ALA N. TAK

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Education

University of Southern California August 2021-August 2026
PhD, Computer Science
GPA: 4.0/4.0

University of Southern California May 2021- May 2024
MSc, Computer Science
GPA: 4.0/4.0

Professional Experience

Institute for Creative Technologies, Los Angeles, US May 2023-Present
Research assistant

- Explore zero-shot emotional reasoning abilities of LLMs (GPT3.5 - GPT-4) against humans based on appraisal theory employing OpenAI API
- Investigate impact of LLMs (GPT3.5, Llama 2, Gemini) on linguistic markers of psychological traits -political affiliation, personality, empathy, and morality
- Investigate perspective-taking of LLMs when confronted with emotionally charged situations in everyday natural situations and
- 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

University of Southern California, 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 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 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
- Collaborated on developing a UAV path planner considering vehicle dynamics and incorporating Deep Deterministic Policy Gradient implemented on OpenAI Gym environment
- 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#]

Publications

- ACII 2024, "GPT-4 Emulates Average-Human Emotional Cognition from a 3rd Person Perspective"
- arXiv 2024, "Secret Keepers: The Impact of LLMs on Linguistic Markers of Personal Traits"
- Unmanned Systems 2024, "A Deep Reinforcement Learning Approach for UAV Path Planning Incorporating Vehicle Dynamics with Acceleration Control"
- ACII 2023: "Is GPT a computational model of emotion?"

Relevant Coursework

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

Certificates

- DeepLearning.AI Deep learning specialization
- DeepLearning.AI Natural Language Processing specialization
- DeepLearning.AI Machine Learning Specialization
- DeepLearning.AI Generative AI with Large Language Models

Technical Skills

- Programming Languages: Python (preferred language), Java, C#, C++, R, SQL, Shell script
- Frameworks / SDKs: PyTorch, TensorFlow, Hugging Face, Keras, Jupyter, scikit-learn, JAX, MySQL, Hadoop, Spark, SPSS, git