Abolfazl RAZI

ASSOCIATE PROFESSOR · SCHOOL OF COMPUTING, CLEMSON UNIVERSITY

Work Address: *821 McMillan Rd, Room 203, Clemson University, Clemson, SC 29631*

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RESEARCH AREAS

Autonomous System, Image Security, Multimodal LLM reasoning, Communication-Aware Distributed Learning, Deep Inverse Learning, AI-enabled Networking for Unmanned Aerial Systems (UAS), Internet of Things, Cyber Security, Digital Holography, Non-linear Optimizations

EDUCATION

University of Maine — *Orono, ME, USA*
PH.D. IN ELECTRICAL ENGINEERING — *09/01/2009 - 05/31/2013*
- Thesis: Distributed Adaptive Algorithm Design for Joint Data Compression and Coding in Dynamic Wireless Sensor Networks

Tehran Polytechnic — *Tehran, IRAN*
M.S. ELECTRICAL ENGINEERING — *09/23/1998- 01/17/2001*

Sharif University of Technology — *Tehran, IRAN*
B.S. IN ELECTRICAL ENGINEERING — *09/23/1994 - 09/01/1998*

ACADEMIC POSITIONS

Clemson University — *Clemson, SC, USA*
ASSOCIATE PROFESSOR OF COMPUTER SCIENCE — *Aug 2021-now*

Northern Arizona University — *Flagstaff, AZ, USA*
ASSISTANT PROFESSOR OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE — *Sep 2015 - Aug 2021*

Case Western Reserve University — *Cleveland, OH, USA*
POSTDOCTORAL RESEARCH ASSOCIATE, COMPREHENSIVE CANCER CENTER — *Sep 2014 - Aug 2015*

Duke University — *Durham, NC, USA*
POSTDOCTORAL RESEARCH ASSOCIATE, ECE DEPARTMENT — *Sep 2013 - Sep 2014*

University of Maryland — *College Park, MD, USA*
VISITING GRADUATE STUDENT, ECE DEPARTMENT — *July 2012 - Feb 2013*

HONORS & AWARDS

2025	**Best Poster Award**, ICRAIC Organizing Committee	*ICRAIC Conference*
2024	**Outstanding Contribution Award**, UWF4DR Organizing Committee	*MICCA-UWF4DR*
2024	**3rd Place Challenge Award**, Task1: Image Quality Assessment	*MICCA-UWF4DR*
2024	**3rd Place Challenge Award**, Task3: Identification of Diabetic Macular Edema	*MICCA-UWF4DR*
2016	**IEEE Senior Membership**, IEEE	*IEEE*
2013	**Best Research Poster Award**, Grad EXPO	*University of Maine*
2012	**3rd Place Research Poster Award**, Grad EXPO	*University of Maine*
2011	**Best Paper Award**, EEE Fly By Wireless Conference (FBW 2011, Montreal, CANADA)	*FBW, IEEE/CANEUS*
2011	**Best Graduate Assistant Research Award**, School of Engineering	*University of Maine*
2009	**International Graduate Student Tuition Scholarship**, Graduate School	*University of Maine*
1994	**Elite Student Award**, Rank 204 in Countrywide University Entrance Exam	*Dep. Education*

SPONSORED PROJECTS

VIA-LLM: Visually Impaired Assistive Tool with LLM Reasoning
Lead PI, **$70 K**

SC EPSCoR Gain Program
Dec. 2025 - May 2027

Anomaly Detection for Resilient Autonomy-Enabled Vehicle Systems
Lead PI, **$590 K**

VIPR-GS under US Army Detroit
Aug. 2024 - Aug 2026

Learning-Based Semantic Communication for Unmanned Aerial Systems
PI, **$100 K**

DOD/ MIT Lincoln Lab
April. 2024 - March 2025

Anomaly Detection for Resilient Autonomy-Enabled Vehicle Systems
Lead PI, **$150 K**

VIPR-GS under US Army Detroit
Dec. 2023 - Dec 2025

AI-based Energy Management Enterprise for Complex Industrial Setups
Sole PI, **$75 K**

BMW Research
Jan. 2021 - Dec 2022

Leveraging Learning-Based Networking for Mission-Critical Autonomous Systems in Uncertain Environments
PI, **$100 K**

DOD/ MIT Lincoln Lab
Jan. 2023 - Dec 2023

Collaborative Research: CCRI: New: Distributed Sensing & Computing Over Sparse Environments (DISCOVER) Platform
Co-PI, **$1,366 M**

NSF CCRI Program
Oct. 2021 - Dec. 2024

CNS Core: Small: PilotPC: Proactive Inverse Learning of Network Topology for Predictive Communication among Unmanned Vehicles
sole PI, **$480K**

NSF NeTS: Program
Oct. 2020 - Sep 2023

Secure Traceability in the Food Supply Chain Using Cell Phone Readable Dendritic Identifiers
NAU PI, **Total: $480K, NAU:$140K**

USDA AFRI Program
Jan. 2021 - Dec 2022

Towards Predictive Communications for UAV based IoT Networks
Sole-PI, **$175K**

NSF CRII: NeTS: Program
Sep. 2018 - Aug 2020

Design and Fabrication of Memory-based Physical Unclonable Functions for Robust Key Generation
Co-PI, **$750K + $53K Extension**

NSF: PFI Program
Sep. 2018 - Aug 2021

Wildland Fire Observation, Management, and Evacuation using Intelligent Collaborative Flying and Ground Systems
Co-PI, **Total:$1.2M**

NSF: CPS Program
May. 2021 - April 2023

New distributed Sensing and Computing Over Sparse Environments (Discover) platform
Co-PI, **Total:$1.36M**

NSF: CCRI Program
Sep. 2021 - Aug 2024

Remote Heart Monitoring Platform for Early Prediction of Arterial Fibrillation for Under-served Populations
Co-I, **$60K**

NAU SHERC: Pilot Projects
Jan 2018-Dec 2018

Southwest Helath Equity Research Collaborative (SHERC)
Key Personnel: Research Infrastructure Core (RIC), **$21M**

NIH U54
Sep. 2017 - Aug 2022

Advanced Video Analytics for Metric-Based Network Safety Performance Prediction
Arizona Commerce Authority (ACA)
Co-PI, **Total: $1M, NAU: $78**
Jun. 2020 - May 2021

Dynamic Spectrum Leasing in Heterogeneous Unmanned Aerial Vehicle Networks Prediction
US Air Force Research Laboratory (AFRL)
Co-PI, **Total: $129K**
Jun. 2018 - Dec 2018

Predictive and Adaptive Communications for Real-time Dynamic Network Management in Autonomous Unmanned Aerial Vehicle Networks
US Air Force Research Laboratory (AFRL)
Co-PI, **Total: $150K**
Jan. 2020 - Dec 2020

Predictive Network Topology Discovery for Autonomous Airborne Networks
Air Force Research Laboratory (AFRL), VFRP Program
PI, **$16K**
Jun. 2017 - Aug 2017

Predictive Communications for UAV Systems
Air Force Research Laboratory (AFRL), VFRP Program
PI, **$11K**
July. 2016 - Aug 2016

Multi-modal signal processing to identify hearth abnormalities using wireless health monitoring device
Interns-to-Scholars (I2S) to Support Undergraduate Research
PI, **$2K**
Sep. 2016 - May. 2017

Exploiting Nanomaterials for End-to-End Cybersecurity Solutions
Arizona Board of Regents (ABOR)
Co-PI, PI:Prof. Bertrand Cambou, **$1M**
Sep. 2016 - Aug. 2020

Development of Internet of Things (IoT) Research Infrastructure Center
Research Development Grant, NAU
Co-PI, PI:Prof. Paul Flikkema, **$50K**
Oct. 2015 - Oct. 2016

Java Based Multi-IMSI Simcard Development
MCI Company
PI, **$50K**
2008

Value Added Service Development for GSM/GPRS System Using S@T Server
MCI Company
PI, **$200K**
2007

PATENTS & INVENTIONS

9. Abolfazl Razi, Bertrand Francis Cambou, "Securing distributed elements connected to a network with addressable physically unclonable functions", US Patent US11388013B2, 2022/7/12 (link).

