

Reza Karbasi

MACHINE LEARNING SPECIALIST · ELECTRICAL ENGINEER

📞 (+98) 9360851787 | ✉️ arzkarbasi@gmail.com | 🏠 rezakarbasi.github.io | 📱 rezakarbasi | 🌐 reza-karbasi-270791133

Skills

| | |
|---------------------|--|
| Toefl Scores | R: 27, L:24, S:23, W:25, total : 99 |
| Programming | Python, Matlab, C, Java, Assembly, Bash Scripting |
| Frameworks | Pytorch, Tensorflow, Mlflow, Metatrader, Android |
| Libraries | Numpy, Pandas, Matplotlib, Plotly, Selenium |
| Hardware | Keil, Stm32Cube, ARM, XMega, Altium, Soldering |
| DataBases | SQL, InfluxDB, MongoDB |
| Misc | Docker, Git, Confluence, Jira, Linux, Django, REST API |

Experience

Hara Company

Tehran, Iran

ML ENGINEER

Jul. 2022 - Mar. 2023

- Evaluating STT models in various real-world conditions and utilizing visualizations for data-driven insights of our model.
- Implementing speaker profiling network and identifying speaker attributes and attitudes in a conversation.
- Designing models for call center automation such as Detecting conversation interruptions, pacing, and emotions.
- **Highlights:** STT, VAD, mlflow, linux, tensorflow, Jira, Visualization

SoftwareMotion

Remote, China

ALGORITHM DEVELOPER

Apr. 2023 - Present

- Codebase analysis (**C/C++**) for advanced automotive functionalities, encompassing **ADAS** levels 2+ and 3.
- Code compilation and Python-based simulation, using data from diverse source to assess system performance.
- Developed a path planner using Dynamic Programming (**DP**) techniques.
- Designed a comprehensive visualization app (using **PyQT**) for various functionalities, with a focus on AEB and ACC, incorporating BEV (Bird's Eye View) plots for enhanced system analysis.

Aras Academy

Tehran, Iran

INSTRUCTOR

Jun. 2021 - Aug. 2021

- Supervisor: Prof. Hamid D. Taghirad
- Course: Introduction to Reinforcement Learning
- Link to the website: <http://aras.kntu.ac.ir/education/aras-academy/>

QDM

Tehran, Iran

DESIGNER OF A TRADER BOT

Apr. 2019 - Jan. 2020

- Design trade strategies in Metatrader
- Setting hyperparameters using Reinforcement Learning (DQN)
- Published materials: medium blog and github repo
- **Highlights:** Python, MQ4, Deep Q Network, RL, Ichimoku, Backtrader, Multithread, C

Raiwan

Tehran, Iran

ELECTRONIC ENGINEER, DEVICE DESIGNER

Dec. 2017 - Jun. 2019

- Inner Hospital Communication: Designed and developed communication boards for in-hospital use. I used STM32 microcontrollers for efficient data transfer and connectivity.
- Taxi Payment Device: Led the mechanical design and development of a taxi payment device. Programmed ESP32 for secure and reliable payment processing.
- **Highlights:** stm32f103, stm32Cube, Altium designer, PCB, keil, CNC, C

KN2C

Tehran, Iran

ELECTRONIC AND CONTROL ENGINEER

May 2015 - Sep. 2017

- Supervisor: Prof. Hamid D. Taghirad
- Designed and manufactured small-sized football player robots.
- Participated in the SSL league of RoboCup, contributing to the development and performance of robotic soccer players.
- Notable Projects:
 - Robot Electronics Design: Led the design and development of robot electronic components, including control boards and connectivity systems.
 - Kalman Filter Implementation: Applied Kalman filter for precise position estimation and filtering.
 - Desktop Monitoring Program: Designed a desktop monitoring program for real-time robot tracking and control.
 - Electronic Team Leadership: Led an electronic team, overseeing project development, board design, and soldering tasks.
- **Highlights:** Xmega, PCB design, PID controller, Kalman filter, Soldering, FPGA, C, C++

Education

UT(University of Tehran)

