

# ALI KERAMATI

☎ +1 (951) 258-0875 ✉ [a.kera@uci.edu](mailto:a.kera@uci.edu) 🏠 [aliker.github.io](https://aliker.github.io) 🌐 [aliker](https://aliker.com) 🌐 [ali-keramati](https://ali-keramati.com) 🎓 [Google Scholar](https://scholar.google.com/citations?user=...)

## Education

### University of California Irvine

Sep. 2024 – Now

Ph.D in Education Data Science (GPA: 4/4)

Irvine, CA, USA

- **Relevant Courses:** *Neural Networks and Deep Learning, Deep Generative Models, Neural Architecture of Language, Language Models in Cognitive Science, Learning Analytics Practicum, Qualitative Research Methods*

### University of Tehran

Sep. 2019 – Jul. 2024

B.Sc. in Computer Engineering (GPA: 18.51/20)

Tehran, Iran

- **Major Degree Courses:** *Discrete Mathematics, Data Structures and Algorithms, Artificial Intelligence, Machines and Language Theory, Engineering Probability and Statistics, Internet Engineering, Foundations of IT, Large Language Models*
- **Minor Degree in Educational Science Courses:** *Educational Psychology, Instructional Design, Curriculum Development, Intro to Psychological Tests, Teaching Methods, Qualitative and Quantitative Research Methods*

## Research Interests

- Multi-Agent Systems
- LLM Tuning (PEFT/LoRA)
- Alignment (RLHF/RLAIF)
- LLM-as-Judge
- Human-AI Collaboration
- Autonomous Learning Agents

## Work Experience

### Research Scientist Intern at Harvard University

Jul. 2025 - Sep. 2025

Learning Media Lab, PI: Prof. Y. Xu

Cambridge, MA

- Built web-based math experiments comparing AI tutoring vs. no-AI
- Developed *Curio 2*, a **LangGraph**-based science chatbot with scaffolded inquiry, graph-driven dialogue, state management, and **Whisper** for voice interaction.

### Volunteer Research Scientist

Sep. 2025 - Present

**Oumi:** Open Universal Machine Intelligence

Remote

- Improving **LLM judges** for better reasoning and reduced inconsistencies; *TrustJudge*, a framework for more reliable evaluations; Analyzing LLM benchmark failures and proposed solutions.

### AI/ML Engineer

Sep. 2022 - Jul. 2024

Tadvin Farayand Co.

Tehran, Iran

- Analyzed structured ERP and unstructured industrial data; designed AI-driven workflows to enable autonomous collaboration across ERP modules for inventory analysis, document processing, and predictive maintenance.

## Selected Publications

- [1] Keramati A. and Warschauer M. "Application of Multi-Agent Systems for Essay Scoring", [NeurIPS 2025](#) Education Program (Accepted)
- [2] Keramati A., Jie C., Warschauer M. and Shi Y. "Simulating Students' Java Programming Errors with Large Language Models", The International Conference on Learning Analytics & Knowledge ([LAK 2026](#)) (Under Review)
- [3] Tajik E., Shahrokhian B., Borchers C., Keramati A., Simon S., Pal S. and Sankaranarayanan S. "Disagreement as Data: Reasoning Trace Analytics in Multi-Agent systems", The International Conference on Learning Analytics & Knowledge ([LAK 2026](#)) (Under Review)
- [4] Keramati A. and Warschauer M. "The Order Matters: Sequential Fine-Tuning of LLaMA for Coherent Automated Essay Scoring", [ICLR 2026](#) (Under Review)
- [5] Keramati A. and Warschauer M. "MA6S: Multi-Agent Supervisor System for Essay Scoring and Feedback Generation with Teacher in the Loop ", [CSCL 2026](#) (Under Review)
- [6] Keramati A., Zhou S., Mehrotra S., and Warschauer M. "MADRAG as Judge: A Multi-Agent Debate and RAG System for Rubric-Based Evaluation", (Pre-print)
- [7] Fallah A., Keramati A., Nazari M., and Mirfazeli F. "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](#))
- [8] Shahhoseini N., Taghiyareh F., and Keramati A. "iTAG: Easy, Rapid, Automatic Intelligent Tagging for Educational Contents", *2025 29th International Computer Conference, Computer Society of Iran (CSICC)*