8. Abolfazl Razi, Zaoyi. Chi, "Methods and systems for generating unclonable optical tags", US Patent 17505547, 2022/4/21 (link)

7. Bertrand Cambou, Abolfazl Razi, "Authentication of Images Extracted from Unclonable Objects", Patent Number: PCT/US2017/018192, 2017 (link)

6. A. Razi, V. Varadan, N. Dimitrova, N. Banerjee, "Integrated method and system for identifying functional patient-specific somatic aberrations using multi-omics cancer profiles", Patent Number: US US20180247010A1, Aug 2018 (link)

5. F. Afghah, A Razi, K. Najarian, S. Soroushmehr, "False Alarm Reduction Systems and Related methods", Patent Number: US 10650667, 2020 (link)

4. F. Afghah, A. Razi, Ashwin Belle, K. Najarian, "Hierarchical Game Theoretic Based Feature Selection in Heterogeneous Big Data Sets", Invention Disclosure, NC A&T State University Reference Number: EN00840714, Duke University Reference Number: IDF 4435, Submitted 2014, Filed in 2015.

3. A. Razi, B. Cambou, "Securing Distributed Elements Connected to a Network with Addressable PUFs", US Patent 11388013, 2022/7/12 (link)

2. F. Afghah, A. Razi, "Roulette Transform for Signal Processing", Invention Disclosure: D2018-007, 2018

1. A. Razi, "Methods for authenticating dendrites, unclonable optical tags to mitigate counterfeit and cloning attacks", Invention Disclosure, NAU Case Number: 2021-16

BOOK CHAPTERS

5. Ata Jahangir Moshayedi, Amir Sohail Khan, Zeashan Hameed Khan, Arash Sioofy Khoojine, Abolfazl Razi, "Road Space Rationing Using Vehicle's Automated License Plate Recognition: A Comprehensive Survey of Methods", Book title: Applied Neural Networks in the AI Era: From Theory to Real-World Impact, Publisher:*IGI Global Scientific Publishing*, 2025, pp. 93–136.

4. A. Abedi, F. Afghah, A. Razi, "Resource Management in Cyber Physical Systems", 28 pages, Book title: Cyber-Physical System Design with Sensor Networking Technologies, Editor: S. Zeadally, N. Jabeur, Publisher: *IET Press*, 2016, ISBN: 978-1849198240

3. A. Razi, A. Abedi, "Information-flow in hard to reach areas: Source estimation using correlated streams", Book title: Design Solutions for Wireless Sensor Networks in Extreme Environments, Publisher:*Artech House*, 2018, ISBN: 9781630811778

2. A. Abedi, A. Razi, "Sensor Design for Harsh Environments: Material Science Perspective", Book title: Design Solutions for Wireless Sensor Networks in Extreme Environments, Publisher:*Artech House*, 2018, ISBN: 9781630811778

1. R. Dias, R.T. Suderman, B.R. Thomas, A. Razi, A.W. Clayton, W.S. Hlavacek, R.G. Posner, "Using BioNet-Fit to estimate parameters of rule-based models", Publisher: Methods on Molecular Biology series, Submitted

JOURNAL ARTICLES

55. Sayed Pedram Haeri Boroujeni, Niloufar Mehrabi, Fatemeh Afghah, Connor Peter McGrath, Danish Bhatkar, Mithilesh Anil Biradar, Abolfazl Razi, "Fire and smoke datasets in 20 years: An in-depth review, to appear in *Machine Learning with Applications*, 2025.

54. Ahmad Sarlak, Rahul Amin, Abolfazl Razi, "Extended Visibility of Autonomous Vehicles via Optimized Cooperative Perception under Imperfect Communication, *Elsevier Transportation Research Part C: Emerging Technologies*, v. 180, no. 2025, p. 105350, Nov 2025.

53. Niloufar Mehrabi, Sayed Pedram Haeri Boroujeni, Abolfazl Razi, "Turbo-IRL: Enhancing multi-agent systems using turbo decoding-inspired deep maximum entropy inverse reinforcement learning," *Expert Systems with Applications*, vol. 296, p. 128754, 2026.

52. Ahmad Sarlak, Rahul Amin, Abolfazl Razi, "Extended Visibility of Autonomous Vehicles via Optimized Cooperative Perception under Imperfect Communication", accepted in *Elsevier Transportation Research: Part C*, 2025

51. Hongkui Zheng, Hao Wang, Xiwen Chen, Abolfazl Razi, Kai He, "Gaussian differential assessment of sequential stem radiation damage in beam-sensitive materials," *Microscopy and Microanalysis*, vol. 31, Supplement 1, pp. ozaf048–1065, 2025.

50. Hongkui Zheng, Xiwen Chen, Abolfazl Razi, Kai He, "Convolutional Neural Networks for Evaluation of Sequential Beam Damage of Beam-Sensitive Solid Electrolytes," *Microscopy and Microanalysis (Supplement)*, vol. 30, Supplement 1, p. ozae044.859, 2024.

49. Ashish Bastola, Hao Wang, Sayed Pedram Haeri Boroujeni, Julian Brinkley, Ata Jahangir Moshayedi, Abolfazl Razi, "Driving Towards Inclusion: A Systematic Review of AI-powered Accessibility Enhancements for People with Disability in Autonomous Vehicles," *IEEE Access*, 2025.

48. Zhao Zhang, Xiwen Chen, William Richardson, Bruce Z. Gao, Abolfazl Razi, Tong Ye, "Quantification of cardiac capillarization in basement-membrane-immunostained myocardial slices using Segment Anything Model," *Scientific Reports*, vol. 14, no. 1, p. 15344, 2024.

47. Xiwen Chen, Huayu Li, Rahul Amin, Abolfazl Razi, "Learning on Bandwidth Constrained Multi-Source Data with MIMO-inspired DPP MAP Inference", *IEEE Transactions on Machine Learning in Communications and Networking*, vol 2, July 2024

46. Zhao Zhang, Xiwen Chen, William Richardson, Bruce Z. Gao, Abolfazl Razi, Tong Ye, "Quantification of cardiac capillarization in single-immunostained myocardial slices using weakly supervised instance segmentation." *Springer Scientific Reports*, vol. 1, no. 14, article 15344, Jun 2024

45. Seyed Pedram Haeri Boroujeni, Abolfazl Razi, Sahand Khoshdel, Fatemeh Afghah, Janice Coen, Leo O'Neill, Peter Fule, Adam Watts, Nick Marios, Kyriakos G. Vamvoudakis, "A comprehensive survey of research towards AI-enabled unmanned aerial systems in pre-, active-, and post-wildfire management." *Information Fusion*, pp. 102369, 2024.

44. Sayed Pedram Haeri Boroujeni, Abolfazl Razi, "IC-GAN: An improved conditional generative adversarial network for RGB-to-IR image translation with applications to forest fire monitoring." *Expert Systems with Applications*, no. 238, pp. 121962. 2024

43. Talebi, A., Haeri Boroujeni, S. P., Razi, A. "Integrating random regret minimization-based discrete choice models with mixed integer linear programming for revenue optimization." *Springer, Iran Journal of Computer Science*, vol. 15., Jun 2024

42. Hao Wang, Xiwen Chen, Natan Vital, Edward Duffy, and Abolfazl Razi. "Energy Optimization for HVAC Systems in Multi-VAV Open Offices: A Deep Reinforcement Learning Approach." *Elsevier Applied Energy*, no. 356, pp. 122354, July 2023

41. Xiwen Chen, Hao Wang, Abolfazl Razi, Michael Kozicki, and Christopher Mann. "DH-GAN: a physics-driven untrained generative adversarial network for holographic imaging," *Optics Express*, vol. 31, no. 6, pp. 10114–10135, 2023.

40. A. Razi, X. Chen, H. Li, H. Wang, B. Russo, Y. Chen, H. Yu, "Deep learning serves traffic safety analysis: A forward⊠looking review", *IET Intelligent Transport Systems*, vol. 17, no. 1, pp. 22-71, 2023.

39. Ata Jahangir Moshayedi, Amir Sohail Khan, Yang Shuxin, Geng Kuan, Hu Jiandong, Masoumeh Soleimani, and Abolfazl Razi. "E-Nose design and structures from statistical analysis to application in robotic: a compressive review," *EAI Endorsed Transactions on AI and Robotics*, vol. 2, no. 1, pp. e1–e1, 2023.

