

Saehui Hwang

saehui@stanford.edu | (310) 596-9490 | saehuihwang.github.io
Cognitively grounded HCI | Human-AI interaction | Creative tools

EDUCATION

Stanford University

PhD Candidate, Mechanical Engineering; expected December 2027
Knight-Hennessy Scholar; adviser: Sean Follmer, SHAPE Lab

2022 - Present
Stanford, CA

California Institute of Technology

B.S., Electrical Engineering; GPA: 3.9/4.0

2018 - 2022
Pasadena, CA

RESEARCH EXPERIENCE

Stanford University, SHAPE Lab

Doctoral Research

Jun 2024 - Present
Stanford, CA

- Research multimodal media design and comprehension, drawing on cognitive science, computational modeling, interactive system design, and co-design.
- Developed a presentation framework grounded in event cognition and implemented it on a tangible display using mobile robots to represent basketball plays. Evaluated spatiotemporal understanding with eight blind and low-vision adults (CHI, under review).
- Modeled non-visual touchscreen exploration as a partially observable Markov decision process (POMDP), using particle filtering and Monte Carlo planning (CHI EA 2025).
- Conducted co-design research on teaching data and statistics to blind and low-vision students (CHI 2025).

Adobe

Research Intern

2025
New York, NY

- Built CapSmith, a tool for refining narrative text overlays in video (TypeScript, React, and Node.js); published as first author at Creativity & Cognition 2026.
- Integrated Gemini 2.5 Pro to infer video context and caption intent, expose editable interpretations, and proposed alternatives.
- Conducted studies with 18 video creators examining creative processes, caption refinement and authorship.

Nuro

Robotics Intern

2021
Mountain View, CA

- Led development of an optical simulation tool for a LiDAR prototype; the team used it to explore optimizing beam-scanning patterns across optical configurations.
- Designed and built rain and fog chambers to investigate LiDAR behavior and point-cloud ghosting; discussed findings with the perception team.
- Built an interactive dashboard for ADC waveforms and wrote incoming quality-control test scripts for LiDAR configuration using a REST API.

Seoul National University, Soft Robotics and Bionics Lab

Research Intern

2021
Seoul, South Korea

- Developed sensor-embedded inflatable skin and a pneumatic control system for quadruped robots.
- Implemented sensor communication over I2C and SPI and a multiclass neural network to infer impact location from pressure-sensor data.

NASA Jet Propulsion Laboratory

Research Intern

2019
Pasadena, CA

- Developed simulation software for Starshade exoplanet mission planning, modeling noise and planetary variables with point-spread functions; shared with WFIRST, HabEx, and Exo-S teams.

SELECTED PUBLICATIONS

S. Hwang, J.-P. Chou, A. Truong. CapSmith: Contextual Refinement of Additive Text Captions for Video Storytelling. *Creativity & Cognition* 2026.

S. Hwang, R. J. Moss, D. Fan, S. Follmer. Computational Modeling of Non-Visual Vibrotactile Touchscreen Exploration. *CHI Extended Abstracts* 2025.

D. Fan, O. Tomassetti, A. Mouallem, G. S.-H. Kim, S. N. Patel, **S. Hwang**, et al. Promoting Comprehension and Engagement in Introductory Data and Statistics for Blind and Low-Vision Students: A Co-Design Study. *CHI* 2025.

T. Kim, S. Lee, S. Chang, **S. Hwang**, Y.-L. Park. Environmental adaptability of legged robots with cutaneous inflation and sensation. *Advanced Intelligent Systems* 2023.

CREATIVE PRACTICE AND LEADERSHIP

Busan International Film Festival 2024 - 2026
AI Curator, Technology Specialist, Asian Contents and Film Market Busan, South Korea

- Curated the Busan Innovation Story Market and facilitated discussions on emerging technologies in storytelling and production, connecting filmmakers with AI, AR/VR, and game professionals.

Darwin200 Jun 2023 - May 2024
Executive Producer South America

- Led production of 29 wildlife film projects across five South American countries, coordinating fieldwork, shooting, and equipment procurement.
- Mentored young filmmakers from more than 10 countries throughout production.

Torres del Paine Legacy Fund 2023
Director Chile

- Directed a three-part film series on conservation in Torres del Paine National Park, from scripting and filming through editing and post-production.

TEACHING AND MENTORING

Teaching Assistant, Stanford 2026
Human-Computer Interaction Seminar (CS 547)

Teaching Assistant, EPFL and TU Dresden 2023
Programming in the Biological Sciences (EPFL); Statistical Inference in the Biological Sciences (TU Dresden)

Teaching Assistant, Caltech 2019 - 2022
Mechatronics; classical mechanics and electromagnetism; quantum and statistical physics

Undergraduate Mentoring, Stanford 2025 - Present

SELECTED HONORS

Knight-Hennessy Scholar, Stanford University 2022 - 2026

Thomas J. Watson Fellowship 2022
One-year fellowship for independent international exploration

Mabel Beckman Prize, Caltech 2022
Recognized for academic excellence, leadership, and contributions to the Caltech community

Clark Prize, Caltech 2021
Awarded to two students for academic excellence and service