evaluated Bayes, linear, Parzen window, and KNN classifiers.
- Fall 2012 **Dynamic Decode and Forward (DDF)**, *Information Theory*
- Analyzed “Network-level Cooperation for a Multiple Channel via Dynamic Decode and Forward.”
 - Studied the effect of DDF and superposition coding on throughput and queue stability.

Skills

Language Skills

Turkish	Native
Persian	Native
English	Fluent; TOEFL: R 22, L 21, S 24, W 22. GRE: Verbal 144/170, Quantitative 165/170, Writing 3/6.
Spanish	Fluent
German	Familiar
Arabic	Familiar

Graduated & Relevant Courses

Online

2018–2019 Deep Learning (Coursera), Reinforcement Learning (University College London)

Audited

2020 Advanced Algebra (University of Tehran)

Classroom

2011–2014 Convex Optimization, Advanced Digital Communication, Stochastic Processes and Random Variables, Coding Theory, Information Theory, Data Networks, System Identification

Paper Editor

- 2020 **Pervasive and Mobile Computing Journal**, “*The Game Selection Model for the Payoff Strategy Optimization of Mobile CrowdSensing Task*”
- 2020 **Pervasive and Mobile Computing Journal**, “*TOTP Moving Target Defense for sensitive network services*”

References

Dr. David López Pérez, Associate Professor

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