38. Xiwen Chen, Bryce Hopkins, Hao Wang, Leo O'Neill, Fatemeh Afghah, Abolfazl Razi, Peter Fule, Janice Coen, Eric Rowell, and Adam Watts. "Wildland Fire Detection and Monitoring Using a Drone-Collected RGB/IR Image Dataset.", *IEEE Access, vol. 10, pp. 121301-121317, 2022.*

37. *Xiwen Chen, Hao Wang, Abolfazl Razi, Brendan Russo, Jason Pacheco, John Roberts, Jeffrey Wishart, Larry Head, "Network-level Safety Metrics for Overall Traffic Safety Assessment: A Case Study", IEEE Access, vol. 11, pp. 17755–17778, 2022*

36. *A. Rovira-Sugranes, F. Afghah, J. Chakareski, A. Razi, "A Review of AI-enabled Routing Protocols for UAV Networks: Trends, Challenges, and Future Outlook", Ad hoc Networks Journal, vol. 130, pp. 102790, May 2022.*

35. *Michael Kozicki, Mark Manfredo, Abolfazl Razi, Yago Gonzales Velo, "Research Update: Cell Phone Readable Dendritic Identifiers: Applications for Secure Track and Trace in the Food Supply Chain.", Journal of Food Distribution Research, vol. 53. no. 1, March 2022*

34. *J. Qu, C. Tang, Y. Zhang, K. Zhou, A. Razi, "Long-time target tracking algorithm based on re⊠detection multi⊠feature fusion." IET Cyber Systems and Robotics, vol. 4, no. 1, pp. 35-50, 2022.*

33. *A. Shamsoshoara, Fatemeh Afghah, Abolfazl Razi, Liming Zheng, Peter Z. Fulé, and Erik Blasch. "Aerial Imagery Pile burn detection using Deep Learning: the FLAME dataset." Computer Networks, vol. 193, 2021.*

32. A. Shamsoshoara, F. Afghah, A. Razi, L. Zheng, P.Z. Fulé, and E. Blasch. *"Aerial Imagery Pile burn detection using Deep Learning: the FLAME dataset.", Computer Networks, vol. 193, pp. 108001, 2021.*

31. A. Rovira-Sugranes, F. Afghah, A. Razi, *"Fully-echoed Q-routing with Simulated Annealing Inference for Flying Adhoc Networks", IEEE Transactions on Network Systems and Engineering, vol. 8, no. 3, pp. 2223-2234, 2021*

30. Z. Chi, A. Valehi, H. Peng, M. Kozicki, A. Razi, *"Consistency penalized graph matching for Image-based identification of dendritic patterns", IEEE Access, no. 8, 118623-118637, 2020*

29. H. Li, X. Chen, H. Wu, Z. Chi, C. Mann, A. Razi, *"Deep DIH: Statistically Inferred Reconstruction of Digital In-Line Holography by Deep Learning", IEEE Access, vol. 8, pp. 202648-202659, 2020*

28. J. Qu, H. Shi, N. Qiao, C. Wu, C. Su, and A. Razi. *"New three-dimensional positioning algorithm through integrating TDOA and Newton's method", EURASIP Journal on Wireless Communications and Networking, vol. 1, pp. 1-8, 2020*

27. J. Qu, C. Su, Z. Zhang, A. Razi, *"Dilated Convolution and Feature Fusion SSD Network for Small Object Detection in Remote Sensing Images", IEEE Access, vol. 8, pp. 82832-82843, 2020*

26. B. Zolfaghari, G. Srivastava, S. Roy, H. R. Nemati, F. Afghah, T. Koshiba, A. Razi, K. Bibak, P. Mitra, and B. K. Rai, *"Content Delivery Networks: State of the Art, Trends, and Future Roadmap", ACM Computing Surveys (CSUR), vol. 53, no. 2, pp. 1-34, 2020*

25. J. Qu, N. Qiao, H. Shi, C. Su, A. Razi, *"Convolutional Neural Network for Human Behavior Recognition Based on Smart Bracelet", Journal of Intelligent & Fuzzy Systems, vol. 38, no. 5, pp. 5615-5626, May 2020*

24. A. Shamsoshoara, F. Afghah, A. Razi, S. Mousavi, J. Ashdown, and K. Turk. *"An Autonomous Spectrum Management Scheme for Unmanned Aerial Vehicle Networks in Disaster Relief Operations", IEEE Access, vol. 8, no. 1, pp. 58064-58079, April 2020*

23. A. Razi. *"Optimal Measurement Policy for Linear Measurement Systems with Applications to UAV Network Topology Prediction", IEEE Transactions on Vehicular Technology, vol. 69, n0.2, pp. 1970-1981, Feb 2020*

22. A. Rovira-Sugranes, and A. Razi. *"Optimizing the Age of Information for Blockchain Technology With App.lications to IoT Sensors", IEEE Communications Letters, vol. 24, no. 1, pp. 183-187, Jan 2020*

21. J. Chen, A. Valehi, A. Razi, *"Smart Heart Monitoring: Early Prediction of Heart Problems Through Predictive Analysis of ECG Signals", IEEE Access, vol. 7, pp. 120831 - 120839, August 2019*

20. A. Razi, *"Bayesian Signal Recovery Under Measurement Matrix Uncertainty: Performance Analysis", IEEE Access, vol. 7, no. 1, pp. 102356-102365, 2019*

19. J. Chakareski, S. Naqvi, N. Mastronarde, J. Xu, F. Afghah, A. Razi, *"An Energy Efficient Framework for UAV-Assisted Millimeter Wave 5G Heterogeneous Cellular Networks", IEEE Transactions on Green Communications and Networking, vol. 3, no. 1, pp. 37-44, 2019*

18. F. Afghah, A. Razi, R. Soroushmehr, H. Ghanbari, K. Najarian, *"Game Theoretic App.roach for Systematic Feature Selection; App.lication in False Alarm Detection in Intensive Care Units", Entropy, vol. 20, no. 30, 2018*

17. H. Peng, A. Razi, F. Afghah, J. Ashdown, *"A Unified Framework for Joint Mobility Prediction and Object Profiling of Drones in UAV Networks", JCN Special Issue on Amateur Drone and UAV Communications and Networks, vol. 20, no. 5, pp. 434-442, 2018*

16. A. Valehi, A. Razi, *"An Online Learning Method to Maximize Energy Efficiency of Cognitive Sensor Networks", IEEE Communications Letters, vol. 22, no 5, pp. 1050-1053, May 2018.*

15. J. Chen, H. Peng, A. Razi, *"Remote ECG Monitoring Kit to Predict Patient-Specific Heart Abnormalities", Journal of Systemics, Cybernetics and Informatics, vol. 15, no. 4, pp. 82-89, Nov 2017.*

14. A. Valehi, A. Razi, *"Maximizing Energy Efficiency of Cognitive Wireless Sensor Networks with Constrained Age of Information", IEEE Transactions on Cognitive Communications and Networking, vol.3, no. 4, pp. 643-654, Dec 2017.*

13. M.J. Jannati, A. Razi, A. Sayadian, "Speech naturalness improvement via ϵ-closed extended vectors sets in voice conversion systems", *Springer Multidimensional System Signal Processing*, Jan 2017, DOI 10.1007/s11045-017-0470-3.

12. A. Razi, S. Singh, F. Afghah, V. Varadan, "Network-based Enriched Gene Subnetwork Identification: A Game Theoretic Approach", *Biomedical Engineering and Computational Biology*, vol. 7, no. 2, pp.1-14, 2016, PMID: 4822726.

11. V. Varadan, N. Dimitrova, A.B. Nagaraj, A. Razi, S. Singh, S. Kamalakaran, N. Banerjee, P. Joseph, A. Mankovich, P. Mittal, and A. DiFeo, "InFlo: A Novel Systems Biology Framework Identifies cAMP-CREB1 Axis as a Key Modulator of Platinum Resistance in Ovarian Cancer", **Nature** Oncogene, vol. 36, no. 17, pp. 2472-2482, Nov 2016, PMID:27819677.

10. A. Razi, N. Banerjee, N. Dimitrova, V. Varadan, "InFlo-Mut: A Bayesian Framework to Determine the Transcriptional Effects of Cancer-Associated Genomic Aberrations", under review Computational Biology.

9. A. Razi, F. Afghah, A. Abedi, "Channel-Adaptive Packetization Policy for Minimal Latency and Maximal Energy Efficiency", *IEEE transactions on Wireless Communications*, vol. 15, no. 3, pp. 2407-2420, 2016.

8. F. Afghah, A. Razi, S.M.Reza Soroushmehr, S. Molaei, H. Ghanbari and K. Najarian, "A Game Theoretic Predictive Modeling App.roach to Reduction of False Alarm", *Lecture Notes in Computer Science*, vol. 9545, pp. 118-130, Springer, Jan 2016.

7. F. Afghah, A. Razi, "Game Theoretic Study of Cooperative Spectrum Leasing in Cognitive Radio Networks", *International Journal of Handheld Computing Research*, vol. 5, no. 2, pp. 61-74, Jun. 2014. **(Invited Paper)**

6. A. Razi, A. Abedi, "Convergence Analysis of Iterative Decoding for Binary CEO Problem", *IEEE transactions on Wireless Communications*, vol. 13, no. 5, pp. 2944-2954, May 2014.

