Ala N. Tak

nekouvag@usc.edu Ala N. Tak Ala N. Tak GoogleScholar/~AlaNTak

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**, **Lavaan**, **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