Yeganeh Kordi | Curriculum Vitae

Amirkabir University of Technology

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RESEARCH INTERESTS

I am broadly interested in AI, Machine Learning, and NLP, particularly, I am interested in question-answering, knowledge graphs, and commonsense reasoning. Also, I'm excited to work on generalization and enhancing the intelligence level in NLP systems.

EDUCATION

- **Bachelor of Science(Double degree)** — 2016–2021
  Amirkabir University of Technology — *Tehran-Iran*
  - Electrical Engineering — *2016–2020*
    - Major: Control Systems
    - GPA: 3.84/4 (18.12/20)
    - Thesis: Designing the Algorithm and Implementing the hardware for 3D gaze tracking
      Supervisors: Dr. Menhaj, Dr. Khosravi
  - Computer Engineering — *2018–2021*
    - Major: Artificial Intelligence
    - Minor: Computer Networking
    - GPA: 3.78/4 (17.78/20)
    - Thesis: Implementing a 3D eye-tracking software
      Supervisor: Dr. Rahmati

RELEVANT COURSES

- Artificial Intelligence
- Neural Networks and fuzzy logic
- Algorithms and Data Structure
- Machine Learning
- Data mining
- Statistics

RESEARCH EXPERIENCE

- *Allen Institute for AI* and *H2lab at University of Washington*
  Collaborating on NLP research projects, including: — July 2021–present
  - UnifiedQA
    - Introducing a cross-format question-answering system which shows that question formats are unnecessary, and a unified system has a better performance and generalization than the format-specified models.
      I've worked on pre-processing and converting datasets to text-to-text format in this project.
  - Natural instructions expansion
    - Creating a dataset of instructions and task-specific input/output data suggesting that providing language instructions can improve the model's performance and generalization to novel tasks
      I've created many tasks and worked on designing task hierarchy in this project.
  Publications on both projects are under preparation.
- Advanced networking and security research lab at university of Tehran
  Supervisor: Dr. Sayad Haghighi
  Several projects and researches, including but not limited to: — June 2019–present
  - NFC print system
    - Implementing a print management system for the department
  - Eye tracking methods
    - Testing multiple options and algorithms to create the best possible software for the medical experiments.

- Iran Telecommunication Research Center
  Several IoT projects, including but not limited to: June 2019–September 2019
  - Medical IoT
    · Designing a remote health monitoring system
  - Network simulation using OMNeT++

TEACHING EXPERIENCES

- Teaching Assistant
  - Machine Learning   Fall 2021
    · Instructor: Dr. Seyedin (Amirkabir University of Technology)
    · Holding NLP workshops, Designing the course's final project, Helping students complete projects.
  - Data Mining   Fall 2021
    · Instructor: Dr. Amirmazlaghani (Amirkabir University of Technology)
    · Defining Assignments and projects.
  - Algorithm Design   Fall 2021
    · Instructor: Dr. Bagheri (Amirkabir University of Technology)
    · Defining Assignments and quizzes, Holding in-person office hours.
  - Cloud Computing   Spring 2021
    · Instructor: Dr. Javadi (Amirkabir University of Technology)
    · Defining Assignments, Helping students complete projects.
  - Digital Logic Circuits   Fall 2020-Fall 2021
    · Instructors: Dr. Sedighi, Dr. Saheb Zamani (Amirkabir University of Technology)
    · Train and mentor TAs and Graders as a Head TA, Defining Assignments and quizzes, Holding tutoring classes, Holding office hours.

HONORS

- Ranked 3rd in Electrical Engineering, Control Group, among more than 40 students, Amirkabir University of Technology.
- Ranked 14th in Electrical Engineering among more than 160 students, Amirkabir University of Technology.
- Ranked among top 10 percent in Computer Engineering, Amirkabir University of Technology.
- Ranked 148th in university entrance exam, among more than 70,000 participants.
- Ranked 19th in university graduate entrance exam, among more than 5,000 participants.
- Granted admission from the Talented Student Office of the Amirkabir University of Technology for double degree program.
- Granted direct admission from Talented Student Office of the Sharif University of Technology, Amirkabir University of Technology, and Tehran University for graduate study.
- Member of Iran's National Elites Foundation.

PROJECTS

- Implementing of 3D eye tracking method in order to use in medical experiments.
  - Setting up a proper 3D gaze tracking project
  - Designing a headset with eye cameras that is equipped with infrared illuminations
  - Designing a software to collect the 180-degree hemispherical strabismus scanning
  - Turning it into an MVP for field testing (real patient tests in an eye hospital)
- Implementing a Persian search engine from scratch
  - Preprocessing a dataset comprising 7000 Persian news
  - Scoring documents with TF-IDF
  - Building a KNN Similarity Search Engine
- Handwritten Recognition on MNIST dataset
  - Using OpenCV, Keras and TensorFlow to train a deep neural network
  - Designing a Multi Layer Perceptron (MLP) based pattern classifier
  - Comparing different methods

- Providing a face recognition system using PCA algorithm
  - Normalization of the training set
  - Incorporating principal component analysis with the facial recognition system.
- Designing a Smart Agriculture System
  - Using Raspberry Pi Board,ESP8266, Moisture sensor and Temperature sensor to Detect the soil moisture and the temperature.
  - Regulating water flow automatically from water tank to fields
- Designing a load balancer based on CPU and memory utilization
- Implementing a decentralized peer-to-peer network
- Providing a distributed parallel system
- Providing simulation of Phantom Omni using ROS and Gazebo
- Implementing a text editor using C

COMPUTER SKILLS

- **Programming Languages:** Python, Java, C/C++
- **ML and NLP:** SpaCy, NLTK, Hugging Face Tokenizers and Transformers, pandas, Sklearn, TensorFlow, Keras, OpenCV, CUDA, matplotlib, NumPy
- **Web-development:** HTML, CSS, JavaScript, Flask, Django
- **Databases:** MySQL, PostgreSQL
- **Hardware:** ARM, FPGA, VHDL, Verilog, Altium Designer, Proteus Design Suite
- **Cloud Computing:** Hadoop, HAProxy, Kubernetes, Docker
- **Developer Environments:** Jupyter, Colab, IntelliJ, Eclipse, PyCharm, VSCode
- **Other:** Matlab, Git, ROS, Gazebo, Wireshark, OMNeT++, VM VirtualBox

WORK EXPERIENCE

- *Amirkabir Research Center*
  Worked on ARM projects   September 2018
- *Printers Startup*
  Worked on 3D printers   October 2018-February 2019
  - Implementing a code for 3D printers and slicers
- *Amirkabir University of Technology*
  Full-stack web developer   April 2021-present

POSITION OF RESPONSIBILITY

- Member of Technical Committee in IranOpen RoboCup Competition 2018
- Member of Student Scientific Association of electrical engineering at Amirkabir University of Technology

LANGUAGE SKILLS

- Persian: Native
- TOEFL (2021): Internet-based Test, 99/120.
  Reading (28/30), Listening (26/30), Speaking (23/30), Writing (22/30)

❶ References, Further information, and Proofs are available upon Request