5. A. Razi, F. Afghah, A. Abedi, "Power Optimized DSTBC Assisted DMF Relaying in Wireless Sensor Networks with Redundant Super nodes", *IEEE transactions on Wireless Communications*, vol. 12, no. 2, pp. 636-645, Feb. 2013.

4. K.Yasami, A.Razi, A.Abedi, "Analysis of Channel Estimation Error in Physical Layer Network Coding", *IEEE Communications Letters*, vol. 15, no. 10, pp. 1029-1031, Oct. 2011.

3. F. Afghah, A. Razi, A. Abedi, "Stochastic Game Theoretical Model for Packet Forwarding in Relay Networks", *Springer Telecommunication Systems journal, Special Issue on Mobile Computing and Networking Technologies*, vol. 52, no. 4, pp. 1877-1893, 2011.

2. A. Razi, F. Afghah, A. Abedi, " Binary Source Estimation Using a Two-tiered Wireless Sensor Networks", *IEEE Communications Letters*, vol. 15, no. 4, pp. 449-451, Apr. 2010.

1. F. Afghah, M. Ardebilipour, A. Razi, "Fast Turbo Codes Concatenated with Space-Time Block Codes", *ISI Journal of App.lied Science*, vol. 8, no. 16, pp. 2863-2867, 2008.

PEER REVIEWED CONFERENCE PAPERS

88. Ashish Bastola, Nishant Luitel, Hao Wang, Danda Pani Paudel, Roshni Poudel, Abolfazl Razi, "Robust-Former: Noise-Robust Pre-training for Images and Videos," to appear in *WACV*, May 2026, Tucson, Arizona.

87. Xiwen Chen, Wenhui Zhu, Peijie Qiu, Hao Wang, Huayu Li, Haiyu Wu, Xuanzhao Dong, Aris Sotiras, Yalin Wang, Abolfazl Razi, "Prompt-OT: An Optimal Transport Regularization Paradigm for Knowledge Preservation in Vision-Language Model Adaptation," to appear in *WACV*, May 2026, Tucson, Arizona.

86. Wenhui Zhu, Peijie Qiu, Xiwen Chen, Zhangsihao Yang, Aristeidis Sotiras, Abolfazl Razi, Yalin Wang, "How Effective Can Dropout Be in Multiple Instance Learning?," *ICML*, July 2025, Vancouver, BC, Canada.

85. Hazim Alzorgan, Abolfazl Razi, "Monte Carlo Beam Search for Actor-Critic Reinforcement Learning in Continuous Control, *The 22nd International Conference on Ubiquitous Robots*, Jun 2025, Texas A&M University, College Station, Texas, USA

84. Xiwen Chen, Wenhui Zhu, Peijie Qiu, Hao Wang, Huayu Li, Zihan Li, Yalin Wang, Aristeidis Sotiras, Abolfazl Razi, "FIC-TSC: Learning Time Series Classification with Fisher Information Constraint," *ICML*, July 2025, Vancouver, BC, Canada.

83. Michael Elrod, Niloufar Mehrabi, Rahul Amin, Manveen Kaur, Long Cheng, Jim Martin, Abolfazl Razi, "Graph Based Deep Reinforcement Learning Aided by Transformers for Multi-Agent Cooperation," 2nd Workshop on Emerging Technologies in Aerial and Space Networks (WS02) in International Communication Conference (ICC), Jun 2025,Montreal, Quebec, CA.

82. Xiwen Chen, Peijie Qiu, Wenhui Zhu, Huayu Li, Hao Wang, Aristeidis Sotiras, Yalin Wang, Abolfazl Razi, "Sequence complementor: Complementing transformers for time series forecasting with learnable sequences," *Proceedings of the AAAI Conference on Artificial Intelligence*, vol. 39, no. 15, pp. 15913–15921, 2025.

81. Xiwen Chen, Peijie Qiu, Wenhui Zhu, Hao Wang, Huayu Li, Xuanzhao Dong, Xiaotong Sun, Xiaobing Yu, Yalin Wang, Abolfazl Razi, et al., "Cracking Instance Jigsaw Puzzles: An Alternative to Multiple Instance Learning for Whole Slide Image Analysis, *Proceedings of ICCV 2025*, arXiv:2507.08178, 2025. (https://arxiv.org/abs/2507.08178)

80. Hao Wang, Hongkui Zheng, Kai He, Abolfazl Razi, "AtomDiffuser: Time-Aware Degradation Modeling for Drift and Beam Damage in STEM Imaging, *ICCV 2025 Workshop*, arXiv:2508.10359, 2025. (https://arxiv.org/abs/250

79. Peijie Qiu, Wenhui Zhu, Sayantan Kumar, Xiwen Chen, Jin Yang, Xiaotong Sun, Abolfazl Razi, Yalin Wang, Aristeidis Sotiras, "Multimodal Variational Autoencoder: A Barycentric View," *Proceedings of the AAAI Conference on Artificial Intelligence*, vol. 39, no. 19, pp. 20060–20068, 2025.

78. Zhao Zhang, Xiwen Chen, Meenakshi Mukherji, Bruce Z. Gao, Abolfazl Razi, Tong Ye, "Deep learning-enabled quantification of the capillary network in the myocardium by autofluorescence imaging," *Diagnostic and Therapeutic Applications of Light in Cardiology 2025 (Proc. SPIE)*, vol. 13295, pp. 7–12, 2025.

77. Xiwen Chen, Huayu Li, Peijie Qiu, Wenhui Zhu, Rahul Amin, Abolfazl Razi, "RD-DPP: Rate-distortion theory meets determinantal point process to diversify learning data samples," *2025 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, pp. 6911–6920, 2025.

76. Niloufar Mehrabi, Sayed Pedram Haeri Boroujeni, Jenna Hofseth, Abolfazl Razi, Long Cheng, Manveen Kaur, James Martin, Rahul Amin, "Adaptive data transport mechanism for UAV surveillance missions in lossy environments," *2025 IEEE 22nd Consumer Communications & Networking Conference (CCNC)*, pp. 1–4, 2025.

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CAI Challenge, UWF4DR 2024, Held in Conjunction with MICCAI 2024, Marrakesh, Morocco, October 10, 2024, Proceedings, vol. 15597, p. 144, 2025.

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66. Xiangyu Jiang, Xiwen Chen, Hao Wang, Abolfazl Razi, "Geographical Information Alignment Boosts Traffic Analysis via Transpose Cross-attention," *2024 IEEE International Conference on Big Data (BigData)*, pp. 6031–6036, 2024.

65. Hao Wang, Sayed Pedram Haeri Boroujeni, Xiwen Chen, Ashish Bastola, Huayu Li, Wenhui Zhu, Abolfazl Razi, "Flame diffuser: Wildfire image synthesis using mask guided diffusion," *2024 IEEE International Conference on Big Data (BigData)*, pp. 6171–6179, 2024.

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57. Bastola, A., Wang, H., Chen, X., Razi, A. "FedMIL: Federated-Multiple Instance Learning for Video Analysis with Optimized DPP Scheduling," *DCOSS-IOT*, 29-31 April 2024, Abu Dhabi, UAE

56. Ahmad Sarlak, Xiwen Chen, Rahul Amin, and Abolfazl Razi. "Diversity Maximized Scheduling in Road-Side Units for Traffic Monitoring Applications," *48th Annual IEEE Conference on Local Computer Networks (LCN)*, October 1-5, 2023, Daytona Beach, Florida, USA

55. Sarlak, A., Boroujeni, S. P. H., Alzorgan, H., Amin, R., Razi, A., Rajoli, H. "Cooperative Perception for Connected Autonomous Vehicles Under Constrained V2V Networking," *57th Asilomar Conference on Signals, Systems, and Computers*, pp. 210–214, 2023.

54. Manveen Kaur, Abolfazl Razi, Long Cheng, Rahul Amin, and Jim Martin. "Design and Evaluation of an Application-Oriented Data-Centric Communication Framework for Emerging Cyber-Physical Systems," *2023 IEEE 20th Consumer Communications & Networking Conference (CCNC)*, pp. 875–878, 2023.

