

# 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

**Hand-related Activity Recognition with Multi-modal Large Language Models (PhD Thesis)** **Under Review**  
[Soroush Shahi](#), [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 IMMUT 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 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**  
**Data-tracking necklace helps smokers kick habit**

**FOX 32 Chicago**  
**WGN9**