

# Ali Keramati

Cognition <-----> LLMs <-----> Learning

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## Education

### School of Education, University of California Irvine

Irvine, United States of America

PH.D IN EDUCATION (DIGITAL LEARNING & MEDIA)

Jan. 2025 - present

- CGPA: 4/4
- Related Courses: NRL NTWKS&DEEP LRNG (4/4) · LEARNING ANALYTICS FUNDAMENTALS (4/4) · QUAL RSCH MTHDS (4/4) · NEURAL ARCH OF LANGUAGE (In Progress) · LEARNING ANALYTICS PRACTICUM (In Progress)

### School of Electrical and Computer Engineering, University of Tehran

Tehran, Iran

B.SC. IN COMPUTER ENGINEERING (MAJOR STUDY)

Sep. 2019 - Jul. 2024

- Last 2 Year GPA: 4/4 · CGPA: 18.51/20 (3.85/4)
- Related Courses: Discrete Mathematics(20/20) · Engineering Probability and Statistics(17.8/20) · Data Structures and Algorithms(20/20) · Machines and Language Theory(18.9/20) · Artificial Intelligence(19.1/20) · Foundations of Information Technology(19.6/20) · Internet Engineering(20/20) · Large Language Models(20/20)

### School of Psychology and Education, University of Tehran

Tehran, Iran

MINOR STUDY IN EDUCATIONAL SCIENCE

Sep. 2021 - Jul. 2023

- CGPA: 19.3/20 (4/4)
- Related Courses: Educational Psychology(18.75/20) · Introduction to Psychological Tests (20/20) · Patterns and Teaching Methods(20/20) · Basics of Qualitative and Quantitative Research Methods(19/20) · The Principles of Curriculum Development(20/20) · Instructional Design(19/20)

### Allame Helli 4 High School

Tehran, Iran

DIPLOMA IN MATHEMATICS AND PHYSICS

Sep 2016 - Jul. 2019

- CGPA: 19.66/20
- As a part of the National Organization for Development of Exceptional Talents (NODET)

## Research Interests

- Learning Analytics
- Human-AI Collaboration | CSCL
- Multi-Agent LLM Systems
- LoRA Fine-tuning | RAG
- Cognitive Evaluation of LLMs
- Computational Models of Human Learning

## Publications

Keramati, A. and Warschauer, M. (2025). "From General to Specific: Enhancing Automated Essay Scoring through Sequential Fine-Tuning", (In Preparation)

Shahhoseini, N., Taghiyareh F., and Keramati, A. (2025) "iTAG: Easy, Rapid, Automatic Intelligent Tagging for Educational Contents," 2025 29th International Computer Conference, Computer Society of Iran (CSICC)

Fallah A., Keramati A., Nazari M., and Mirfazeli F. (2024) "Automating Theory of Mind Assessment with a LLaMA-3-Powered Chatbot: Enhancing Faux Pas Detection in Autism", 14th International Conference on Computer and Knowledge Engineering (ICCKE 2024).

Keramati, A., Keramati, M. R., and Arefian, M. H. (2024). "Students' Reflection on the Effect of Collaborative Learning on Learning Environment and Academic Achievement in Online Reflective Platforms", *Reflective Practice*.

Keramati, M. R., Gillies, R., Ansarizadeh, F., and Keramati, A. (2024). "Challenges and Solutions of Implementing Cooperative Learning in Classroom Environments: Lived Experiences of Primary School Teachers in Iran", *International Journal of Early Years Education*.

Vatandoust M., Mohajeri M. M., Keramati A., and Ahmadabadi M. N. (2024). "AI-powered Digital Framework for Personalized Economical Quality Learning at Scale", *Journal of Computer Assisted Learning*. (Under Review)

Keramati, M. R., Gillies, R., Ansarizadeh, F., and Keramati, A. (2023). "The Concept of Cooperative Learning in Australia and Iran". *Iranian Journal of Comparative Education*.

Keramati, A., Keramati, M. R., and Gillies, R. a Chapter titled "Collaborative Learning in the Digital Age: Opportunities and Challenges". Book: *Communication and Collaboration: Challenges in 21 Century*. (Under Review)

## Research Experience

<b>Digital Learning Lab</b> UNDER THE SUPERVISION OF PROF. M. WARSCHAUER SWE Agent · LLMs Fine-tuning for Argumantative Essay Scoring (PERSUADE 2.0) · RAG integration to PapyrusAI	<i>UC Irvine</i> Jan. 2025 - Present
<b>Mathe Lab</b> UNDER THE SUPERVISION OF PROF. S. DOROUDI LLMs benchmarking Quiz · Students Performance Analysis · Predicting student outcomes · A/B Tests on Student Engagement Metrics	<i>UC Irvine</i> Jan. 2025 - Present
<b>LaLA-Lab</b> UNDER THE SUPERVISION OF PROF. N. NIXON AI Chatbot as a Collaborative Agent in Real-World Classroom	<i>UC Irvine</i> Apr. 2025 - Present
<b>Cognitive Systems Lab</b> UNDER THE SUPERVISION OF PROF. M. N. AHMAD ABADI A new pedagogy model for Deep Learning · LLMs for Personalized Learning · Cognitive Processes in Human Learning · RLHF	<i>University of Tehran</i> May. 2023 - Dec. 2024
<b>Remote-University of Queensland</b> UNDER THE SUPERVISION OF PROF. R. GILLIES Collaborative Learning · Interactive Learning Environments · Data Analysis using ATLAS.ti · Quantitative and Qualitative Research	<i>University of Queensland</i> Sep. 2021 - Dec. 2024
<b>UT NLP group</b> UNDER THE SUPERVISION OF PROF. M. J. DOUSTI & PROF. H. FAILI Large Language Models · Retrieval-Augmented Generation · Fine-tuning (LoRA and Adapters) · Knowledge and Reasoning	<i>University of Tehran</i> Feb. 2024 - Dec. 2024
<b>Technology Enhanced Learning Lab (TELAB)</b> UNDER THE SUPERVISION OF PROF. F. TAGHIYAREH Interactive Learning Object · Personalized Learning · IEEE-LOMs extraction · Avida-ED for generating LOs based on Genetic Algorithm	<i>University of Tehran</i> Mar. 2023 - Aug. 2023
<b>National Brain Centre</b> UNDER THE SUPERVISION OF PROF. F. S. MIRFAZELI Autistic Brain and Learning Process · Automating ToM Assessment and Rehabilitation in Autism with a LLaMA-3-Powered Chatbot	<i>Iran University of Medical Sciences</i> Jul. 2024 - Sep. 2024
<b>Embodied Design Research Lab</b> UNDER THE SUPERVISION OF PROF. D. ABRAHAMSON Reading a paper weekly · A nice feature of these meetings is that we always have the author(s) of the paper join us for more clarification.	<i>University of California, Berkeley</i> Jan. 2024 - Dec. 2024