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51. Hao Wang, Xiwen Chen, Abolfazl Razi, Rahul Amin, "Fast Key Points Detection and Matching for Tree-Structured Images", *9th Annual Conf. on Computational Science Computational Intelligence (CSCI'22)*, Dec 2022, Las Vega, USA, DOI 10.1109/CSCI58124.2022.00297

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44. H. Li, A. Razi, "MEDA: Multi-output Encoder-Decoder for Spatial Attention in Convolutional Neural Networks", *Asilomar Conference on Signals, Systems and Computers, pp. 2087-2091, Pacific Grove, CA, Nov 2019*

43. *S. Islam, F. Afghah, A. Razi, "Fire Frontline Monitoring by Enabling UAV-Based Virtual Reality with Adaptive Imaging Rate", Asilomar Conference on Signals, Systems and Computers, pp. 368-372, Pacific Grove, CA, Nov 2019*

42. *Junsuo Qu, Ning Qiao, Abolfazl Razi, "Convolutional Neural Network for Human Behavior Recognition Based on Smart Bracelet", Euro-China Conference on Intelligent Data Analysis and Applications (ECC), Arad, Romania, Oct 2019*

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39. S. Mousavi, F. Afghah, A. Razi, R. Acharya, "ECGNET: Learning Where to Attend for Detection of Atrial Fibrillation with Deep Visual Attention", *IEEE-EMBS International Conferences on Biomedical and Health Informatics*, Chicago, May 2019

38. F. Afghah, A. Razi, "Wildfire Monitoring in Remote Areas using Autonomous Unmanned Aerial Vehicles", *INFOCOM workshop on Mission-Oriented Wireless Sensor, UAV and Robot Networking workshop*, Paris, France, May 2019

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36. A. Shamsoshoara, M. Khaledi, F. Afghah, A. Razi, J. Ashdown, "Distributed cooperative spectrum sharing in uav networks using multi-agent reinforcement learning", *IEEE Consumer Communications and Networking Conference (CCNC)*, pp. 1-6, Las Vegas, January 2019

35. A. Rovira-sugranes, A. Razi, "Optimized Compression Policy for Flying Ad hoc Networks", *IEEE Consumer Communications and Networking Conference (CCNC)*, Las Vegas, January 2019

34. M. Finely, A. Razi, "Musical Key Estimation with Unsupervised Pattern Recognition", *IEEE 9th Annual Computing and Communication Workshop and Conference (CCWC). Las Vegas*, January 2019

33. M. Khaledi, A. Rovira-Sugranes, F. Afghah, A. Razi, "On Greedy Routing in Dynamic UAV Networks", presented in SECON 2018, Hong Kong, 2018

32. F. Afghah, M. Zaeri Amirani, A. Razi, J. Chakareski, and E. Bentley, "A Coalition Formation Approach to Coordinated Task Allocation in Heterogeneous UAV Networks", *IEEE American Control Conference (ACC)*, Milwaukee, USA, 2017.

31. S. Naqvi, J. Chakareski, N. Mastronarde, J. Xu, F. Afghah, A. Razi, "Energy Efficiency Analysis of UAV-Assisted mmWave HetNets", *IEEE International Communications Conference (ICC)*, Kansas City, USA, 2018.

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29. A. Razi, C. Wang, F. Almaraghi, Q. Huang, Y. Zhang, H. Lu, A. Sugranes, "Predictive Routing for Wireless Networks: Robotics-Based Test and Evaluation Platform", *IEEE Computing and Communication Workshop and Conference (CCWC)*, Las Vegas NV, Jan 2018.

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27. A.R. Sugranes, A. Razi, "Predictive Routing for Dynamic UAV Networks", *IEEE International Conference on Wireless for Space and Extreme Environments (WiSEE)*, Montreal CA, Oct 2017.

26. A. Razi, F. Afghah, J. Chakareski, "Optimal Measurement Policy for Predicting UAV Network Topology", *Asilomar Conference on Signals, Systems and Computers*", *Asilomar Conference on Signals,. Systems and Computers*, CA USA, Oct 2017.

25. J. Chen, "Remote ECG Monitoring Kit to Predict Patient-Specific Heart Abnormalities", Accepted in *World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI)*, Orlando, FL, July 2017.

24. A. Valehi, A. Razi, B. Cambou, W. Yu, M. Kozicki, "A graph matching algorithm for user authentication in data networks using image-based physical unclonable functions", *Computing Conference*, London, UK, July 2017.

23. A. Razi, A. Valehi, E. Bentley, "Delay minimization by adaptive framing policy in cognitive sensor networks", (WCNC), San Francisco, CA, USA, March 2017.

22. H. Tavakkoli, A. Razi, "Optimizing Low Density Parity Check Code for two Parallel Erasure links", the International Symposium on Information Theory and Its Applications (ISITA), Monterey, CA USA, Oct 2016.

21. A. Razi, F. Afghah, V. Varadan, "Identifying Gene Subnetworks Associated with Clinical Outcome in Ovarian Cancer Using Network Based Coalition Game", IEEE Engineering in Medicine and Biology Society (EMBC), Milan, Italy, Aug 2015, PMID: 26737784.

20. F. Afghah, A. Razi, K. Najarian, "A Shapley Value Solution to Game Theoretic-based Feature Reduction in False Alarm Detection", Workshop on Machine Learning in Healthcare, Neural Information Processing Systems (NIPS) , Montreal, Canada, Dec 2015.

19. F. Afghah, A. Razi, S.M.R. Soroushmehr, S. Molaei, H. Ghanbari, and K. Najarian, "A Game Theoretic Predictive Modeling Approach to Reduction of False Alarm", 2015 International Conference for Smart Health (ICSH'15), Mayo Clinic, 2015.

18. A. Razi, N. Banerjee, N. Dimitrova, V.Vinay, "Non-linear Bayesian framework to determine the transcriptional effects of cancer-associated genomic aberrations", IEEE Engineering in Medicine and Biology Society (EMBC), Italy, Aug 2015. PMID: 26737785.

17. L. Wang, A. Razi, M. Rodriges, R. Calderbank, L. Carin, "Nonlinear Information-Theoretic Compressive Projection Design", International Conference on Machine Learning (ICML), vol 32, China, 2014.

16. A. Razi, F. Afghah, A. Belle, K. Najarian and K. Ward, "Blood Loss Severity Prediction using Game Theoretic Based Feature", IEEE-EMBS International Conferences on Biomedical and Health Informatics (BHI), pp. 776 - 780, Italy, 2014.

15. F. Afghah, A. Razi, "Cooperative Spectrum Leasing in Cognitive Radio Networks,"National Wireless Research Collaboration Symposium (NWRCS), pp 106-111, Idaho Falls, USA, May 2014.

14. A. Razi, A. Abedi, A. Ephremides, "Delay minimization with channel-adaptive packetization policy for random data traffic," 48th Annual Conference on Information on Sciences and Systems (CISS), Princeton University, pp.1-6, Mar. 2014.

13. F. Afghah, A. Razi, A. Abedi, "Power Allocation in Parallel Relay Channels using a Near-Potential Game Theoretical Approach," 48th Annual Conference on Information on Sciences and systems (CISS), Princeton University, pp. 1-6, Mar. 2014.

12. F. Afghah, M. Costa, A. Razi, A. Abedi, A. Ephremides, "A Reputation-based Stackelberg Game Approach for Spectrum Sharing with Cognitive Cooperation", IEEE 52nd Annual Conference on Decision and Control (CDC), pp. 3287-3292, Frienze, Italy, 2013.

11. A. Razi, A. Abedi, "Adaptive bi-modal decoder for binary source estimation with two observers", the 46th Annual Conference Information Sciences and Systems (CISS), Princeton University, pp. 1- 5, Mar. 2012.

10. A. Abedi, A. Razi, F. Afghah, "Smart Battery-Free Wireless Sensor Networks for Structural Health Monitoring", the 8th International Workshop on Structural Health Monitoring, Stanford University, USA, Sep. 2011.

9. A. Razi, A. Abedi, "Interference Reduction in Wireless Passive Sensor Networks Using Directional Antennas", **Best Paper Award**, IEEE Fly by Wireless Workshop, pp. 1-4, Montreal, CANADA, Jun. 2011.

8. A. Razi, A. Abedi, "Study and Implementation of Distributed PCCC Coding Scheme for Binary Source Estimation Using Multiple Observations", Poster presentation in the School of information theory, Austin, USA, May 2011.

7. A. Razi, K. Yasami, A. Abedi, "On Minimum Number of Wireless Sensors Required for Reliable Binary Source Estimation", IEEE Wireless Communications and Networking Conference (WCNC), pp. 1852-1857, Cancun, Mexico, Mar. 2011.