## Technical Skills

---

**Programming Languages:** C/C++/C#, Python, Java, JavaScript, R, HTML/CSS, Verilog, Assembly, Stata, SQL  
**Frameworks & Libraries:** LangChain, ReAct, PyTorch, TensorFlow, React, Spring  
**Technologies & Tools:** CUDA, Git, Docker, Kubernetes, Maven, Makefile, Tomcat  
**Databases:** MySQL, Postgres, MongoDB, Neo4j, Redis, Elasticsearch  
**Operating Systems:** Linux, Windows, macOS, Unix  
**Qualitative Analysis Tools:** ATLAS.ti, Dedoose

## Honors & Awards

---

### NeurIPS 2025 — AI Education Program

Accepted Oral Presentation

Oct. 2025

San Diego, CA

### Scholarship Recipient, LearnLab Summer School at Carnegie Mellon University

Awarded funding to attend the program on Computer Science Education Research track at CMU

Jul. 2025

Pittsburgh, PA

### Graduate Ambassador Candidate – TPC Mentor Fellowship at UC Irvine

Chosen to oversee mentor–mentee coordination and selection, enhancing communication and program engagement

Jun. 2025

Irvine, CA

### Top 10 — B.Sc. Computer Engineering (2019 cohort) at University of Tehran

Ranked within the top 10 of the graduating cohort based on cumulative GPA

Jul. 2024

Tehran, Iran

### Top 0.1%, Konkour — National University Entrance Exam

Ranked among hundreds of thousands of examinees; admitted to B.Sc. in CE at Iran's top-ranked university

Aug. 2019

Iran

## Selected Research Projects

---

### University of California, Irvine

- *PapyrusAI*: Developed a GPT-based generative writing coach with a **multi-agent RAG pipeline** and autonomous reasoning, enabling to decide when to call tools, functions, or perform web searches. Integrated **fine-tuned BERT** for labeling argumentative essays and **LLaMA-3.1-8B** with **LoRA** + 4-bit **quantization** for essay evaluation.
- Built LLM-powered collaborative classmates with controllable dialogue behaviors; added **GPT-Realtime** voice interaction for **multimodal** problem-solving.
- Analyzed multi-year quiz data to assess the impact of AI usage on student outcomes. **Benchmarked LLMs** on the same assessments to evaluate their proficiency in answering quiz questions.
- Developed an **automated grading and feedback system** for weekly assignments and co-built an **AI detection system** using LLMs to identify AI-generated submissions based on writing patterns, timing, and key concepts.

### LearnLab Summer School (2025) at Carnegie Mellon University

- Built a multi-agent **student simulator + verifier** using LLMs to generate Java programs with realistic logical errors. Benchmarked against 74,000+ CodeWorkout submissions and single-agent LLMs. Evaluated error diversity and fidelity with **ASTs** and **ZSS** tree edit distance, using **Input-Output**, **Chain-of-Thought**, and **Self-Refine** prompting strategies.

### University of Tehran

- Developed an Open Learner Model integrated with an LLaMA-based personalized tutor within the LMS aiedut.ir; fine-tuned the model via Reinforcement Learning from Human Feedback (**RLHF**) to deliver adaptive feedback for personalized learning.
- Implemented parameter-efficient fine-tuning (**PEFT**) and **RAG** stack with chunking, vector retrieval, re-ranking, and context compression to improve domain-specific reasoning performance.
- Automated generation of interactive learning modules from **IEEE LOM metadata** and integrated Avida-ED simulations; applied genetic algorithms to personalize activity parameters and difficulty levels.
- Built a **LLaMA-3-80B-based chatbot** to administer and evaluate the FPRT assessment through interactive rehabilitation dialogues with adaptive hints, automated scoring (**LLM-as-judge**), and clinician-ready reporting.