

Forough Shirin Abkenar

(Authorized to work for any US employer)

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Personal Statement

Over the course of a decade, I have dedicated myself to delving into pioneering concept within wireless/optical communications and networks, with the aim of uncovering the essence of innovation in research. This quest has broadened my outlook, encompassing diverse facets of research from theory to practical implementation. Fueled by my innate curiosity, I have actively sought collaborations with esteemed thought leaders and experienced researchers in my field, leading to the discovery of novel ideas and the publication of my findings in esteemed journals and prestigious conferences, which have garnered over 300 citations. My unwavering purpose is to continually push the boundaries of knowledge, exploring uncharted territories within my field, specifically in artificial intelligence (AI) and machine learning (ML).

Education & Training

- **Ph.D., Electrical and Information Engineering, University of Sydney, Australia, 2018 – 2022**
 - Thesis: “*Towards Hyper-efficient IoT Networks Using Fog Paradigm*”, **Dean’s Award for the Best Thesis**
 - **M.Sc., Information Technology Engineering, Sahand University of Technology, Iran, 2012 – 2014**
 - Thesis: “*Energy Consumption, Cost, and Quality of Service Improvement in Elastic Optical Networks*”, GPA: 19.23 / 20.00
 - **B.Sc., Information Technology Engineering, Shahid Madani University of Azarbayjan, Iran, 2008 – 2012**
 - Thesis: “*A New Architecture for Internet Switches: Optimal Packets Switching in Computer Networks*”, GPA: 18.39 / 20.00
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Practical Experience

- **University of California Davis, USA**, Postdoctoral Scholar, Department of Computer Science, 2023 - present.
 - **University of California Irvine, USA**, Postdoctoral Scholar, Department of Computer Science, 2022 - 2023.
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Research Experiences

Artificial Intelligence/Machine Learning (AI/ML)

- **Failure Management Frameworks in Optical Networks (Current Project)**
 - Develop a comprehensive dataset to estimate quality of transmission
 - Develop FL- and ML-based models to predict and classify failures in the optical networks.
 - **Service Provisioning in Multi-Band (MB) Optical Networks (Current Project)**
 - Develop novel ML models, such as LSTM, to improve the network throughput.
 - **Domain Adaptation for Supervised Datasets (e.g., Pregnant Women Dataset)**
 - Jointly optimize resource utilization and accuracy of classifications for time-variant mobile-to-edge systems
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Wireless Communications and Netowrking - Edge Computing

- Novel protocols, optimization problems, and RL-based algorithms to improve the efficiency of the edge computing systems in terms of latency, energy consumption, reliability, and throughput.
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Optical Communications and Networking - Elastic Optical Networks (EONs)

- Novel routing, modulation, and spectrum assignment algorithms to minimize blocking probability.
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Selective Publications

1. **F. Shirin Abkenar et al.**, A Survey on Mobility of Edge Computing Networks in IoT: State-of-the-Art, Architectures, and Challenges, [IEEE Communications Surveys & Tutorials \(IF: 25.25\)](#) **24**, 2329–2365 (2022).

2. **F. Shirin Abkenar**, L. Badia, and M. Levorato, Online Domain Adaptive Classification for Mobile-to-Edge Computing, in *IEEE WoWMoM* (2023).
3. **F. Shirin Abkenar**, L. Badia, and M. Levorato, Selective Data Offloading in Edge Computing for Two-Tier Classification With Local Domain Partitions, in *IEEE PerCom Workshops: Cloud2Things* (2023).

* For more publications, please refer to my [GoogleScholar](#) account

Industry Projects

- **Health Parameters of Newborns**
 - Project Owner: Ministry of Health and Medical Education
 - Type of Product: Software in **C#**
 - Objective: Measure the health parameters of newborns and producing the corresponding reports and diagrams to check the well-being of newborns
 - **Articles' Referee**
 - Project Owner: Shahid Madani University of Azarbayjan
 - Type of Product: Software in **C#** associated with **SQL server**
 - Objective: Review journals' and conferences' papers
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Management Experiences

- **Mentorship:**
 - Mentor one Ph.D. student at UC Davis to conduct his research, 2023 – present.
 - Mentor one Ph.D. student at UC Irvine to conduct a part of his research, 2022 – 2023.
 - **Program & Research Manager:** Managed program and research for IoT projects in the Network Research Lab, University of Guilan, 2015 – 2018.
 - **Co-supervision:**
 - Co-supervise a BS student in Electrical and Information Engineering, University of Sydney, 2020 – 2021.
 - Co-supervise two MS students in Computer Engineering, University of Guilan, 2015 – 2016.
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Technical Skills

- Programming Languages: C/C++, C#, Python.
 - Tools: PyTorch, Jupyter-Lab, MATLAB, Visual Studio, Microsoft Office, LaTeX, VMware, Virtual Box, Microsoft Teams, Webex, Zoom.
 - Database: SQL Server, SQLite, Microsoft Access.
 - Research-driven Skills: Wireless Communications and Networking, Optical Communications and Networking, Edge Computing, Internet of Things (IoT), Internet of Vehicles (IoV), Unmanned Aerial Vehicles (UAVs) Communications, Artificial Intelligence (AI), Machine Learning (ML), Deep Learning (DL), Deep Reinforcement Learning (DRL), Federated Learning (FL), Recurrent Neural Networks (RNN), Long Short-Term Memory (LSTM).
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Extra Curricular Activities, Honors, and Awards

- Recipient of the Dean's Award for the Best Thesis, University of Sydney, 2023.
 - Selected for CISCO MentorMe Program 2021, where only 37% of applicants were successfully chosen.
 - Recipient of the competitive Paulette Isabel Jones PhD Completion Scholarship, University of Sydney, 2021.
 - Recipient of the competitive Engineering and IT Research Scholarship, University of Sydney, 2018 - 2021.
 - Selected as an IEEE Ambassador 2019.
 - Recipient of the competitive Student Travel Grant for the IEEE ICC conference, May 2019.
 - Recipient of the Fellowship and Teaching Assistant scholarship, University of California, Davis, 2018.
 - First rank in M.Sc. program.
 - First rank among 50 students admitted in B.Sc. program.
 - Third rank in the Physics Lab Olympiad in Guilan province, 2007.
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REFERENCES

Provided upon request.