





# REZA MOSAYEBI

Department of Electrical and Computer Engineering, University of British Columbia,  
Vancouver, BC, Canada

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

---

**PROFESSIONAL SUMMARY** Experienced researcher in optical, wireless, and bio-medical communication systems, with expertise in digital signal processing (DSP) and machine learning (ML) applications in communication networks. With a strong academic foundation paired with practical engineering skills, I've developed physical layer blocks and leveraged ML techniques. Eager to apply my DSP and ML expertise in a challenging role.

---

**RELEVANT SKILLS AND KNOWLEDGE**

- **Optical/Wireless Communications & DSP:** Highly skilled in fiber optic and 5G systems, with mastery in advanced DSP algorithms including channel estimation, linear and decision-feedback equalizers, optimal and near-optimal detection schemes, multi-user massive MIMO systems, effective nonlinearity mitigation, interference cancellation, phase and timing recovery.
- **Error Correction:** Extensive experience in developing real-time decoders for forward error correction (FEC) codes, including LDPC, TPC, BCH, Reed-Solomon, and Convolutional codes.
- **Machine Learning:** Proficient in ML techniques such as Transfer Learning (TL), Deep Neural Networks (DNNs), Long Short-Term Memory (LSTM), and Convolutional Neural Networks (CNNs), using PyTorch, across various applications like classification, regression, and dimension reduction.
- **Programming:** Expert in MATLAB, Python, and C++ programming.

---

**WORK EXPERIENCE**

**The University of British Columbia, Vancouver, Canada**  
*Postdoctoral Research Fellow* Mar. 2022 – Present

- Crafted a DNN scheme to simultaneously mitigate PDL and nonlinearity in optical communication. Achieved a substantial 0.3 dB improvement in Q-factor compared to the state-of-the-art model.
- Leveraged TL to fine-tune the DNN for optical network enhancement, effectively managing PDL and RSOP-induced time-varying changes, resulting in a remarkable 1 dB Q-factor improvement.
- Constructed NN-based solutions to enhance carrier phase recovery in optical fiber communication, significantly improving signal to noise ratio performance.
- Introduced an anomaly detection strategy in optical communication systems, proactively enhancing network reliability and minimizing potential issues.

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

- Devised a linear receiver for cell-free C-RANs, enhancing interference rejection, outperforming MF beamforming, while maintaining lower computational costs and scalability compared to MMSE.
- Assessed precoding techniques for massive MIMO C-RAN downlink, confirming that pseudo-inversion is near-optimal in various operational regimes, balancing performance and computational cost.
- Developed scalable policies for uplink power control and downlink power allocation in cell-free networks, enabling a tunable trade-off between performance and fairness by adjusting parameters.

---

**Faraz Ertebat, Co., Tehran, Iran**  
*Senior System Engineer* Apr. 2018 – Jun. 2019

- Specialized in object localization utilizing TDOAs and FDOAs measurements.
- Led project management while concurrently providing mentorship to several engineers.

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

- Engineered sophisticated receivers for wireless communication systems, encapsulating aspects like modulation recognition, resampling, timing/phase recovery, FEC decoding, and packet detection.
- Explored and implemented interference cancellation methods in satellite communication systems.

---

**EDUCATION****Sharif University of Technology, Tehran, Iran**

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

- Thesis: “Efficient detection schemes in molecular communication (MC) networks”

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

- Thesis: “Efficient methods for transmission and reception of information in MC systems”

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

- Research: “Effective NN models for the classification of human chromosomes”
- 

**SELECTED PUBLICATIONS**

[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] **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.

**Full list of publications available at: [GoogleScholar].**

---

**RESEARCH IN PROGRESS**

[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.

[S2] **R. Mosayebi** and L. Lampe, “DNN for Joint Nonlinearity Compensation and PDL Mitigation,” Submitted to *Optical Fiber Communications Conference and Exhibition (OFC)*, 2024.

[S3] **R. Mosayebi** and L. Lampe, “Anomaly Detection in Optical Fiber: A Change-Point Detection Perspective,” Submitted to *Optical Fiber Communications Conference and Exhibition (OFC)*, 2024.

[U1] S. Tharranetharan, **R. Mosayebi**, and L. Lampe, “XPM compensation for ROADM-assisted optical fiber links,” Preparing for submission to *Optics Letters*, 2023.

---

**HONORS AND AWARDS**

Exemplary Reviewer of IEEE TRANSACTIONS ON COMMUNICATIONS	2022
Exemplary Reviewer of IEEE COMMUNICATIONS LETTERS	2020
Ranked <b>123<sup>rd</sup></b> in the <i>Iran National Matriculation Exam</i> out of more than 280,000 Candidates	2008