6. F. Afghah, A. Razi, A. Abedi, "Throughput Optimization in Relay Networks Using Markovian Game Theory", *IEEE Wireless Communications and Networking Conference (WCNC), pp. 1080-1085, Cancun, Mexico, Mar. 2011.*

5. A. Razi, F. Afghah, A. Abedi, "Hierarchical Network Development of Wireless Passive Sensors", *IEEE Fly by Wireless Workshop, pp. 30-31, Aug. 2010.*

4. F. Afghah, A. Razi, A. Abedi, "Wireless Cooperative Relaying Using Game Theory", *CANEUS/IEEE Fly by Wireless Workshop, pp. 24-27, Orono, USA, Aug. 2010.*

3. A. Razi, A. Abedi, "Distributed Coding of Sources with Unknown Correlation Parameter", *World Congress in Computer Science, Computer Engineering, and Applied Computing (Worldcomp'10), pp. 566-571, Las Vegas, Apr. 2010.*

2. A. Razi, M. Ardebilipour, F. Afghah, "Space-Time Block Codes Assisted by Fast Turbo Codes", *the 4th International Conference on Wireless Communications, Networking and Mobile Computing (WICOM2008), pp. 1-6, Dalian, China, Oct. 2008.*

1. F. Afghah, M. Ardebilipour, A. Razi, "Concatenation of Space-Time Block Codes and LDPC Codes", *The 13th International Telecommunications Network Strategy and Planning Symposium (NETWORK 2008), pp. 61-66, Budapest, Hungary, Sep. 2008.*

POSTER PRESENTATIONS

2. A. Razi, A. Abedi, "A bi-modal Decoder Design for Binary CEO Problem", *North American School of Information Theory*, Cornell University, Ithaca, NY, USA, Jun 2012.

1. A. Razi, A. Abedi, "Study and Implementation of Distributed PCCC Coding Scheme for Binary Source Estimation Using Multiple Observations", *School of Information Theory*, University of Texas at Austin, TX, USA, May 2011.

PrePrints (Under review)

7. Hao Wang, Jiayou Qin, Ashish Bastola, Xiwen Chen, John Suchanek, Zihao Gong, Abolfazl Razi, "VisionGPT: LLM-assisted real-time anomaly detection for safe visual navigation, *arXiv preprint*, arXiv:2403.12415, 2024. (https://arxiv.org/abs/2403.12415)

6. Amirreza Talebi, Sayed Pedram Haeri Boroujeni, Abolfazl Razi, "Opinion dynamics in social multiplex networks with mono and bi-directional interactions in the presence of leaders, *arXiv preprint*, arXiv:2401.15857, 2024. (https://arxiv.org/abs/2401.15857)

5. Ashish Bastola, Hao Wang, Abolfazl Razi, "Anomaly Detection in Cooperative Vehicle Perception Systems under Imperfect Communication, *arXiv preprint*, arXiv:2501.17329, 2025. (https://arxiv.org/abs/2501.17329)

4. Xiwen Chen, Wenhui Zhu, Peijie Qiu, Hao Wang, Huayu Li, Haiyu Wu, Aristeidis Sotiras, Yalin Wang, Abolfazl Razi, "Prompt-OT: An Optimal Transport Regularization Paradigm for Knowledge Preservation in Vision-Language Model Adaptation, *arXiv preprint*, arXiv:2503.08906, 2025. (https://arxiv.org/abs/2503.08906)

3. Xiwen Chen, Wenhui Zhu, Peijie Qiu, Xuanzhao Dong, Hao Wang, Haiyu Wu, Huayu Li, Aristeidis Sotiras, Yalin Wang, Abolfazl Razi, "Dra-grpo: Exploring diversity-aware reward adjustment for r1-zero-like training of large language models, *arXiv preprint*, arXiv:2505.09655, 2025. (https://arxiv.org/abs/2505.09655)

2. Wenhui Zhu, Xuanzhao Dong, Xin Li, Peijie Qiu, Xiwen Chen, Abolfazl Razi, Aris Sotiras, Yi Su, Yalin Wang, "Toward Effective Reinforcement Learning Fine-Tuning for Medical VQA in Vision-Language Models, *arXiv preprint*, arXiv:2505.13973, 2025. (https://arxiv.org/abs/2505.13973)

1. Ashish Bastola, Mert D. Pesé, Long Cheng, Jonathon Smereka, Abolfazl Razi, "Anomalous Decision Discovery using Inverse Reinforcement Learning, *arXiv preprint*, arXiv:2507.04464, 2025. (https://arxiv.org/abs/2507.04

INVITED TALKS/PRESENTATIONS

23. "Using RL-Enabled Unmanned Aerial Systems for Powerline Inspection and Maintenance", Invited Talk, *SNRL Lab*, (Aug 2025)

22. "Multiple Instances Learning (MIL): A Weekly Supervised Approach to High-Resolution Medical", Invited Talk, *4th International Symposium on Artificial Intelligence and Big Data Forum (AIBDF 2024)*, (Dec 28, 2024).

21. "Multiple-Instance Learning in Biomedical Signals: A weakly-supervised Method", *Clemson BDSI Program*, (Oct 16, 2024).

20. "A Diversity-Based Approach to Multiple Instances Learning (MIL) to Perform Whole Slide Imaging (WSI) with Applications to Biomedical Image Processing ", *Clemson BDSI Program*, (April 14, 2023).

19. Alzorgan, H. (Presenter), Razi, A. (Advisor), "A Study Into The Control of an Overhead Manipulator Equipped UAV Using Reinforcement Learning Strategies," *south Carolina ESPCOR*, Summerville, SC, United States. (April 14, 2023).

18. Chen, X. (Presenter), Razi, A. (Advisor), "Diversity Enabling Methods for Artificial Intelligence (AI)-based Traffic Safety Monitoring," *south Carolina ESPCOR*, Summerville, SC, United States. (April 14, 2023).

17. Haeri Boroujeni, S. P. (Presenter), Razi, A. (Advisor) "Efficient Deep Learning Framework for RGB-to-IR Image Translation for Wildland Fire Detection and Monitoring Applications," *south Carolina ESPCOR*, Summerville, SC, United States. (April 14, 2023).

16. *"Integrating Rate-Distortion Theory and Determinantal Point Processes to Diversify Learning Data Samples for Traffic Monitoring Applications"*, Wayne State University, March 2023

15. *"A Study Into The Control of an Overhead Manipulator Equipped UAV Using Reinforcement Learning Strategies"*, Hazim Alzorgan, Advisor: Abolfazl Razi, South Carolina EPSCOR, 14 April 2023

14. *"Diversity Enabling Methods for Artificial Intelligence (AI)-based Traffic Safety Monitoring"*, Xiwen Chen, Advisor: Abolfazl Razi, South Carolina EPSCOR, 14 April 2023

13. *Efficient Deep Learning Framework for RGB-to-IR Image Translation for Wildland Fire Detection and Monitoring Applications*, Sayed Pedram Haeri Boroujeni, Advisor: Abolfazl Razi, EPSCOR, 14 April 2023

12. *"Unmanned Frontier"*, **Discussion Panelist**, Arizona Unmanned Summit, November 2018

11. *"Predictive communications for UAV networks: the intersection of machine learning and wireless communications"*, **Keynote Speech**, The Fifth Euro-China Conference on Intelligent Data Analysis and Applications (ECC 2018), October 2018

10. *"Computational Methods to Analyze Genomic Aberrations in Cancer Disease– a Bayesian Framework"*, University of Arizona Cancer Center (UACC), January 2017

9. *"Predictive Communications for UAV Systems"*, Department of Mathematics, Northern Arizona University, October 2016

8. *"Functional Mutation Assessment by a Hierarchical Deep Learning Algorithm - a Bayesian Framework"*, Department of Biological Science, Northern Arizona University, February 2016.

