Reza Mosayebi

Dept. of Elec. & Comp. Engineering, Univ. of British Columbia, Vancouver, BC, Canada

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Relevant Skills and Knowledge

- Extensive experience in developing real-time decoders for forward error correction codes, encompassing LDPC, Convolutional (Fano and Viterbi algorithms), TPC, BCH, and Reed-Solomon codes.
- In-depth knowledge of fiber optics, wireless communication systems, and digital signal processing algorithms including: fiber optic transmission subsystems and properties, 5G and beyond systems, channel estimation and equalization, nonlinearity mitigation, interference cancellation, phase and timing recovery.
- Expert in programming skills: MATLAB, Python, and C++.
- Hands-on experience in machine learning-based techniques, with a strong focus on transfer learning, deep neural networks, long short-term memory, and convolutional neural networks.

Work Experience

The University of British Columbia, Vancouver, Canada

Role: *Postdoctoral Research Fellow* Mar. 2022 – Present

- Transfer learning for adapting learned methods to track dynamic changes in optical networks.
- Deep neural network schemes for nonlinearity compensation and rotation of state of polarization tracking in fiber optics.
- Polarization-dependent loss compensation in optical fiber communication systems.
- Anomaly detection in optical communication systems.

Role: *Postdoctoral Teaching Fellow* Jan. 2023 – Apr. 2023

- Instructor for the "Error Control Coding for Communications and Computers" course.

The University of Pompeu Fabra, Barcelona, Spain

Role: *Postdoctoral Fellow* Sep. 2019 – Sep. 2021

- Parallel interference cancellation for cell-free cloud radio access networks (C-RANs).
- Precoding techniques for massive MIMO C-RAN downlink.
- Deep learning-based channel estimation and precoder design for ultra massive MIMO systems over terahertz frequencies.

Faraz Ertebat, Co., Tehran, Iran

Role: *(Senior) System Engineer* Jun. 2012 – Jun. 2019

- Designing blind receivers for satellite communications, including: blind modulation recognition, re-sampler, timing recovery, phase recovery, forward-error correction codes, packet detection, etc.
- Interference cancellation.
- Localizing objects using TDOA, FDOA.
- Project management and mentoring engineers.

Education

Sharif University of Technology, Tehran, Iran

Doctor of Philosophy in Electrical Engineering Feb. 2014 – Sep. 2018

- Thesis: "Efficient detection schemes in molecular communication networks"

Master of Science in Electrical Engineering – Communication Systems Sep. 2012 – Feb. 2014

- Thesis: "Efficient methods for transmission and reception of information in molecular communication systems"

Bachelor of Science in Electrical Engineering – Communications Sep. 2008 – Sep. 2012

- Thesis: "Data transmission over GSM voice channel"

Selected Publications

[C1] **R. Mosayebi** and L. Lampe, "DNN for joint nonlinearity compensation and polarization tracking in the presence of PDL," Submitted to *European Conference on Optical Communications (ECOC)*, 2023.

[J1] **R. Mosayebi**, M. Mojahedian, and A. Lozano, "Linear interference cancellation for the cell-free C-RAN uplink," in *IEEE Transactions on Wireless Communications,* Mar. 2021.

[J2] R Nikbakht, **R. Mosayebi**, and A. Lozano, "Uplink fractional power control and downlink power allocation for cell-free networks," *IEEE Wireless Communications Letters*, Jan. 2020.