M.S. IN COMPUTER ENGINEERING - ARTIFICIAL INTELLIGENCE

Tehran, Iran

Sep. 2019 - Jan. 2022

- GPA : 18.83/20
- Thesis: An earthquake early warning system using smartphones as sensors
- Supervisors : Prof. Hadi Moradi, Dr. Mahmoud Reza Hashemi, Dr. Ali Moradi

KNTU(Khajeh Nasir Toosi University of technology)

B.S. IN ELECTRICAL ENGINEERING - CONTROL

Tehran, Iran

Sep. 2014 - Jan. 2019

- GPA : 17.4/20
- Rank 2/30 in Control entrance
- Thesis: Fault detection in gas turbine
- Supervisor : Dr. Mahdi Aliyari

Notable Projects

Soroush App Posts Analysis

A PROJECT IN BIG DATA COURSE

- Our aim was to extract data from the Soroush app for analysis and dashboard creation using big data methods.
- Personally responsible for web crawling Soroush messenger data utilizing **Selenium** and establishing data transmission through **Kafka**. This crucial component ensured data flow to downstream project segments.

Aircraft Navigation

IRAN'S NATIONAL ELITES FOUNDATION

Oct. 2022 - Oct. 2023

- The project was to find a trajectory in a big searching space for an aircraft.
- There was lots of limitations to fly and surveillance devices that would have been avoided.
- Used a Graph based search in the space to accomplish the task.
- **Highlights:** networkx, A*, DP, RCS, docker, flask, REST

Localization of Robot

FINAL PROJECT OF ADVANCED ROBOTIC COURSE

- Localizing Anki robot in **Gazebo** using **particle filter** and **EKF**

Localizing using Kalman Filter

FINAL PROJECT OF INSTRUMENTATION COURSE

- Predicting accurate values of acceleration, velocity and position using GPS and Accelometer.
- Used **Arduino DUE** to collect the data and implementing Kalman filter

Determining of Telecom Stations's Power using RL

FREELANCE PROJECT

Sep 2021

- Make a gym environment for simulating the results alongside a deep RL agent (**A3C**) to set each station's power some how reduce their conflict while maximizing the coverage area.

Semantic Segmentation

A PROJECT OF DEEP NEURAL NETWORKS COURSE

- Implementing Segnet neural network for **Semantic Segmentation**
- Using pytorch framework to implement the model.

Image Captioning

A PROJECT OF DEEP NEURAL NETWORKS COURSE

- Using Resnet18 and LSTM model in an image captioning application with pytorch framework.

English to Persian Translator

A PROJECT OF DEEP NEURAL NETWORKS COURSE

- Implementing encoder section of a **transformer** network and use it for a translation application.

An RL Agent For Trading in Stock Market

FINAL PROJECT OF REINFORCEMENT LEARNING COURSE

- Implementing a **Deep Q network** architecture to trade on historical data of Tehran Stock Exchange

Brain Activity Recognition using EEG

AN ACADEMIC PROJECT

Feb. 2021 - Aug. 2021

- Our project was to use **EEG signals** to play a simple video game
- My task was to implement an Adaptive neuro fuzzy inference system (**ANFIS**) algorithm due to the classification task
- **Supervisor** : Dr. Mohammadreza Abolghasemi Dehaqani

Data Mining on California Hospitalization Dataset

A FREELANCE PROJECT IN PONISHA

Nov. 2020

- Finding a dataset about surgical results and analyzing the results of surgeries for certain medical centers and patients

Digikala Comments Analysis

FINAL PROJECT OF SOCIAL NETWORK COURSE

May 2020

- Our team was supposed to find customer's opinion about a product using the product's comments
- I crawled Digikala website using **Selenium** and implemented a simple sentiment analysis on the comments to make a KPI for each product
- Link to the crawler repository

Honors & Certificates

- 2019 **Ranked 3rd**, Snake league in Nasir Cup
- 2019 **Ranked 28th(top 0.2%)**, The National University Entrance Exam for M.Sc. degree in AI
- 2016 **Ranked 5th**, Small Size League(SSL) in RoboCup Iran Open
- 2014 **Ranked 888th(top 0.7%)**, National University Entrance Exams in Mathematics
- 2020 **Database Principles and SQL Server**, Maktabkhooneh
- 2023 **Django Web Framework**, Coursera