

# 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) · LA FUNDAMENTALS (4/4) · NEURAL ARCH OF LANG (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
- Fine-Tuning (LoRA/Adapter) | 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

## Digital Learning Lab

UNDER THE SUPERVISION OF PROF. M. WARSCHAUER

SWE Agent · Automated Essay Scoring · LLMs Fine-tuning

UC Irvine

Jan. 2025 - Present

## Mathe Lab

UNDER THE SUPERVISION OF PROF. S. DOROUDI

LLMs benchmarking Quiz · Performance Analysis

UC Irvine

Jan. 2025 - Present

## LaLA-Lab

UNDER THE SUPERVISION OF PROF. N. NIXON

Human-Computer Interaction · Computational Social Sciences

UC Irvine

Apr. 2025 - Present

## Cognitive Systems Lab

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

University of Tehran

May. 2023 - Dec. 2024

## Remote-University of Queensland

UNDER THE SUPERVISION OF PROF. R. GILLIES

Collaborative Learning · Interactive Learning Environments · Data Analysis using ATLAS.ti · Quantitative and Qualitative Research

University of Queensland

Sep. 2021 - present

## UT NLP group

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

University of Tehran

Feb. 2024 - Dec. 2024

## Technology Enhanced Learning Lab (TELAB)

UNDER THE SUPERVISION OF PROF. F. TAGHIYAREH

Interactive Learning Object · Personalized Learning · IEEE-LOMs extraction · Avida-ED for generating LOs based on Genetic Algorithm

University of Tehran

Mar. 2023 - Aug. 2023

## National Brain Centre

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

Iran University of Medical Sciences

Jul. 2024 - Sep. 2024

## Embodied Design Research Lab

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.

University of California, Berkeley

Jan. 2024 - Present

## 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 HEAD TA

Internet Engineering HEAD TA

#### Data Structures SUPERVISOR

Engineering Probability and Statistics

Software Engineering HEAD TA

#### Algorithm Design

Database Design

Electrical Circuit

## Honors & Awards

2019 **Ranked Top 0.2% in Konkour**, National Organization of Educational Testing (NOET) *Tehran, Iran*

2025 **TPC Mentorship Fellowship**, UCI School of Education *Irvine, USA*

## Notable Academic Projects

### aiedut.com

LEARNING MANAGEMENT SYSTEM

Customized LMS to Enhance Learning Experience · Integration with Google Classroom and Chat GPT · Database Utilizes Postgres with Redis

Cognitive Systems Lab

Python, Django, Bootstrap, JavaScript

### 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

Discord.py, Discord.js

## 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, 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

Android Studio, Canvas

## Work Experience

### Zendegiye Shad Publication

Tehran, Iran

EDITOR

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

Tehran, Iran

TEACHER

Sep. 2019 - Sep. 2021

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

## Skills

### Programming

Advanced: C/C++, Python, Java

High Intermediate: C#, SQL, Javascript

Intermediate: R, LaTeX, Verilog, HTML/CSS

Familiar: Stata, GoLang

### Frameworks

LangChain, CrewAI, PydanticAI, PyTorch, TensorFlow

### Technologies

ATLAS.ti, Excel, Git, Docker, Kubernetes, Maven, Makefile

### Web Development

React, TomCat, Spring

### Database

MySQL, Postgres, MongoDB, Neo4j, Redis, Elasticsearch

### Operating Systems

Linux (Ubuntu), Microsoft Windows, MacOS

## 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