Mehdi Karami

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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) Jun 2023 – Jun 2024
Round Table Apps (Sydney, Australia)

- Contributed to the development of **diverse**, **international-scale** projects across various domains.
- Developed **Blossom – Save and Invest**, a financial application for the **Australian** and **New Zealand** markets, serving over **7K** active users.
- Maintained **MailPlus**, a post-transportation app designed for postal service drivers across **Australia**.
- Developed and refactored **Resilience Box**, 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.
- 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^2), 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) — Sep 2021 - Aug 2025
Zand Institute of Higher Education — Shiraz, Iran

Visiting Student — Feb 2023 - Jul 2024
University of Science and Culture — Tehran, Iran

Teaching Experience

Teaching Assistant (TA) — Zand Institute of Higher Education, Shiraz, Iran

- **Fall 2024:**
  - Human-Computer Interaction
  - Digital Electronics
- **Spring 2025:**
  - Fundamentals of Computer and Programming
  - Digital Electronics
  - Computer Architecture

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 Tehran, Iran
K. N. Toosi University of Technology

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 May 2022
Hosted by Zand Institute of Higher Education Shiraz, Iran

Certificates

Swift for Beginners Issued by Mind Luster
Credential ID 1688271634 Mar 2023

Theoretical understanding of Swift 4 Issued by Sololearn
Credential ID CT-QD4IETGO Jan 2023

Language

English: Fluent **Persian–Turkish:** Native

TOEFL

Total Score: 89

- Reading: **23**
- Listening: **22**
- Speaking: **19**
- Writing: **25**

Taken on: Sep 21, 2025