Mostafa **Kermani Nia**

School of Electrical and Computer Engineering, University of Tehran, Tehran, Iran.

(+98) 930-965-9983 | mkermani1383@gmail.com | mostafa-kermaninia.github.io | mostafa-kermaninia

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
- Physics 1 & Physics 2 & Calculus 1 , 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
- Differential Equations , Grade: 19.75/20
- Calculus 2 , Grade: 19.7/20

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 — **Jupyter Notebook** (GitHub)
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)

Quantum NNs and Unsupervised Learning — **Jupyter Notebook** (GitHub)
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.

Pretrained CNNs and GAN implementation — **Jupyter Notebook** (GitHub)
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.

Deep learning model initialization schemes — **Jupyter Notebook** (GitHub)
Xavier Glorot and Kaiming He initialization schemes are compared based on their papers

Unsupervised learning algorithms — **Jupyter Notebook** (GitHub)
KNN, SVM, GBoost and XGBoost are used in this project

AI Optimizers and Imbalance dataset — **Jupyter Notebook** (GitHub)
SGD+momentum, Adagrad and RMSprop optimizers are explained and some methods for work with imbalance datasets (like SMOTE) are implemented

Natural language processing — **Python** (GitHub)
Preliminary NLP methods are used in this project

Course Projects related to image processing

Image recognition — **Jupyter Notebook** (GitHub)
Image recognition with Bayesian estimation

License Plate Detection — **MATLAB** (GitHub)
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.

Projects related to software and game development

Fantasy Football Game — **C++, Makefile** (GitHub)
It's a game that implemented with c++

Mini Uber — **C++, Makefile** (GitHub)
A simple simulation of Uber logic

professional telegram bot — **Python** (GitHub)
inline button, provided keyboard, forces join in channel, conversation bot and some other features are used in this project

TURTIX game — **C++, Makefile** (GitHub)
SFML library is used to build this game

Court piece game — **C** (GitHub)
A simulation of Hokm game

UT TUTY — **C** (GitHub)
A simple form of a Twitter app is built

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