

# ALIREZA MOHAMMADI

Islamic Azad University, Kermanshah Branch, IRAN  
E-mail [◇ LinkedIn ◇ Github ◇ Web site ◇ Google Scholar](#)

## EDUCATION

**B.Sc. in Computer Engineering, Islamic Azad University**  
Kermanshah, Iran  
CGPA: **3.5/4**

2020 - 2024

## RESEARCH INTERESTS

• AI for science • Cyber security • Machine Learning • Optimization

## ACADEMIC EXPERIENCE

**Research Assistant** | *Islamic Azad University* | *Supervised by Dr.Parandin*

2022 - Present

- Coding and implementing an optimization formula utilizing machine learning models to enhance gate performance.
- Contributed to the development and implementation of various machine learning models, including RNN, CNN, FNN, and meta-learning frameworks, for multiple journal publications.

**Teaching Assistant** | *Islamic Azad University* | *Supervised by Dr. Habibi*

2023

- TA of Computational Intelligence
- TA of Natural Language Processing

As a Teaching Assistant, I conducted teaching sessions, led class discussions, and provided support in understanding complex concepts. I also assisted students with assignments, offered feedback, and guided them through coding and problem-solving exercises.

## PUBLICATIONS

### ACADEMIC JOURNALS

1. F Parandin, P Karami, **A Mohamadi**. "Machine Learning-Driven Optimization of Photonic Crystal Structures for Superior Optical NOR Gate Performance" *Applied Optics*, 63(25), 6666-6673.[\[Link\]](#) [\[PDF\]](#) (***Q2, IF:1.9***)
2. F Parandin,**A Mohamadi**, P Karami. "Innovative Approach to Optical Logic Gates Optimization Using Deep Learning and Machine Learning" (Under review in [Optical and Quantum Electronics](#)) (***Q2, IF:3.3***)
3. **A Mohamadi**, F Parandin, P Karami. "Meta-Learning and Formula Optimization for All-Optical XOR, OR, and NOT Logic Gates: The ML-FOLD Method" (Submitted) (***Q1***)
4. F Parandin; **A Mohamadi**. "Designing and Optimizing a Photonic Crystal-Based All-Optical XOR Gate Using Machine Learning". *Majlesi Journal of Electrical Engineering*, 2023.[\[Link+PDF\]](#) (***Scopus indexed***)
5. **A Mohamadi**, M Habibi, F Parandin. "Integration of Clinical, Genetic, and Molecular Features in Predicting Castration Resistance Events in Prostate Cancer: A Comprehensive Machine Learning Analysis". *Journal of Electrical and Computer Engineering Innovations (JECEI)*.[\[Link+PDF\]](#) (***Google Scholar indexed***)

### CONFERENCE PROCEEDINGS

6. **A Mohammadi**, H Ghahramani, SA Asghari, M Aminian. "Advanced Cyberattack Detection in Internet of Medical Things (IoMT) Using Convolutional Neural Networks" 19th Iranian Conference on Intelligent Systems (Accepted in **ICIS 2024**) [\[PDF\]](#) [\[Presentation\]](#) [\[Code\]](#) (***IEEE indexed***)
7. **A Mohammadi**, F Parandin, H Ghahramani. "Neural Network-Driven Optimization of Photonic Crystal-Based All-Optical NOT Gate Design" Third International Conference on Distributed Computing and High Performance Computing (DCHPC).IEEE,2024.[\[Link\]](#) [\[PDF\]](#) (***IEEE indexed***)
8. F Parandin, **A Mohammadi**. "Enhancing the Performance of Photonic Crystal AND Gates with Machine Learning Optimization" Third International Conference on Distributed Computing and High Performance Computing (DCHPC).IEEE,2024.[\[Link\]](#) [\[PDF\]](#) (***IEEE indexed***)

AWARDS & HONORS

• Conducting a workshop on 'An Introduction to Artificial Intelligence' at Islamic Azad University	2023
• Interviewed by Hamshahri newspaper and hispanTV as the Student Inventor <a href="#">[Link]</a>	2016
• Ranked first in Laboratory Sciences in Kermanshah province	2016
• Selected idea for the 8th Student Festival Nanoscience and Nanotechnology <a href="#">[Link]</a>	2015
• Recognized exceptional talent by National Organization for Development of Exceptional Talents	2014

SKILLS

Programming	Python
Libraries	Scikit-learn, PyTorch, Auto-sklearn, TensorFlow, Matplotlib, NumPy, Pandas
Skills	Machine Learning, Data Analysis, Research Prowess, Optimization

LICENSES & CERTIFICATIONS

• Supervised Machine Learning: Regression and Classification <a href="#">[Link]</a>	Coursera Stanford online
• Python for Data Science and Machine Learning Bootcamp	Udemy

SELECTED COURSES

• Foundations of NLP and Speech (4/4)	• Foundations of Computational Intelligence (4/4)
• Artificial Intelligence and Expert Systems (4/4)	• Foundations of Computer Vision (4/4)

LANGUAGES

• Duolingo English Test: Score 115	• Farsi: Native speaker
• Scheduled for TOEFL – February	

PROJECTS

<b>Securing Healthcare with Deep Learning: A CNN-Based Model for Medical IoT Threat Detection</b> Developed and implemented a CNN-based model for detecting cyberattacks in IoMT environments. The proposed model achieved a perfect accuracy of 0.99 across binary, categorical, and multiclass classification tasks, outperforming previous state-of-the-art methods. This code was developed for a paper accepted at the 2024 IEEE Conference on Intelligent Systems (ICIS). <a href="#">[Github]</a>
<b>Optimization of All-Optical Gate Design Using Neural Networks</b>   <i>supervised by Dr. Parandin</i> This repository contains code and resources related to a comprehensive study on the application of neural networks to optimize design parameters for an all-optical NOT gate using photonic crystals. The research focuses on improve optical gate simulation software. <a href="#">[Code]</a>

REFERENCES

1. Fariborz Parandin <ul style="list-style-type: none"><li>• Associate Professor (Department of Electrical Engineering, Islamic Azad University, Kermanshah)</li><li>• Email: <a href="mailto:fa.parandin@iau.ac.ir">fa.parandin@iau.ac.ir</a></li></ul>
2. Sobhan Roshani <ul style="list-style-type: none"><li>• Assistant professor (Department of Electrical Engineering, Islamic Azad University, Kermanshah)</li><li>• Email: <a href="mailto:s.roshani@aut.ac.ir">s.roshani@aut.ac.ir</a></li></ul>
3. Maryam Habibi <ul style="list-style-type: none"><li>• Dean of the Faculty (Department of Computer Engineering, Islamic Azad University, Kermanshah)</li><li>• Email: <a href="mailto:Ma.habibi@iau.ac.ir">Ma.habibi@iau.ac.ir</a></li></ul>