

Kian Shokraneh

+98 912 867 11 67 | shokraneh.kian@gmail.com | kian-shokraneh | KianShokraneh | Website

Education

Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran 2020 – Present
Bachelor of Science in Computer Engineering Tehran, Iran

- CGPA: 3.96/4 (18.75/20)
- GPA over the past two semesters: 4/4 (19.25/20)

Allameh Tabatabaei Complex of Cultural and Educational 2017 – 2020
High School Diploma in Mathematics and Physics Tehran, Iran

- CGPA: 4/4 (19.33/20)

Relevant Coursework

- Artificial Intelligence: 18/20
- Computational Intelligence: 18/20
- Data Structures and Algorithms: 20/20
- Information Retrieval: 18.26/20
- Algorithm Design: 20/20
- Software Testing: 20/20
- Advanced Programming: 19.1/20
- Compiler Design: 18.66/20

Technical Skills

Languages: Persian (Native), English (Fluent; TOEFL on Oct 27, 2024)
Languages: Python, Java, C, HTML/CSS, JavaScript, SQL
Libraries & Frameworks: PyTorch, Scikit-learn, Pandas, NumPy, Matplotlib, Transformers, Django, Django REST Framework (DRF), Elasticsearch, FAISS
Techs and Tools: Git, Docker, JetBrains IDEs, VS Code, Postman, Amazon S3, Google Colab, Kaggle

Research Interest

- Computer Vision and Image Processing
- Natural Language Processing (NLP)
- Explainable AI and Model Interpretability
- Trustworthy AI

Research Experience

Research Assistant, Okinawa Institute of Science and Technology (Remote) March 2024 – Present
Supervisor: Mohammad Sabokrou, MLDS Unit

Trustworthy Machine Learning and Object-Focused Computer Vision

- Conduct research aimed at ensuring computer vision models focus on the primary object in images rather than background or irrelevant elements.
- Develop and implement adversarial approaches to improve the robustness and accuracy of models.
- Try to advance methods for creating more reliable and trustworthy machine learning systems.

Research Assistant, Amirkabir University of Technology March 2024 – Present
Supervisor: Saeedeh Momtazi, Computer Engineering Department

Using Retrieval-Augmented Generation and Large Language Models for Open Domain Question Answering

- Exploring RAG and LLMS for Persian question answering.
- Fine-tuning XLM-RoBERTa on the PQuAD dataset to enhance accuracy and relevance in real-time responses.
- Developing a hybrid system that combines retrieval-based and generation-based models.
- Generating optimized indexes to improve retrieval efficiency.

Teaching Experience

Teaching Assistant, Amirkabir University of Technology, Tehran, Iran

- Advanced Programming (Java), Instructor: Dr. Fatemeh Ziaeetabar Fall 2023
- Applied Linear Algebra, Instructor: Dr. Maryam Amirmazlaghani Spring 2024
- Software Engineering, Instructor: Dr. Faezeh Gohari Fall 2024
- Software Testing, Instructor: Dr. Faezeh Gohari Fall 2024

Work Experience

Backend Developer

April 2022 – December 2023

Gozar Team (Website) (LinkedIn)

Tehran, Iran

- Specialized in backend development using Django and Django REST Framework (DRF).
- Designed project architecture and database schemas.
- Deployed and managed applications on Linux servers.
- Collaborated on frontend implementation using HTML, CSS, and Bootstrap as a secondary focus.

Projects

Model Robustness and Interpretability Projects

- **Regularization and Robustness Evaluation Using SHAP** | *GitHub*
 - * Implemented SHAP-based regularization to enhance MNIST model robustness.
 - * Improved model resilience via FGSM adversarial training.
- **Captum Attribution Metrics Analysis** | *GitHub*
 - * Conducted metric-based analysis of attribution methods using Captum on CIFAR-10.
 - * Evaluated robustness with infidelity and sensitivity metrics.
- **Captum Interpretability Demonstrations** | *GitHub*
 - * Applied Grad-CAM, Integrated Gradients, and Gradient SHAP to interpret ResNet18 predictions.
 - * Enhanced model transparency through visual explanations.
- **Background Importance Analysis Using Gradient SHAP** | *GitHub*
 - * Performed Gradient SHAP analysis on ResNet18 to evaluate background influence on predictions.
 - * Visualized attribution values to highlight decision-making processes.
- **Adversarial FGSM Comparisons** | *GitHub*
 - * Compared FGSM across multiple adversarial attack libraries on ResNet18 (CIFAR-10).
 - * Analyzed Attack Success Rate (ASR) to assess model robustness.

Information Retrieval System on News | *GitHub*

- Developed an advanced information retrieval system with a focus on indexing, querying, and relevance ranking.
- Implemented TF-IDF weighting and vector space models to enhance the precision and recall of document retrieval.
- Optimized search algorithms and relevance feedback mechanisms to improve retrieval effectiveness and user satisfaction.

Fuzzy Self-Driving Car Simulator | *GitHub*

- Implemented a fuzzy logic system for simulating self-driving car decision-making in various conditions.
- Developed and optimized fuzzy rules for obstacle avoidance and speed control.

Super Mario AI | *GitHub*

- Developed AI using Genetic Algorithms to optimize Super Mario's behavior and strategy.
- Evolved neural network parameters for improved navigation of complex levels.
- Implemented fitness functions to enhance adaptation and performance.

Pac-Man AI | *GitHub*

- CS 188 Pac-Man AI Projects at UC Berkeley, applying advanced AI algorithms in a gaming context.
- Implemented A*, DFS, and BFS for optimized Pac-Man navigation.
- Applied Expectimax and Minimax algorithms for adversarial agent development.
- Integrated reinforcement learning to enhance adaptability and performance.

Honors & Awards

- Ranked 189th in the nationwide university entrance exam (Konkour), placing in the top 1% among more than 155,000 participants.