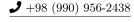






github.com/karami-mehdi



in linkedin.com/in/karami-mehdi

# Summary

- Passionate AI Engineer with over 5 years of experience in Computer Science, possessing strong technical, theoretical, and analytical skills, including model training, algorithm optimization, and problem-solving.
- Machine Learning Researcher with expertise in developing AI models, having established a pre-trained GAN for limited-labeled brain MRI segmentation, advancing practical AI and ML applications and contributing to both industry and research.
- Skilled Programmer proficient in Python and other programming languages, along with modern technologies, with practical experience as an iOS Developer for an international company, demonstrating strong technical expertise, teamwork, and effective communication in collaborative settings.
- Active Open-Source Contributor, collaborating on public and volunteer projects, fostering knowledge sharing and providing tools for developer and research communities.

#### Skills

Programming Languages: Python, Julia, C/C++, Swift, Objective-C

Data Science & Machine Learning: TensorFlow/Keras, PyTorch, Scikit-learn, OpenCV, Pandas, NumPy

Database & Data Management: SQL, PostgreSQL, SQLite, Query optimization

DevOps & Cloud Deployment: Docker, Kubernetes, MLOps, Cloud-based AI Model Deployment

Software Development & Engineering:

- Methodologies & Project Management: Agile (Scrum, Kanban), Jira, Confluence, Trello
- Design & Architecture: SOLID, Clean Architecture (VIP), MVC, MVVM, Repository Pattern
- Version Control & Testing: Git, GitHub, GitLab, Unit Testing, TDD, BDD, CI/CD
- Development Tools: LaTeX, Command Line, Linux, Firebase

#### **Publication**

## Pre-Trained Generative Adversarial Network for Limited-Labeled Brain MRI Segmentation

Authors: Mehdi Karami\*, Dr. Betsabeh Tanoori \*Primary author, Manuscript in preparation

# Work Experience

iOS Developer (Full-time - On-site - Development Office, Tehran, Iran)Round Table Apps (Sydney, Australia)

Jun 2023 – Jun 2024

- Contributed to the development of diverse, international-scale projects across various domains.
- Developed <u>Blossom Save and Invest</u>, a financial application for the **Australian** and **New Zealand** markets, serving over **7K** active users.
- Maintained <u>MailPlus</u>, a post-transportation app designed for postal service drivers across **Australia**.
- Developed and refactored <u>Resilience Box</u>, a digital wellbeing platform with mental health resources and telehealth integration, optimizing performance by restructuring the codebase and replacing deprecated components.
- Strengthened test coverage by adopting the VIP architectural pattern, ensuring well-structured, maintainable code.
- Applied key design patterns, e.g., MVC and Repository, to enhance code organization and scalability.
- ullet Boosted development efficiency by up to 40% through a custom file template, streamlining the development workflow.
- Improved product quality by leading collaborative code reviews, fostering a culture of continuous improvement.
- Contributed to the implementation of **Unit Testing**, ensuring robust and reliable code across projects.
- Maintained thorough documentation of modules using Confluence, ensuring clarity and accessibility for the team.

# **Open Source Projects**

## Cyberattack Detection and Anomalous Behavior Analysis

- Utilizes a Recurrent Neural Network (RNN), technically Long Short-Term Memory (LSTM), to detect cyberattacks based on anomalous behavior in network traffic. The model identifies abnormal patterns associated with attacks, e.g., DDoS, port scanning, and brute-force attempts.
- Stack: Python, Keras (TensorFlow), Scikit-learn, Principal component analysis (PCA), Receiver Operating Characteristic (ROC) Curve, ...

#### Solar Power Generation Prediction

- Implements multiple machine learning models, i.e., Linear Regression, Decision Tree Regressor, Gradient Boosting Regressor, Random Forest Regressor, Multi-layer Perceptron (MLP) Regressor, and Deep Neural Network (DNN), to predict solar power generation. Models are evaluated using performance metrics such as Mean Absolute Error (MAE), Mean Squared Error (MSE), Coefficient of Determination (R<sup>2</sup>), and Confusion Matrix to ensure accurate predictions.
- Stack: Python, Scikit-learn, TensorFlow, Pandas, Matplotlib, NumPy, Seaborn, ...

### AI Sight Quest

- Utilizes AI to extract text from images via Apple's Vision Framework and provides instant answers to document questions using the Bidirectional Encoder Representations from Transformers (BERT) language model.
- Stack: Machine Learning, Deep Learning, Swift, SwiftUI, SwiftData, Model-view-viewmodel (MVVM), Vision Framework, Speech Framework, TipKit, ...

## Proximity Finder

- Efficiently detects the nearest point pair on a 2D screen with O(n log n) complexity using Divide and Conquer. Includes an interactive slider for dynamic point adjustment.
- Stack: Swift, UIKit, Model-View-Controller (MVC), Algorithm Design, Algorithm Optimization, Core Graphics, ...

## • Heart Pulse Detector - Beats Per Minute (BPM) Counter

- Programs a BPM calculator using an Arduino Uno to monitor heart rate and display pulse data through a real-time heart rate graph.
- Stack: Arduino C/C++, Data Processing, Sensor Integration, Display Handling, ...

#### • Command-line Game

- Designs and implements interactive command-line games, emphasizing scalable architecture, efficient logic processing, and a seamless user experience.
- Stack: Swift, Protocol-Oriented Programming (POP), Clean Architecture, ...

Additional projects can be found at: GitHub account.

### Education

Bachelor of Computer Engineering - GPA: 3.57/4.00 (equivalent to 17.88/20) Zand Institute of Higher Education

Sep 2021 - Aug 2025 Shiraz, Iran

Visiting Student

University of Science and Culture

Feb 2023 - Jul 2024 Tehran, Iran

# Teaching Experience

## Teaching Assistant (TA)

• Fall 2024:

- Human-Computer Interaction
- Digital Electronics

Zand Institute of Higher Education, Shiraz, Iran

### • Spring 2025:

- Fundamentals of Computer and Programming
- Digital Electronics
- Computer Architecture

#### Mehdi Karami

# Volunteering

Workshop on Git and GitHub

Dec 2024

Zand Institute of Higher Education

Shiraz, Iran

Workshop on Git and GitHub (Techniques for Effective Collaboration)

May 2024

Credential ID 400434784

K. N. Toosi University of Technology

Tehran, Iran

Contributor of Swift Evolution GitHub Repository

Since Dec 2023

Participated in the proposals of the Swift Evolution repository.

Honors & Awards

Winning First Place in the C++ Programming Language Competition

Hosted by Zand Institute of Higher Education

May 2022 Shiraz, Iran

Certificates

Swift for Beginners Issued by Mind Luster Mar 2023

Credential ID 1688271634

Issued by Sololearn

Theoretical understanding of Swift 4

Credential ID CT-QD4IETGO

Jan 2023

Language

Persian-Turkish: Native English: Fluent

TOEFL

**Total Score: 89** • Reading: 23 ■ Listening: 22 ■ Speaking: 19 • Writing: 25

Taken on: Sep 21, 2025