(+98) 921 8248 301   Tehran, IR   mohammadsafari@aut.ac.ir | msafari8051@gmail.com

Pages   linkedin.com/in/sfri-mhmd   github.com/mohammad-safari

Mohammad Safari
Computer Engineering and Web Development

Education

2024 – Present **Amirkabir University of Technology(Tehran Polytechnic),** Tehran, Iran
MSc. Computer Engineering – Computer Networks
Admission without enterance exam(AUT Honors and Olympiads)

2019 – 2024 **Amirkabir University of Technology(Tehran Polytechnic),** Tehran, Iran
BSc. Computer Engineering
GPA: 18.66/20 (93.3/100)
Relevant Coursework: Artificial Intelligence Courses(major), **Software Engineering Courses**(minor), Principles of Cloud Computing, Android Programing, Internet Engineering, Faundamental of Economy
Final Project: Conditional Reply Generation using GANs and Transformers(specifically TILGAN for persian social media) - Supervised by Dr. Ahmad Nickabadi; Bootstrapped a conditional response generation model for Persian social media using TILGAN.
Industry Experience: 14-month full-time Industry Co-Op

2015 – 2018 **Mandegar Alborz High School,** Tehran, Iran
Math & Physics Diploma
GPA: 19.87/20 (99.35/100)
Admission by enternace exams; Excelled in 1st year exams.

Coursework

2019 – 2024 **Amirkabir University of Technology(Tehran Polytechnic),** Tehran, Iran
BSc. Computer Engineering
- From **Artificial Intelligence Courses**(major), full marked
    - Algorithm Design and
    - Linear Algebra,
  scored above 18/20(90/100) in Data Structures and Algorithms, Theory of Machines and Languages(automata), Signals and Systems, and Information Retrieval,
- From **Software Engineering Courses**(minor), full marked
    - Software Testing and
    - User Interface Design,
  scored above 19/20(95/100) in Principles of Database Design, Software Engineerig II,
- Also full marked Principles of **Cloud Computing**, **Android Programing**, **Internet Engineering** as Optional Courses, and scored above 19/20 in Computer Architecture and Microprocessor and Assembly Language and above 18/20 in Operating Systems

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Honors and awards

October 2024 **AUT Honors and Olympiads Admission**
Admission without enterance exam in MSc. Computer Networks of Amirkabir University of Technology

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Research experience	2023 – 2024	**Amirkabir University of Technology**(Tehran Polytechnic)**,** Tehran, Iran **Conditional Reply Generation Using TILGAN for Persian Social Media Data**

Leveraged a reference TILGAN(Transformer Implicit Latent GAN) implementation to conduct conditional and unconditional reply generation experiments and enhance the quality on Persian social media data in low-resource language contexts, supervised by Dr. Ahmad Nickabadi.

Key Contributions:

- **Optimizing Learning through Parameter Tuning with Diverse Inputs:** Improved model learning outcomes by experimenting with diverse but simple input data. Examined with various learning rates and generation parameters demonstrated that TILGAN's performance highly benefits from training datasets quality and diversity.

- **Model Evaluation and Comparative Analysis:** Early testing with simpler models like CatGAN indicated that TILGAN requires fine-tuning to achieve optimal quality, underscoring its complexity and advanced capabilities. This insight highlighted the need for refined parameter tuning to leverage TILGAN's full potential for high-quality, low-resource language generation.

- **External Model Integration for Evaluation:** Utilized Llama3.1 to generate shorter, simpler learning examples and GPT-4 for high-level output evaluation, adding depth to assessments.

- **Architectural Insight and Adaptability:** Analyzed TILGAN's architecture in depth, focusing on adjustments for decoder enhancements and KL optimization, to mitigate challenges like mode collapse in generative text output.

2022 – 2023	**Tosan(Banking and Payment solutions provider**)**,** Tehran, Iran **Automated E2E Test Integration,** Modern Systems Dept.

During the latter half of my Co-Op participation, I led the design and implementation of the automated E2E testing process for department products within the existing CI/CD pipeline.

Key Activities:

- Conducted extensive research on E2E Testing Frameworks, with a primary focus on Cypress.

- Contributed to the configuration of CI/CD environments using GitLab and Kubernetes (K8s).

- Addressed organizational challenges in Alpha Test Environment setup, including scenarios, contracts, data, and access management.

2022 – 2023	**Tosan(Banking and Payment solutions provider**)**,** Tehran, Iran **Push Notification Service Integration for Web Application,** Modern Systems Dept.

Led research and implementation of web push notification standards and tools to support client products in private networks and services, utilizing protocols such as HTTP, WebSocket, and RSocket.

Key Acheivements:

- Designed a Server-Sent Events (SSE) approach for optimal compatibility across systems.

- Implemented asynchronous servlet technology for streamlined integration, leveraging Java21 Virtual Threading.

- Adapted event publication and subscription for both internal and external data flow requirements.

