

# ALA N. TAK

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## Education

**University of Southern California**

August 2021-August 2025

Ph.D, Computer Science

GPA: 4.0/4.0

**University of Southern California**

May 2022-December 2024

M.Sc., Computer Science

GPA: 4.0/4.0

Graduate courses: Analysis of Algorithms, Artificial Intelligence, Database Systems, Affective Computing, Probability, Text as Data, Programming Systems Design, Natural Language Dialog Systems

Selected DeepLearning.AI course certificates: Deep learning specialization, Natural Language Processing specialization, ML Specialization

## Professional Experience

**Affective Computing & Intelligent Interactive Agents, Los Angeles, US**

May 2023-Present

Research assistant

- Explore zero-shot emotional reasoning abilities of LLMs against human appraisal theory employing OpenAI API (ACII "Is GPT a computational model of emotion?", "GPT-4 Emulates Average-Human Emotional Cognition from a 3rd Perspective")
- Design different transformer architectures to include an understanding of situational appraisal when reasoning about textual emotion expression to enhance language models' emotional reasoning deploying Llama 2, RoBERTa, and Mistral
- Initiate a group project to create an empathic dialog model leveraging a mixture of agents and RL with models and methods such as DialoGPT, Llama 3, Mistral, Reinforce, PPO, and TRL
- Deploy Hugging Face, Pytorch, OpenAI API, JavaScript, RoBERTa,

**Center for Intelligent Environments (CENTIENTS), Los Angeles, US**

May 2021-May 2023

Research assistant

- Developed a framework for investigating acceptance of smart home technologies using structural equation modeling on relevant usability constructs conducted under Prof. Gale Lucas utilizing R Studio, Lavaan, and Pandas
- Published "A framework for investigating acceptance of smart home technologies: Findings for residential smart" employing Structural Equation Modeling (SEM), R, SPSS AMOS

**University of Tehran R&D Center, Tehran, Iran**

August 2018-May 2021

Research assistant

- Led five research projects involving more than ten faculty members and 25 graduate student researchers to enhance efficiency in automated construction processes such as robotic crane operations operating on SQL Server and Visual Basic
- Collaborated on a team to develop and implement an innovative construction safety training program leveraging Virtual Reality (VR) and Augmented Reality (AR) technologies utilizing C#, Unity
- Published a journal paper titled "A deep RL model for UAV path planning incorporating vehicle dynamics with acceleration control" deploying DDPG [OpenAI Gym]
- Led a project "ML for construction crew productivity prediction using daily work reports" AdaBoost, [Scikit]
- Collaborated on project "Optimized mobile crane path planning in discretized polar space" based on Dijkstra's algorithm [VB, SQL] and "Evaluating lift operations using an interactive VR system on Unity [C#]

## Computer Skills

Programming Languages: Python (preferred language), Java, C++, R, SQL, Shell script

Frameworks / SDKs: PyTorch, TensorFlow, Keras, Jupyter, scikit-learn, JAX, MySQL, git