

Reza Karbasi

MACHINE LEARNING SPECIALIST · ELECTRICAL ENGINEER

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

Skills

Language	Persian: Native, English: Proficient(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

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.

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

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

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++

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

Academic Experiences

TEACHING ASSISTANT

- **Deep Neural Networks:** I served as a TA in *Spring 2022*, working with Dr. Reshad Hosseini
- **Introduction to Reinforcement Learning:** I served as a TA in *Fall 2021*, working with Prof. Majid Nili Ahmadabadi
- **System Identification:** I served as a TA in *Spring 2020*, working with Prof. Babak Nadjar Araabi
- **Pattern Recognition:** I served as a TA in *Fall 2022, Fall 2019, Fall 2017*, working with Prof. Hamid Abrishami Moghaddam

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(Khaje Nassir 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

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

Notable Projects

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.

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

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

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

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**

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.

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