Teaching experience

October 2023 – February 2024   **Amirkabir University of Technology(Tehran Polytechnic),** Tehran, Iran
Teaching Assistant, Algorithms Design by Dr. Mahdi Javanmardi
written assignments, final evaluation assessments

October 2023 – February 2024   **Amirkabir University of Technology(Tehran Polytechnic),** Tehran, Iran
Teaching Assistant, Internet(Web) Engineering by Parham Alvani
design of exercise questions, project work structure, evaluation of students' project presentations.

February 2022 – July 2022   **Amirkabir University of Technology(Tehran Polytechnic),** Tehran, Iran
Teaching Assistant, Data Structures and Algorithms by Dr. Sajad Shirali Shahreza and Algorithm Design by Dr. Alireza Bahgeri and Dr. Sajad Shirali Shahreza
designing implementation questions, judge configuration for near-optimal solutions, solution guidance and instructional videos.

Professional training

Game Development workshop with Unity, AUT Game Craft, Summer 2023

Large-scale optimization for machine learning, Students' Scientific Chapter(SSC) of AUT-CE, Amirkabir Artificial Intelligence Summer Summit (AAISS), August 2021

Uncertainity in deep learning with applying on a voice recognition system, SSC of AUT-CE, AAISS, August 2021

Docker Workshop, AUT Linux Fest, March 2021

Dive into Deep Learning, SSC of AUT-CE, AAISS, August 2020

Penetration Test Workshop, AUT Linux Fest, March 2020

AUT ACPC Programming Contests, Preparing for ICPC, October 2019 & 2020

IMC Preparation and Regional Contests Participation, 2016 & 2017

Professional experience

2021-Present   **Tosan(Banking and Payment solutions provider)**, Tehran, Iran
Full-stack web application developer in Modern System Dept.
Cooperation started by University Co-Op plan in two 7-month period between 3rd and 4th semester and between 6th and 5th; yet the independent collaboration continued as a personal interest and the desire of the company.
Roles:
- Participation in the development of a user-centric Internet banking platform, focusing on user experience, security and performance optimization using Spring Boot and Angular and Redis Cache.
- Pioneered R&D for end-to-end testing in CI/CD (using Bamboo, GitLab & Kubernetes), enhancing deployment accuracy and efficiency for alpha and beta testing environment.
- Active Role Playing in digital signature infrastructure implementation for digital cheque services.

Summer 2019   **PC Support and Holoo Software Represetative Office**, Tooba Complex, Central Janatabad, Tehran, Iran
Summer time training and technical activities:
- Client Windows Workstation Configuration and Support
- Holoo Accounting Software Setup and Support
- Clinic Automation System UI Development in .NET

Presentations and invited lectures	November 2023	**Web Assembly in Cloud Computing Virtualization, Principles of Cloud Copmputing By Dr. Ahmad Javadi, Amirkabir University of Technology(Tehran Polytechnic),** Tehran, Iran **Key Points:** • The history and evolution of web assembly • WASM and Docker, alongside or against • Practical Experiment of container on WASM(by wasmedge)
Computer skills	Programming	**Languages:** Java, TypeScript(Advanced), Python, Kotlin, Go, C, C#(Intermediate) BASH, Powershell(Elementary) **Frameworks:** Spring, Angular(Advanced), Android Jetpack Compose, .NET(Intermediate) Pytorch and Tensorflow(Elementary)
	Applications	ICDL(workstation, office and the Internet), Maven, GIT, Unity, Octave and MATLAB, Photoshop and GIMP. Also Arduino, Keil, Proteus, Xilinx and Cisco Packet Tracer for academic labs.
	Platforms	Linux(Debian and Arch-based), Docker, Kubernetes, WSL, VBox, Qemu
Languages	Persian	Native language
	English	Upper-Intermediate Listener and Speaker, Advanced Reading and Writing
	Arabic	Elementary
	French	Novice
Community service	Summer 2018	**Tehran Disaster Mitigation and Management Organization, Emergency Housing Plan Maneuver** **Shelter Preparing and Facility Set Up, Valunteer Citizen(Neighborhood Emergency Response Team)**, Sahel Park, South Janatabad Neighborhood, Tehran, Iran An Engagement in order to have a prepared city and wellinfomred community upon emergencies and disasters.
Extracurricular Activities	**Arts & Creative Pursuits**	**Institute for the Intellectual Development of Children and Young Adults**, Bozorgmeh Park, Tehran, Iran**,** Engaged in calligraphy, black pen painting, and pottery at the Institute for the Intellectual Development of Children and Young Adults. **Iran Language Institute,** Junior Certificate of English(ILI Course Completion Certificate) by July 2018 **Razan Academy, Tehran, Iran**, Studied piano, balancing music education(practical and theoritical) alongside higher studies.
	Sports	Lifelong swimmer; trained in skating and basketball at private academies at childhood and a beginner volleyball player.