




ALA N. TAK

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EDUCATION

Ph.D., Computer Science, University of Southern California **GPA: 4.00** August 2023 – Expected: August 2025

M.Sc., Computer Science, University of Southern California **GPA: 4.00** May 2021 – May 2024

Selected graduate courses: Analysis of Algorithms, Artificial Intelligence, Database Systems, Affective Computing, Probability, Text as Data, Programming Systems Design

Selected online course certificates: Deep learning specialization (DeepLearning.AI), Natural Language Processing specialization (DeepLearning.AI), Machine Learning Specialization (DeepLearning.AI)

SELECTED WORK EXPERIENCE

Research assistant, Affective Computing & Intelligent Interactive Agents, PI: Prof. Jonathan Gratch

May 2023 – Present

- Current project: Exploring and enhancing **emotional reasoning abilities of Large Language Models (LLMs)**
- Designing transformer architecture to include understanding of situational appraisal when reasoning about textual emotion expression
- **Hugging Face, Pytorch, OpenAI API, JavaScript, BERT, RoBERTa, Longformer**

Research assistant, Center for Intelligent Environments (CENTIENTS), PI: Prof. Gale Lucas

May 2021 – May 2023

- Developed a framework for investigating the acceptance of **smart home technologies** using structural equation modeling on relevant usability constructs.
- **R Studio, Lavan, SPSS, AMOS, Pandas**

Research assistant, University of Tehran R&D Center, PI: Prof. Hosein Taghaddos

August 2018 – May 2021

- **Automation and robotics in construction:** integrated automation and robotics to enhance efficiency and precision in construction processes
- **VR/AR-enabled safety training:** developed and implemented an innovative safety training program using Virtual Reality (VR) and Augmented Reality (AR) technologies
- **Visual Basic, C#, Unity, SQL Server, Visual Studio**

SELECTED PUBLICATIONS

Emotional cognition ability of GPT-4 and ChatGPT

- (2023). Is GPT a computational model of emotion? *OpenAI API, [JavaScript]*

Acceptance of smart home technologies

- (2023). A framework for investigating the acceptance of smart home technologies: Findings for residential smart HVAC systems. *Structural Equation Modeling (SEM), [R, SPSS AMOS]*

Automation, robotics, augmented & virtual reality

- (2023). A Deep Reinforcement Learning Approach for UAV Path Planning Incorporating Vehicle Dynamics with Acceleration Control. *DDPG, [OpenAI Gym]*
- (2023). Machine learning for construction crew productivity prediction using daily work reports. *AdaBoost, [Scikit]*
- (2021). Optimized mobile crane path planning in discretized polar space. *Dijkstra's algorithm, [VB, SQL]*
- (2021). Evaluating mobile crane lift operations using an interactive virtual reality system. *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