Amir Mohammad Fakhimi

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Education

• Sharif University of Technology

Tehran, Iran

B.Sc. in Computer Engineering Supervisor: Dr. Hamid Beigy September 2020 - Present

• **GPA:** 18.86 / 20 (3.85 / 4.0)

- o Courses (Grades out of 20):
 - * Natural Language Processing 19.8
 - * Fundamentals of 3D Computer Vision 18.7
 - * Modern Information Retrieval 20
 - * Machine Learning 19.6
 - * Artificial Intelligence 19.6

- * Linear Algebra 20
- * Engineering Probability and Statistics 20
- * Advanced Programming 20
- * Fundamentals of Programming 20

• Teaching Assistants:

- * Natural Language Processing (Graduate Course)
- * Modern Information Retrieval (2 Semesters)
- * Machine Learning (3 Semesters)
- * Artificial Intelligence (2 Semesters)
- * Linear Algebra
- * Engineering Probability and Statistics
- * Database Design (4 Semesters, 2 as Head TA)
- * Mobile Programming (Head of iOS Homework)
- * Web Programming

- * Software Testing
- * Advanced Programming (3 Semesters, 2 as Head of a Homework)
- * Fundamentals of Programming (3 Semesters, 1 as Head of a Homework)
- * Theory of Machines and Languages
- * Computer Simulation
- * Computer Networks
- * Computer Structure and Machine Language

Research Interests

• Computer Vision

• Natural Language Processing (NLP)

• Deep Learning

• Machine Learning

Work Experiences

• Artificial Intelligence Intern

Sokhan AI

Internship

June 2024 - Present

- Focused on Automatic Speech Recognition (ASR) systems, specializing in fine-tuning Whisper model with public and proprietary Persian datasets.
- Achieved an approximately 10% reduction in Word Error Rate (WER), outperforming both the company's previous ASR system and fine-tuned open-source versions of Whisper.
- Contributed a bug-fix <u>pull request to Hugging Face's Transformers library</u>, which was merged, resolving an issue encountered during Whisper model fine-tuning that was consistent with similar reported issues.

• Software Development Intern

Rahnema College

Internship

August 2022 - November 2022

- Selected from nearly **900 participants** for this Tapsi-sponsored boot camp.
- o Gained experience in **Front-End** (TypeScript, React.js), **Back-End** (Node.js), **Android Development** (Kotlin), and **DevOps** (Docker, CI/CD).
- Worked as part of the front-end team on the FPL project alongside five other team members.

Research Experiences

AI-Driven Referee Recommendation System for Scientia Iranica Journal

Sharif University of Technology

Supervisor: Prof. Shohreh Kasaei (IP Lab)

February 2024 - Present

- o Contributing to an AI project for Scientia Iranica, a journal of Sharif University of Technology.
- Developing an AI model to automate referee selection for submitted articles, streamlining the peer-review process.
- Designed an AI-based system to identify professors' expertise based on their published papers.

Research Survey on Compositional Problems of Stable Diffusion Models

Sharif University of Technology

Supervisors: Dr. Mahdieh Soleymani Baqhshah (ML Lab) and Dr. Mohammad Hossein Rohban (RIML Lab)

October 2023 - Present

• Conducting a research survey on methods to address compositional challenges (e.g., object relationships and positional consistency) in stable diffusion models.

Highlighted Projects

• LLMs' Citation Benchmark

July 2024 - August 2024

Sharif University of Technology

- Final project for the Natural Language Processing course.
- Built a system to evaluate citation accuracy in LLMs.
- Experimented with multiple **prompt designs** to improve citation precision.
- Developed new metrics to assess citation reliability.

• Llama 3 LoRA Fine-Tuning

July 2024 - August 2024

Sharif University of Technology

- Completed as the final homework for the Natural Language Processing course.
- Created a dataset focused on gender-neutralization.
- Performed LoRA fine-tuning on Llama 3 with the gender-neutral dataset.

Add Validation for Maximum Sequence Length in Whisper August 2024 - September 2024 Model

Sokhan AI

- o Introduced a validation check for the Whisper model in Transformers library to ensure label sequence length does not exceed maximum token length.
- Enhanced model robustness and maintained consistent input dimensions.
- Implemented tests to verify the validation mechanism.

• Modern Information Retrieval

February 2022 - August 2023

Sharif University of Technology

- Comprehensive project for Modern Information Retrieval at Sharif University of Technology, completed in three phases.
- Phase 1: Implemented retrieval algorithms (Vector Spaces, Okapi BM25) and data compression, then evaluated them.
- Phase 2: Added classification methods (e.g., neural networks, language models) and enhanced the search engine with evaluations.
- Phase 3: Developed a web crawler for semanticscholar.org, implemented personalized PageRank, author ranking, a recommender system, and designed a user interface for the search engine named **Amoogle**.

Honors and Awards

- Third Place in Sharif University of Technology Table Tennis Championship (2025)
- Selected Athlete, Sharif University of Technology Table Tennis Team, 16th National Students' Sports Olympiad (2024)
- Direct Master's Program Candidate in Artificial Intelligence, Sharif University of Technology Highly competitive program for top-performing students (2023)

Volunteering Experiences

- Events at Sharif University of Technology:
 - o Scientific Staff Rayan AI Global Contest (2024): Focused on Anomaly Detection.
 - o Technical Staff Gamein (2024): Front-End Web Developer.
 - o Technical Staff She'r ta Code (2024): Front-End Web Developer.
 - o Technical Staff ICPC Asian Regional, Tehran Site (2024, 2023, 2022): Supported technical operations.
 - o Technical Staff Winter Seminar Series (WSS) (2023): Front-End Web Developer.
 - Technical Staff CodoCodile (2023): Front-End Web Developer.
 - o Media Staff League of Coders (LoC) (2022): Managed media coverage.
 - Executive Staff HardWar (2022): Supported event execution.
 - Branding Staff SharifGame (2021): Assisted in branding initiatives.
 - o Presenter Linux & Computer Workshops, Saboo (2021): Led workshop presentations.
- Introduction to Programming and Algorithms: A Collaborative High School Outreach Course
 - Developed in collaboration with **Sharif University of Technology** and **Quera** to introduce high school students to programming and algorithms.
 - Engaged around 2000 students, supported by a team of approximately 100 teaching staff.
 - Contributed by writing textbooks, creating practical exercises, and mentoring a student group to enhance their learning.
 - Recognized as one of the top mentors for dedication and impactful contributions to student learning.

Other Courses

- Advanced Concepts in AI: System 2 AI Sharif University of Technology Audited Graduate Course, Ongoing
- Quantum Computing Sharif University of Technology

Audited Graduate Course, Ongoing

• Advanced Large Language Model Agents – UC Berkeley

Ongoing

• Large Language Model Agents – UC Berkeley

Fall 2024

• Deep Learning for Computer Vision – Stanford University

Self-study

Technical Skills

- Programming Languages: Python, JavaScript, TypeScript, Java, Swift, R, C, SQL, Verilog
- Python Libraries for AI and Data Science: PyTorch, TensorFlow, Hugging Face Libraries (Transformers, Datasets, PEFT, Evaluate), OpenCV, scikit-learn, NLTK, NumPy, Pandas, Matplotlib, Plotly
- Web Technologies:
 - o Front-End: Next.js, React.js
 - o Back-End: Node.js, FastAPI, PostgreSQL, Redis