7. *"Predictive Communications for UAV Systems"*, SICCS-INF501 Course: Invited Lecture, November 2016

6. *"Distributed Task Coordination and Communication in Heterogeneous Airborne Networks"*, AFRL Faculty Presentation, Rome, New York, August 2016

5. *"Predictive Topology Discovery and Communication Design for UAV Networks"*, AFRL Faculty Presentation, Rome, New York, July 2016

4. *"Distributed Algorithm Design for Data Aggregation in Binary CEO Problem"*, Qualcomm Company, SanDiego, CA, July 2014

3. *"Distributed Algorithm Design to Improve Signal Processing Efficiency in Wireless Networks with Limited Resources"*, Virginia State University, Petersburg, VA, February 2013

2. *"Distributed Adaptive Algorithm Design for Wireless Sensor Networks"*, University of Tennessee, Chattanooga, TN, Jun 2013

1. *"Classification of Biomedical Data Using Game Theoretic Feature Selection and Information Preserving Compressive Sensing"*, Case Western Reserve University, Cleveland, OH, January 2014

TRAINING WORKSHOPS

1. *"An Introduction to Python Programming for Deep Learning and Data Processing"*, SHERC RIC Workshop Series, online workshop for NAU faculty, April 2020

TEACHING EXPERIENCE

2021-now	**Instructor**, CPSC 4820/6820 AI for Autonomous Vehicles	*Clemson University*
2021-now	**Instructor**, CPSC 4420/6420 Artificial Intelligence	*Clemson University*
2016-21	**Instructor**, EE443/543-Pattern Recognition	*North. Arizona Un.*
2020-21	**Instructor**, EE442/542-Advanced Image Processing	*North. Arizona Un.*
2016-20	**Instructor**, EE436/536-Advanced Communications and Wireless Sensing	*North. Arizona Un.*
2015-20	**Instructor**, EE364-Fundamentals of Electromagnetics	*North. Arizona Un.*
2020-21	**Instructor**, EE430-Digital Communications	*North. Arizona Un.*
2020-21	**Instructor**, EE442/542-Advanced Image Processing	*North. Arizona Un.*
2011	**Teaching Assistant**, ECE515-Random Variables & Stochastic Processes	*Un. Maine*
2008	**Lecturer**, CS200-Computer Structure & C++ Programming	*Payam. Noor*
2006-7	**Training Workshop**, Wireless Networks, Structure & Services	*Several Uni.*
2004-6	**Training Workshop**, SIM CARD Structure & Capabilities	*MCI Company*

MENTORSHIP and STUDENT SUPERVISION

- **Postdoctoral Co-Mentor:** Mehrdad Khaledi (AY2018-19)
- **Postdoctoral Co-Mentor:** Mohammed Gharib (AY2020-21)

- **PhD Advisor:** Ashish Bastola (AY2023-now)
- **PhD Advisor:** Niloufar Mehrabi (AY2022-now)
- **PhD Advisor:** Hao Wang (2020-now)
- **PhD Advisor:** Hazim Alzorgan (2021-now)
- **PhD Advisor:** Sayed Pedram Haeri (AY2021-now)
- **PhD Advisor:** Ahmad Sarlak (2021-now)
- **PhD Advisor:** Manveen Kaur (2021-22)
- **PhD Advisor:** Arnau Rovira-Sugranes (AY2017-2021)
- **PhD Advisor:** Han Peng (AY2017-2021)
- **PhD Advisor:** Xiwen Chen (AY2019-now)
- **MS Advisor:** Zaoyi Chi: Graduated (AY2018-20)
- **MS Advisor:** Huayu Li: (AY2019-2021)
- **MS Advisor:** Qiyuan Chi: Graduated (AY2018-20)
- **MS Advisor:** Ali Valehi: Graduated (AY2016-18)
- **MS Advisor:** Jiaming Chen: Graduated (AY2017-19)

- **Independent Research Supervision:** Michael Harris (AY2023-now)
- **Independent Research Supervision:** William Bain (AY2022-23)
- **Independent Research Supervision:** Shafkat Islam (AY2018-19)
- **Independent Research Supervision:** Harika Hari (AY2018-19)
- **Independent Research Supervision:** Yifei Zhang (AY2019-20)
- **Independent Research Supervision:** Arun Kokkappillil Vijayan (AY2018-19)

- **PhD Thesis Committee:** Amirhossein Nazeri (AY2023-25)

- **PhD Thesis Committee:** Hossein Rajoli Nowdeh (AY2022-25)
- **PhD Thesis Committee:** Mengyuan Zhang (AY2021-24)
- **PhD Thesis Committee:** Douglas Everson (AY2021-24)
- **PhD Thesis Committee:** Niloufar Alipour (AY2024-xx)
- **PhD Thesis Committee:** Adil Alsuhaim (AY2021-23)
- **PhD Thesis Committee:** Ashwija Reddy Korenda (AY2019-now)
- **PhD Thesis Committee:** Mahsa Keshavarz (AY2019-now)
- **PhD Thesis Committee:** Alireza Shamsoushoara (AY2018-now)
- **PhD Thesis Committee:** Mohammad Mohammadi (AY2018-now)
- **PhD Thesis Committee:** Seyed Sajjad Mousavi (AY2017-20)
- **MS Thesis Committee:** Bryce Hopckins (AY2022-24)
- **MS Thesis Committee:** Alexander Dahlman (AY2018-20)
- **MS Thesis Committee:** Md Ashiqual Amin (AY2018-20)
- **MS Thesis Committee:** Ashwija Reddy Korenda (AY2016-18)
- **MS Thesis Committee:** Jared Park (AY2015-17)
- **MS Thesis Committee:** Abdulla Shamsuddin (AY2015-16)

- **Directed Research:** Michael Elrod, John Suchanek, William Bain, Jenna Hofset, Rayid Ali Masoo Mohammed

- **Capstone Project Supervisor:** Han Peng, Yulan Westerveld, Xinghao Qi, Benjamin Johnson, Ahmed Altamimi, Abdulmajeed Alhawsawi, Alyssa Thompson, Hashem Aldashti, Tyler Mulholland, Omar Marshed, Cody Warner, Sixian Zhang, Yazhou Li, Zening Wen, Huiwen Chu, Charles Chatwin, Tanner Brelje, Josh Gutman, Matthew Burns, Fahad Almaraghi, Yuting Zhang, Qiyuan Huang, Chaoju Wang, Hanxiao Lu, Christopher Thompson, Tyler Halperin, Tyler Criss, Huayu Li, Faisal Alotaibi, Tamey Alajmi, Tong Zhou, Junshi Wei, Mathew Ronald Miller, Rui Li, Alfred Gunasekara, Bo Sun, Jingwei Yang, Junlin Hai, Daniel Jacob Copley, Mohammed S. Almershed, Noah W. Levie

PROFESSIONAL ACTIVITIES

- **TPC-Co Chair:** 5th Asia Conference on Machine Learning and Computing (ACMLC), Bangkok, December 28-30, 2022

- **Publication Chair:** 5th International Conference on Machine Learning and Natural Language Processing (MLNLP 2022), Sanya, China, Dec. 23-25, 2022.

- **Conference Co-Chair:**
  - The 2nd International Conference on Artificial Intelligence, Digital Media Technology and Social Computing (ICAIDS 2026)

- **TPC Co-Chair:**
  - IEEE International Conference on Wireless for Space and Extreme Environments WiSEE (2019)
  ACLMC (2025)

- **NSF Review Panel:** CPS , SCH , NeTS , CRI , GRFP , CSD&E , Safe-OSE

- **Invited Session Chair:** KES2020, (2020)

- **Invited Session Chair:** CISS2021-AI-enabled UAV Networking, (2020)

- **Session Chair:**
  - IEEE WiOPT Conference, Arizona State University (2016)
  - Annual Conference on Information Sciences and Systems (CISS), John Hopkins University (2015)
  - IEEE BigData 2024 - IEEE ECNC 2024

- **Senior Program Chair:** IEEE AAAI 2025

- **Registration Chair:** IEEE WiSEE 2018

- **Poster Session Chair:** IEEE Consumer Communication and Networking Conference CCNC (2019 and 2020)

- **Program Committee and Sponsorship Chair:** CANEUS/IEEE Fly by Wireless workshop, Orono, Maine (Aug 2010)

- **Technical Program Committee:**
  CVPR (2025), ICML (2024-now), AAAI (2023-now), WACV (2023-now), SwarmNet Workshop (2023), IEEE VTC (2017-20), ECCV (2024), IEEE WiSEE (2014-21), IEEE CCNC 2019, IEEE PiMRC (2018-21), SwarmNet Workshop (in IEEE WoWMoM 2019-2021), iUAV workshop (in SECON 2020), SAI2020, DroIT 2020, ICoIV 2020, Microsoft CMT (2019-now)

- **IEEE Maine Section PACE Chair:** Professional Activities Committees for Engineers (2009-12)

- **Organizing Committee:** IEEE Seminar on "Communications for Smart grid"and "Interference Alignment", University of Maine, (Sep. 2011)

- **Journal Paper Review:** IEEE Vehicular Technology Magazine, IEEE Transactions on Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Aerospace and Electronic Systems, IEEE Transactions on Mobile Computing, IEEE Transactions on Smart Grids, IEEE Transactions on Vehicular Technology (TVT), IEEE Tran. Mobile Computing, IEEE Communications Letters, IEEE Access, IEEE Journal of Biomedical and health informatics (JBHI), IEEE Internet of Things, IEEE Internet of Things Journal, Journal of Communications and Networks (JCN), ACM Transactions on Sensor Networks, BMC Research Notes (BMC), Journal of Sensors, Journal of Franklin, Elsevier Journal on Artificial Intelligence, Elsevier Engineering Applications of Artificial Intelligence, PLOS One, Hindawi Journal on Mobile Information Systems, IET Wireless Sensor Systems, Science China: Information Sciences, IEEE Transactions on Computational Biology, IET Sensor Systems Journal. IEEE. Tran. Intelligent Tran. Systems,

- **Conference Paper Review:** AAAI, CHI, WACV, ICC, Globecom, VTC, CCNC, ISWCS, QBSC, WCNC, ICNC, WiSEE, PiMRC, AICT, SECON, CISS, IcoIV, etc.

