

Mostafa Kermani Nia

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Education

School of Electrical and Computer Engineering, University of Tehran

Tehran, Iran

B.SC. IN COMPUTER ENGINEERING

Sept 2022 – Present

- GPA: 19.76/20

National Organization for Development of Exceptional Talents (NODET)

Karaj, Iran

DIPLOMA IN MATHEMATICS AND PHYSICS

Sept 2018 – May 2022

- GPA: 19.90/20

Experience

Machines and Language Theory

University of Tehran

TEACHING ASSISTANT

Sept 2024 – Present

- Under supervision of Prof. Hassan Mousavi

ACM student chapter

University of Tehran

CORE MEMBER

July 2024 – Present

- Manage collaborative projects and programming competitions such as ICPC, enhancing teamwork.

Probability and Statistics

University of Tehran

TEACHING ASSISTANT

July 2024 – Present

- Under supervision of Prof. Abdol-Hossein Vahabie and Prof. Mostafa Tavassolipour

Introduction to Computing Systems and Programming

University of Tehran

TEACHING LABORATORY ASSISTANT

Sept 2023 – Present

- Under supervision of Prof. hadi moradi and Prof. Mahmoud Reza Hashemi

Fundamentals of programming

University of Tehran

TEACHING ASSISTANT

Jan 2024 – July 2024

- Under supervision of Prof. Mohammad Javad Dousti

Discrete Mathematics

University of Tehran

TEACHING ASSISTANT

Jan 2024 – July 2024

- Under supervision of Prof. Siamak Mohammadi

Research Interests

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

- DL, RL, ML; with special interests in Quantum ML and Neuro AI

IMAGE PROCESSING AND COMPUTER VISION

- Object Detection, Image Classification, Feature Extraction

FORMAL METHODS AND VERIFICATION

- Mathematical Logic

DATA SCIENCE AND ANALYTICS

- Data Processing, Statistical Analysis, Data Visualization

Related Courses

University of Tehran

- MACHINES AND LANGUAGE THEORY, GRADE: 20/20
- ENGINEERING STATISTICS AND PROBABILITIES, GRADE: 20/20
- ADVANCED PROGRAMMING, GRADE: 20/20
- ARTIFICIAL INTELLIGENCE, GRADE: 18.5/20
- ENGINEERING MATHEMATICS, GRADE: 20/20
- FUNDAMENTALS OF PROGRAMMING, GRADE: 20/20
- DATA STRUCTURES AND ALGORITHMS, GRADE: 20/20
- DISCRETE MATHEMATICS, GRADE: 20/20
- COMPUTER ARCHITECTURE, GRADE: 19.6/20

Skills

Programming	Advanced: C/C++, Python, Matlab, Verilog Intermediate: LaTeX, Javascript, HTML/CSS
Libraries	Pandas, NumPy, scikit-learn, TensorFlow, Matplotlib
Soft Skills	Teamwork, Leadership, Teaching (Three years of teaching experience), Communication
Other Skills	Git, MakeFile, MongoDB, Unsupervised Methods, Quantum ML, CNNs, GANs, DT and Random Forests, Deep Q-Learning, RNNs, and LSTMs

Projects

Course Projects related to AI and ML

RF learning and LSTM

Part I- Reinforcement Learning and Deep Q Learning
Part II- Recurrent Neural Network (RNN) and Long short-term memory (LSTM)
Part III- Search Algorithms (A* search, Minimax search, DFS, BFS, UCS, Csp problem)

Jupyter Notebook (GitHub)

Quantum NNs and Unsupervised Learning

part I- Unsupervised learning methods (K-means, Hierarchical Clustering, and DBSCAN) are used
Part II- Supervised learning methods (DT, RF with entropy and Gini impurity) are used
Part III- A Quantum NN is built and trained.

Jupyter Notebook (GitHub)

Pretrained CNNs and GAN implementation

VGG16 and ResNet50 pre-trained CNNs are used with and without data augmentation in part one.
Then a Deep Convolutional Generative Adversarial Network (GAN) is created for the CIFAR-10 dataset.

Jupyter Notebook (GitHub)

Deep learning model initialization schemes

Xavier Glorot and Kaiming He initialization schemes are compared based on their papers

Jupyter Notebook (GitHub)

Unsupervised learning algorithms

KNN, SVM, GBoost and XGBoost are used in this project

Jupyter Notebook (GitHub)

AI Optimizers and Imbalance dataset

SGD+momentum, Adagrad and RMSprop optimizers are explained and some methods for work with imbalance datasets (like SMOTE) are implemented

Jupyter Notebook (GitHub)

Natural language processing

Preliminary NLP methods are used in this project

Python (GitHub)

Course Projects related to image processing

Image recognition

Image recognition with Bayesian estimation

Jupyter Notebook (GitHub)

License Plate Detection

The numbers and letters on the license plates in English and Farsi were identified from the video and then you got the average speed of the car.

MATLAB (GitHub)

Projects related to software and game development

Fantasy Football Game

It's a game that implemented with c++

C++, Makefile (GitHub)

Mini Uber

A simple simulation of Uber logic

C++, Makefile (GitHub)

professional telegram bot

inline button, provided keyboard, forces join in channel, conversation bot and some other features are used in this project

Python (GitHub)

TURTIX game

SFML library is used to build this game

C++, Makefile (GitHub)

Court piece game

A simulation of Hokm game

C (GitHub)

UT TUTY

A simple form of a Twitter app is built

C (GitHub)

Projects related to Data science

Telegram channel auto admin

Python (GitHub)

A dedicated Telegram channel was created to track dollar prices, incorporating automated updates and historical data from verified sources with minimal management required

Web Data analyst

mongoDB, Python (GitHub)

Connect web socket to a website, receive and analyze its data and save them in mongoDB

Honors

- **Top Student:** Ranked 1st among all Computer Engineering B.Sc students in the University of Tehran who entered in 2022.
- **National University Entrance Exam:** Being in (Top 0.6%) in Nation-wide Iranian University Entrance Exam in Mathematics and Physics (Summer 2022).
- **Physics Olympiad:** Silver medal at Iranian National Olympiad in Physics (Summer 2021).

Languages

Persian Native

English Upper-intermediate proficiency

Arabic Basic