Soroush Shahi

Chicago, IL, United States
soroush@northwestern.edu

+1 (312) 375-4466
soroush-shahi.com

EDUCATION

PhD, Computer Science, *Northwestern University, Evanston, IL* — **Present**
Bachelor of Science, Computer Engineering, *University of Tehran, Tehran, Iran* — **2020**

EXPERIENCE

Research Intern - Apple Inc. — **2023**
- Submitted two research papers, built two demos, and filed one patent.
- Developed a prototype app used internally by a design team for rapid prototyping of hand gestures.
- Worked on machine-learning projects focusing on computer vision, sensing, and interaction technologies.

Research Assistant - Northwestern University — **2021-Present**
- Participating in applied research projects that include deep learning, data collection, and experiment design.
- Leading research to automate the detection of health-related human activities using wearable devices in real-world settings.

Instructor - Northwestern University — **2022-Present**
- Co-instructor and workshop designer to teach human activity recognition using wearable sensors.
- Teaching assistant and guest lecturer for CS 211, fundamentals of computer programming II.

iOS Developer - Remote — **2016-2018**
- Helped multiple startups with building iOS applications that offered services such as parking payments and photo album maker.

SKILLS

Deep Learning
- Experienced in implementing generative AI architectures such as Transformers and LLMs.
- Familiar with few-shot learning techniques such as meta-learning, and metric-learning.
- Skilled in analyzing and interpreting data from multi-modal wearable sensors using deep representations.

Data/Software Engineering
- Experienced in organizing sensor data and building data loaders using Python and PyTorch.
- Experienced in organization and annotation of unstructured large-scale dataset using technical approaches.
- Proficient in using Python for end-to-end deep learning algorithm development.
- Experienced with Swift and Objective-C for developing interactive experiences.

SELECTED PAPERS

THOR: Thermal-guided Hand-Object Reasoning via Adaptive Vision Sampling — *Under Review*
Soroush Shahi, Farzad Shahabi, Rama Naboulsi, Nabil Alshurafa

Vision-Based Hand Gesture Customization from a Single Demonstration — **ACM UIST 2024**
Soroush Shahi, Cori Park, Asaf Liberman, Oron Levy, Jun Gong, Richard Kang, Kareem Bedri, Gierad Laput

When2Trigger: Evaluation Trade-offs in Vision-based Real-Time Eating Detection Systems — **BSN 2024**
Soroush Shahi, Glenn Fernandes, Chris Romano, Nabil Alshurafa

SmokeMon: Unobtrusive Extraction of Smoking Topography Using Wearable Energy-Efficient Thermal — **ACM IMWUT 2023**
Rawan Alharbi, Soroush Shahi, Stefany Cruz, Sougata Sen, Bonnie Spring, Aggelos Katsaggelos, Josiah Hester, Nabil Alshurafa

Detecting Eating, and Social Presence with All Day Wearable RGB and IR — **ACM CHASE 2023**
Soroush Shahi, Sougata Sen, Yang Gao, Amit Adate, Rawan Alharbi, Aggelos Katsaggelos, Josiah Hester, Nabil Alshurafa

Impacts of Image Obfuscation on Fine-grained Activity Recognition in Egocentric Video — **PerCom 2022**
Soroush Shahi, Rawan Alharbi, Yang Gao, Sougata Sen, Aggelos K Katsaggelos, Josiah Hester, Nabil Alshurafa

Moonwalk: Advancing Gait-Based User Recognition on Wearable Devices with Metric Learning — *Under Review*
Asaf Liberman, Oron Levy, Soroush Shahi, Cori Park, Jun Gong, Richard Kang, Kareem Bedri, Gierad Laput

PATENTS

Vision-Based Hand Gesture Customization
Method and Device for Unobtrusive Extraction of Smoking Topography

MEDIA

The new 'necklace' could help cigarette smokers quit — **FOX 32 Chicago**
Data-tracking necklace helps smokers kick habit — **WGN9**