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Amir Mohammad Ramezan Naderi

Education

2019–Present **Bachelor of Science in Computer Science**, *University of Tehran*, Tehran, Iran
- GPA: 3.58/4 (17.27/20)

2011–2018 **High School Diploma in Mathematics and Physics**, *National Organization for Development of Exceptional Talents (Sampad)*, Tonekabon, Iran
- GPA: 4/4 (19.24/20)

Work Experience

Research

2022–Present **Neuroscience Research Assistant**, **University of Tehran**, Tehran, Iran

In my role as a Neuroscience Research Assistant at the CNRL Lab, University of Tehran, I am actively engaged in cutting-edge, technology-driven research within the field, under the guidance of Prof. Mohammad GanjTabesh. Some of the contributions include:
- Researching about neural system and spiking neural networks
- Homeostasis and researching about activity of neurons
- Vision-based classification using spiking neural networks

2021–2022 **Computer Vision Developer**, **Jetco**, Tehran, Iran

I worked as a Computer Vision Developer at Jetco, a motor vehicle manufacturing company. As a part of the Advanced Driver-Assistance System (ADAS) team which is created to design computer vision algorithms for self-driving cars, I work on:
- Real-time FCW (forward collision warning) algorithms using Depth Estimation via monocular and stereo cameras.
- 3D reconstruction algorithms for visualizing environment of the car.
- Real-time object detection.
- Real-time optical flow estimation.

Teaching

2021–2022 **Teaching Assistant**, **University of Tehran**, Tehran, Iran

I was a teaching assistant for the Fundamentals of Combinatorics course (Instructor: Morteza Mohammad Nouri) at the university of Tehran. My responsibilities included:
- Holding problem-solving sessions.
- Correcting exercises.
- Administering exams.

Projects

Image Classification with Homeostasis behavior using Spiking Neural Network, *Pytorch, Pymonntorch*
- This project classifies images using LIF neuron models and applies RSTDP learning rule. It also uses homeostasis behavior to regulate the activity of neurons. **(Code)**
- supervisor: Dr. Mohammad GanjTabesh

Progressive Spiking Neural Network Projects, *Pytorch, Pymonntorch*
- This project simulate and analyze Izhikevich and LIF neuron model, neural populations, neural encoding, convolution and pooling layers, filters like Gabor and DoG, STDP learning rule, reinforcement STDP learning rule. **(Code)**
- supervisor: Dr. Mohammad GanjTabesh

Self-supervised Monocular Depth Estimation, *Pytorch, Opencv, Numpy*
- This project uses an encoder-decoder model to estimate the depth of a single image based on photometric errors. Moreover, we employed various backbone architectures, including ResNet18, STDCNet, and DarkNet, and conducted an analysis on each of them. **(Code)**

Breast Cancer Classification, *Tensorflow, Keras, Numpy, Matplotlib*
- This project classifies the Invasive Ductal Carcinoma (IDC) images scanned at 40x using neural networks. **(Code)**

Movie Recommendation System, *Numpy, Pandas, and Math*
- This project recommends movies in two approaches: One is filtering based content, which predicts movies based on their contents, and the other is collaborative filtering based on user ratings. **(Code)**

Data Mining Projects, *Numpy, Pandas, and Math*
- The project contains preprocessing data, implementing different clustering and classification algorithms using machine learning models and neural networks to solve different problems. **(Code)**
- supervisor: Dr. Hedieh Sajedi

Courses

Selected Courses

Computational Neuroscience (Master Course)
- University of Tehran
- Instructor: Dr. Mohammad GanjTabesh
- GPA: 4/4

Advanced Programming
- University of Tehran
- Instructor: Dr. Abbas Nouzari Dalini
- GPA: 4/4

Data Structure and Algorithms
- University of Tehran
- Instructor: Dr. Bagher Babaali
- GPA: 4/4

Deep Learning
- University of Tehran
- Instructor: Dr. Bagher Babaali
- GPA: 4/4

STATISTICAL METHODS
- University of Tehran
- Instructor: Dr. Samaneh Eftekhari Mahabadi
- GPA: 4/4

Database Management Systems
- University of Tehran
- Instructor: Dr. Alireza Khalilian
- GPA: 4/4

Design and Analysis of Algorithms
- University of Tehran
- Instructor: Dr. Mohammad Ganjtabesh
- GPA: 4/4

Data Mining
- University of Tehran
- Instructor: Dr. Hedieh Sajedi
- GPA: 4/4

Online Courses

Convolutional Neural Network, Coursera

Neural Networks and Deep Learning, Coursera

Improving Deep Neural Networks, Coursera

Structuring Machine Learning Projects, Coursera

Data Visualization, Kaggle

Introduction to Deep Learning, Kaggle

Sequence Models, Coursera

Research Interests

- Machine Learning
- Computer Vision
- Spiking Neural Network
- Deep Learning
- Data Science
- Reinforcement Learning

Skills

Programming	**Python, C++, Assembly, JavaScript, SQL, Octave**
Frameworks/Tools	**Pytorch, Opencv, TensorFlow, Keras, Scikit Learn, Scipy, Pandas, Numpy, PyQT5, MySQL, PostgreSQL, Flask, React, Node.js**
Typesetting	**LaTeX, Excel/Office, Word/Office, PowerPoint/Office**
OS	**Linux, Windows**
Industry Knowledge	**Machine Learning, Computational Neuroscience, Spiking Neural Networks, Deep Learning, Computer Vision, Image Processing, Data Analysis, Statistics, Linear Algebra, Discrete Mathematics**
Language	**Persian, English**

Honors and Awards

2017	**Admission in the first round of Iran Mathematical Olympiad and Iran Physics Olympiad**
2019	**Top 1% at National University Entrance Examination Among more than 160,000 Participants**
2021	**Ranked 12^{th} at Data Science and Machine Learning Programming Exam(CodeCup) among 1100 Entrants**
2023	**Certified Lifeguard by the Iran Lifesaving and Diving Federation with experience of supervising swimming pool areas and ensuring safety of patrons**