IND̲USTRIALWORK EXPERIENCE

Mobile Company of Iran (MCI)   *Tehran, IRAN*
PROJECT MANAGER, R&D, TECHNICAL EXPERT (**FULL TIME**)   *02/01/2001 - 05/31/2009*
- Wireless System Radio Planning and Optimization
- Project Manager, "Value Added Services (VAS) Development Project
- SIM Test Procedure Development, Java SIM Programming
- Feature Test for Mobile Switching Centers (MSC)
- Member of MCI's GPRS/MSC/VAS/SIM Research Groups

Farda Telecommunications Company   *Tehran, IRAN*
PROJECT MANAGER (**PART TIME**)   *05/01/2004 - 04/31/2009*
- Solution Manager for Next Generation Networks Project (LTE, WiMAX)
- Wireless Network Planning and Optimization

PTK Telecommunications Company   *Tehran, IRAN*
SOFTWARE ENGINEER (**PART TIME**)   *09/23/1999 - 09/22/2001*
- Software Development for PDX5: a Private Automatic Branch eXchange (PABX) Telephony Switch Telephony Switch (Capacity: 5K)

Powers System Company (Tehran Niroo)   *Tehran, IRAN*
SOFTWARE ENGINEER (**PART TIME**)   *11/1/1997 - 10/30/1998*
- Power Stataion Automation Based on Power Line Carrier Project

DEV̲ELOPED SOFTWARE PACKAGES

17. Ali Valehi and Abolfazl Razi, "Cognitive Radio Network Queuing Simulator", **MATLAB**, (link)

16. Ali Valehi and Abolfazl Razi, "NFSIM2", A modified version of NFSIM package, **C++**, a molecular inter-action simulator (link)

15. Ali Valehi and Abolfazl Razi, "Dendrite-generator", **MATLAB** A simulator to generate artificial dendritic patterns (link)

14. Ali Valehi and Abolfazl Razi, "BioNetFit", A **C++** Package for molecular interaction modeling, (link)

13. Huayu Li and Abolfazl Razi, "DIH: Learning-Based 3D Image Reconstruction for Digital Holography", **Python**

12. Huayu Li, Xiwen Chen, and Abolfazl Razi, "Subband-Pyramid-Network", Image denoising tool, **Python**

11. Qiyuan Huang, Abolfazl Razi, "Vison-Based Semi-Empirical Fire Spread Modeling", in **MATLAB**

10. NFSIM.v2 Molecular Interaction Modeling (Modifications): **C++**, NAU

9. BioNetFit.v2 Molecular Interaction Model Tuning (Modifications): **C++/MPI**, NAU

8. PDX5 PABX SC Alarm Panel Design: **C, 8051 Assembly**, PTK Company

7. PDX5 PABX SC O&M Console Design: **VB6**, PTK Company

6. HDLC Protocol Design for PLC: **C, Motorola Assembly**, Tehran Niroo Company

5. SIM CARD Management and Test Suit: **VB6, PCSC**, MCI Company

4. Multi-IMSI Applet Design: **Java: JDK2.2.1**, MCI Company

3. Call Center Management Software **VC++**, TCI Company

2. KPI Analysis Software **VB and Access**, FARDA Company

1. Passive Sensor Interrogator **Xilinx Virtex 4 FPGA Board**, University of Maine

HW & SW SKILLS

Concepts:	Object Oriented Programming (OOP), Real-time Programming
Programming:	VB, C/C++, Java, Perl, Python, MATLAB, R, Mathematica
DataBase:	SQL Server, Microsoft Access
Hardware:	Intel Assembly (8086, 8051), PLC, Xilinx Virtex. 4 DSP Tools
Wireless:	TEMS Investigation, Mentum Planet, Nokia NED, Ericsson Alex library, Asset Enterprise
Sensor Networks:	Tiny OS (TelosB motes), Arduino, Rasbery Pai, Libelium WSN Kit, TI WSN Kit
Smart Card Tools:	Gemxplore SIM suite, SIMSurf, SIM Tester, SIM Alliance JDK Enterprises
Molecular Biology:	NFSIM, BioNetGen, RuleBender, Nauty, Cytoscope, GSEA, Paradigm, InfloMut
Electrical Equipment:	USRP Cognitive Radio, Wireless Channel Emulator (SPIRENT SR5500), Spectrum Analyzer, Digital Logic Analyzer

TRAINING COURSES & CERTIFICATES

2012	**School of Information Theory**,	*University of Texas*
2011	**IEEE Memebership Development**,	*IEEE Region 1, NY*
2003	**MSC/VLR Operation (LZU108405), GSM Statistics Handling (LZU1083274)**,	*Ericsson Company*
2003	**AXE 10 Emergency Handling Periodic Refresh Training (LZU108094)**,	*Ericsson Company*
2002	**GSM/GPRS Operation SubSystem R9.1 On Site Introduction**,	*Ericsson Company*
2007	**BSS Parameter Planning**,	*Nokia Company*
2007	**SIM, STK and OTA Basics, Value Added Services (T1001I)**,	*Gemalto Co.*
2007	**Java SIM Applet Development (T1007D)**,	*Gemalto Co.*
2006	**Mobile SS7 Signaling**,	*AirCom Company*
2004	**GSM SIM Card Technology**,	*ST-Incard, Italy*

INSTITUTIONAL SERVICES

- **Clemson TPR Committee**, College of Engineering, Computing and Applied Sciences, AY2022-23
- **Clemson TPR Committee**, School of Computing, AY2022-23
- **Clemson Faculty Search Committee**, School of Computing, AY2021-22,AY2022-23
- **Clemson Graduate Student Evaluation Committee**, School of Computing, AY2021-22,AY2022-23

- **NAU Graduate Coordinator**, EE Department, AY2015-16
- **NAU Member of PhD Admission Committee**, SICCS, AY2019-20
- **NAU Faculty Status Committee**, SICCS, AY2017-18, AY2020-21
- **NAU Postdoctoral Hiring Committee**, NAU, Multiple Positions, AY2017-Now
- **NAU Faculty Search Committee, SICCS**, Multiple Committees, AY2017-2019
- **NAU Proposal Review Committee**, Native American Cancer Prevention (NACP), AY 2016-17
- **Proposal Review**, HURA Award, April 2019
- **NAU EE Scholarship Assignment Committee**, EE Department, AY2016-17
- **NAU SICCS ABET Committee**, SICCS, AY2015-2021
- **NAU EE Undergraduate Curriculum Committee**, AY2016- 2017
- **Judge**, NAU: IEEE Student Chapter Robotics Competition, Dec 2017
- **NAU Graduate Recruitment Committee**, SICCS, AY 2020-21
- **NAU Graduate Curriculum Committee**, SICCS, AY 2020-21
- **NAU Graduate Scholarship Committee**, SICCS, AY 2020-21
- **NAU Graduate Activities Committee**, SICCS, AY 2020-21
- **NAU Capstone Reviewer**, Computer Science Capstone Projects, AY 2017-18

REFERENCES

- **Dr. Ali Abedi,** Vice Chancellor for Research, Professor, Electrical Engineering, University of Wisconsin Milwaukee Email: abedia@uwm.edu, Phone: 207-745-2176
- **Dr. Jim Martin,** Professor, Electrical Engineering, School of Computing, Clemson University Email: jmarty@nau.edu, Phone: 864-508-1820
- **Dr. Truong Nghiem,** Associate Professor, Electrical and Computer Engineering, University of Central Florida Email: truong.nghiem@ucf.edu, Phone: 407-823-1438
- **Dr. Jakob Chakareski,** Associate Professor, Informatics, New Jersey Institute of Technology Email: jakobcha@njit.edu, Phone: 973-596-6870
- **Dr. Venkata Yaramasu,** Associate Professor, Electrical Engineering, School of Informatics, Computing, and Cyber Systems, University of Central Florida Email: Venkata.Yaramasu@nau.edu, Phone: 928-523-6092