Reza Mosayebi

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

+1(604)338-6320 rezamosayebi90@gmail.com RezaMosayebi

Relevant Skills and Knowledge

- Hands-on experience in machine learning-based techniques, with a strong focus on transfer learning (TL), deep neural networks (DNNs), long short-term memory (LSTM), and convolutional neural networks (CNNs).
- Experienced in TensorFlow and PyTorch, adeptly applying various machine learning techniques, including classification, regression, dimension reduction, etc.
- Expert in programming skills: MATLAB, Python, and C++.
- In-depth knowledge of fiber optics, wireless communication systems, and digital signal processing algorithms including: fiber optic transmission subsystems and modeling, 5G and beyond systems, channel estimation and equalization, nonlinearity mitigation, interference cancellation, phase and timing recovery.

Work Experience

The University of British Columbia, Vancouver, Canada

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

- TL for adapting learned methods to track dynamic changes in optical networks.
- DNN schemes for nonlinearity compensation and rotation of state of polarization tracking in fiber optics.
- DNN-based Polarization-dependent loss compensation in optical fiber. communication systems.
- NN-based carrier phase recovery in signal-dependent noise 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.
- DNN-based channel estimation and precoder design for ultra massive MIMO systems over terahertz frequencies.

Faraz Ertebat, Co., Tehran, Iran

Role: *Senior System Engineer* Apr. 2018 – Jun. 2019

Role: *System Engineer* (part-time) Jul. 2012 – Jul. 2017

- Designing receivers for wireless communication systems, including: modulation recognition, re-sampler, timing recovery, phase recovery, decoder, 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

- Research: "Effective NN Models for the Classification of Human Chromosomes"

Publications

[S1] **R. Mosayebi** and L. Lampe, "Deep Neural Network for Joint Nonlinearity Compensation and Polarization Tracking in the Presence of PDL," Submitted to *Journal of Lightwave Technology*, 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,* vol. 20, no. 3, pp. 1544-1556, 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*, vol. 9, no. 6, pp. 774-777, Jan. 2020.

[J3] L. Khaloopour, S. V. Rouzegar, A. Azizi, A. Hosseinian, M. Farahnak-Ghazani, N. Bagheri, M. Mirmohseni, H. Arjmandi, **R. Mosayebi**, and M. Nasiri-Kenari, "An experimental platform for underwater macro-scale molecular communication," *IEEE Transactions on Molecular, Biological and Multi-Scale Communications*, vol. 5, no. 6, pp. 163-175, Dec. 2019.

[J4] **R. Mosayebi**, A. Ahmadzadeh, W. Wicke, V. Jamali, R. Schober, and M. Nasiri-Kenari,"Early cancer detection in blood vessels using mobile nanosensor," *IEEE Transactions on NanoBioscience*, vol. 18, no. 2, pp. 103-116, Dec. 2018.

[J5] **R. Mosayebi**, A. Gohari, M. Mirmohseni, and M. Nasiri-Kenari,"Type-based sign modulation and its application for ISI mitigation in molecular communication," *IEEE Transactions on Communications*, vol. 66, no. 1, pp. 180-193, Jan. 2018.

[J6] **R. Mosayebi**, V. Jamali, N. Ghoroghchian, R. Schober, M. Nasiri-Kenari, and M. Mehrabi, "Cooperative abnormality detection via diffusive molecular communications," *IEEE Transactions on NanoBioscience*, vol. 16, no. 8, pp. 828-842, Nov. 2017.

[J7] **R. Mosayebi**, H. Arjmandi, A. Gohari, M. Nasiri-Kenari, and U. Mitra, "Receivers for diffusion based molecular communication: Exploiting memory and sampling Rate," *IEEE Journal on Selected Areas in Communications*, vol. 32, no. 12, pp. 2368-2380, Dec. 2014.

[C1] **R. Mosayebi**, M. Mojahedian, and A. Lozano,"Parallel interference cancellation for cell-free C-RANs," in *Proceedings of Asilomar Conference on Signals, Systems and Computers,* Nov. 2020.

[C2] M. Mojahedian, **R. Mosayebi**, and A. Lozano,"Pseudo-inverse vs generalized inverse for C-RAN downlink precoding," in *Proceedings of IEEE Global Communications Conference (GLOBECOM),* Dec. 2020.

[C3] **R. Mosayebi**, W. Wicke, V. Jamali, A. Ahmadzadeh, R. Schober, and M. Nasiri-Kenari,"Advanced target detection via molecular communication," in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, pp. 1-6, Dec. 2018

[C4] **R. Mosayebi**, A. Gohari, M. Mirmohseni, and M. Nasiri-Kenari,"Type based sign modulation for molecular communication," *Iran Workshop on Communication and Information Theory (IWCIT)*, May 2016.

[C5] **R. Mosayebi**, H. Arjmandi, A. Gohari, M. Nasiri-Kenari, and U. Mitra,"Diffusion based molecular communication: A simple near optimal receiver," *Iran Workshop on, Communication and Information Theory (IWCIT)*, May 2014.

[BC1] **R. Mosayebi**, "Molecular event detection. Cham: Springer International Publishing, 2020, pp. 925–929.