

# Soroush Shahi

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## EDUCATION

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| <b>PhD, Computer Science</b> , <i>Northwestern University, Evanston, IL</i>                  | <b>2024 (Expected)</b> |
| <b>Bachelor of Science, Computer Engineering</b> , <i>University of Tehran, Tehran, Iran</i> | <b>2020</b>            |

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## EXPERIENCE

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| <b>Research Intern - Apple Inc.</b> | <b>2023</b> |
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- Submitted two papers, built two demos, and filed one patent.
- Engaged in machine-learning projects focusing on sensing and interaction technologies.

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| <b>Research Assistant - Northwestern University</b> | <b>2021-Present</b> |
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- 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.

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| <b>Instructor - Northwestern University</b> | <b>2022-Present</b> |
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- Co-instructor and workshop designer to teach human activity recognition using wearable sensors.
- Teaching assistant for CS 211, fundamentals of computer programming II.

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| <b>iOS Developer - Remote</b> | <b>2016-2018</b> |
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- Helped multiple startups with building iOS applications that offered services such as parking payments and photo album maker.

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## SKILLS

### Deep Learning

- Proficient in deep learning fundamentals and optimization techniques.
- Experienced in implementing advanced architectures such as Transformers.
- Familiar with few-shot learning techniques such as meta-learning, and metric-learning.
- Skilled in analyzing and interpreting data from 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.

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## SELECTED PAPERS

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

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

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

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

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| <b>SmartAct: Energy Efficient and Real-Time Hand-to-Mouth Gesture Detection Using Wearable RGB-T</b> | <b>BSN 2022</b> |
| Soroush Shahi, Mahdi Pedram, Glenn Fernandes, Nabil Alshurafa  |                 |

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| <b>Impacts of Image Obfuscation on Fine-grained Activity Recognition in Egocentric Video</b>             | <b>PerCom 2022</b> |
| Soroush Shahi, Rawan Alharbi, Yang Gao, Sougata Sen, Aggelos Katsaggelos, Josiah Hester, Nabil Alshurafa |                    |

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## PATENTS

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

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## REFERENCES

Nabil Alshurafa — Northwestern University  
Aggelos Katsaggelos — Northwestern University  
Gierad Laput — Apple Inc.