## Teaching Experience

COURSE MENTOR

Unity Game Development Course Mentor

SUMMER OF CODE AT ACM STUDENT CHAPTER

Jul. 2022 - Oct. 2022

TEACHING ASSISTANT

Reinforcement Learning

Discrete Mathematics

Internet Engineering

HEAD TA

HEAD TA

Data Structures

Engineering Probability and Statistics

Software Engineering

SUPERVISOR

HEAD TA

Algorithm Design

Database Design

Electrical Circuit

## Honors & Awards

2019 <b>Ranked Top 0.2% in Konkour</b> , National Organization of Educational Testing (NOET) <i>Tehran, Iran</i>
2025 <b>TPC Mentorship Fellowship</b> , UCI School of Education <i>Irvine, USA</i>

## Notable Academic Projects

<b>aiedut.ir</b> LEARNING MANAGEMENT SYSTEM Customized LMS to Enhance Learning Experience · Integration with Google Classroom and GPT-based Chatbot · Database Utilizes Postgres with Redis	<i>Cognitive Systems Lab</i> <i>Python, Django, Bootstrap, JavaScript</i>
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## Discord Bot in a Discord Classroom (CSCL)

TA AGENT

Gathers Students' Activity · Monitors Server · Makes Interventions to Encourage Students to be Engaged and Collaborate

Cognitive Systems Lab

Python, JavaScript

## IEEE-LOM Extractor

COMPATIBLE WITH PPTX, DOCX, PDF

Automated IEEE-LOM Extraction · NLP algorithms · Image and Video Processing

E-Learning Lab

TexStat, NLTK, YOLO, python-pptx

## Handwriting Recognition (HWR)

NEURAL NETWORK

Phase 1: Feed-Forward Neural Network from scratch · Phase 2: Neural Network model using Keras and TensorFlow

Artificial Intelligence

Keras, TensorFlow

## Baloot

ONLINE SHOP WEBSITE

A Fully Functioning Amazon clone · Used Tools: CI/CD pipelines, JDBC, JUnit, Github Oauth apps

Internet Engineering

Java, JavaScript, Spring, Tomcat, React

## Pong Game

ANDROID OS AND MOBILE PHONE SENSORS

Accelerometer and Gyroscope sensors · Real-World Formulas for the movement of the Ball and Paddle

Real-time Embedded Systems

Java, Andorid Studio, Canvas

## Work Experience

### Zendegiye Shad Publication

EDITOR

Tehran, Iran

Sep. 2019 - Sep. 2020

- Edited five Persian language books in the field of education, ensuring their clarity, consistency, and adherence to grammatical standards. My contributions to these books include "Implementation of Collaborative Learning," "New Approaches and Methods in Mathematics Education," "Effective Teaching-Learning in Higher Education," "Curriculum Evaluation," and "Co-Teaching."

## Certifications

### Introduction to EdTech

EDHEC BUSINESS SCHOOL

Sep. 2023

### Generative AI with Large Language Models

DEEPLARNING.AI

Jul. 2022

### Fundamentals of Reinforcement Learning

UNIVERSITY OF ALBERTA

Aug. 2023

### LangChain: Chat with Your Data

DEEPLARNING.AI

Jul. 2024

## Volunteer Activities

### Mathematics Teacher

TEACHER

Tehran, Iran

Sep. 2019 - Sep. 2021

- Engaged in voluntary teaching of mathematics to students who can't afford it.

## Skills

### Programming

Advanced: C/C++, Python, Java, Javascript

High Intermediate: C#, SQL, R, HTML/CSS

Intermediate: Verilog, Assembly

Familiar: Stata, GoLang, ShellScript

### Frameworks

LangChain, CrewAI, PydanticAI, PyTorch, TensorFlow

### Technologies

Git, Docker, Kubernetes, Maven, Makefile

### Web Development

React, TomCat, Spring

### Database

MySQL, Postgres, MongoDB, Neo4j, Redis, ElasticSearch

### Operating Systems

Linux, Windows, MacOS, Unix

### Qual Analysis Software

ATLAS.ti, Dedoose

## Languages

**Persian** Native

**English** Professional working proficiency · TOEFL: 97/120 [R:25, L:23, S: 23, W:26] (Oct. 2023)

**Azerbaijani** Fluent

**Kurmanji** Familiar

**Arabic** Basic