

# Hee Jeong Han

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## Education

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### Pennsylvania State University

Doctor of Philosophy in Informatics

University Park, Pennsylvania, U.S.A

Aug. 2020 - Aug. 2025

- Advisor: Saeed Abdullah

- Dissertation: Designing Digital Health Technologies for Serious Mental Illnesses: Enabling Self-Management and Collaborative Care

### University of California, Irvine

Master of Science in Computer Science

Irvine, California, U.S.A

Sep. 2017 - Jun. 2019

- Advisor: Nikil Dutt

- Thesis: Objective Stress Monitoring based on Wearable Sensors in Everyday Settings

### Ewha Womans University

Bachelor of Science in Computer Science and Engineering

Seoul, Korea

Mar. 2012 – Feb. 2017

- Advisor: Dong Sub Cho

- ABEEK (Accreditation Board for Engineering Education of Korea)

## Research Experience

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### Dartmouth Center for Technology and Behavioral Health

Department of Biomedical Data, Geisel School of Medicine, Dartmouth

Hanover, New Hampshire, U.S.A

Postdoctoral Fellow

Aug. 2025 - present

- Designing and implementing next-generation AI-driven mental health interventions by leveraging multimodal data analysis to develop and evaluate adaptive, personalized support systems for undergraduate well-being using generative AI and passive sensing.

### Wellbeing & Health Innovation (WHI) Lab

College of Informatics Science and Technology, Pennsylvania State University

University Park, Pennsylvania, U.S.A

Graduate Research Assistant

Aug. 2020 - Aug. 2025

- Conducted qualitative research to address challenges faced by care partners of individuals with bipolar disorder, designing collaborative fintech solutions with a user-centered approach.
- Designed and tested conversational AI agents for mental health support, including usability studies to evaluate user satisfaction.
- Gained experience understanding multiple perspectives, including clinicians, individuals with mental illness, and their care partners.
- Developed deep learning models for analyzing mental health symptoms through text data (e.g., PTSD, dementia).
- Built a Chrome extension tool that informs users about their disclosing behaviors. It is powered by a BERT-based objective disclose detection model.

### Dutt Research Group

Department of Computer Science, University of California, Irvine

Irvine, California, U.S.A

Graduate Research Assistant

Jun. 2018 – Jul. 2019

- Developed stress-monitoring systems utilizing PPG, ECG, and GSR sensors, optimizing usability in real-world environments.
- Designed and implemented machine learning algorithms for wearable health monitoring.
- Analyzed motion artifacts affect stress assessment and filter the low-confidence readings to minimize false alarms, using deep learning techniques such as CNNs

### Computer Architecture and System Design Laboratory

Department of Computer Science and Engineering, Ewha Womans University

Seoul, Korea

Undergraduate Research Assistant

Aug. 2015 – Jun. 2016

- Developed a pedestrian counting system incorporating Adaptive-DBSCAN and novel hardware designs (F-pad and Sonic-Bar)

## Publications

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**Hee Jeong Han**, Johnna Blair, Jeff Brozena, Dahlia Mukherjee, Erika F. H. Saunders, and Saeed Abdullah, "Designing Collaborative Fintech: Identifying Care Partner Goals and Challenges for Supporting the Financial Lives of Those with Bipolar Disorder," in *CHI 2025 Workshop on the Future of Money and HCI*, 2025

Jeff Brozena, Johnna Blair, **Hee Jeong Han**, Manar Hesino, Dahlia Mukherjee, Erika F. H. Saunders, and Saeed Abdullah, "The Currency of Mood: The Use of Open Banking APIs to Better Understand Spending and Bipolar Disorder," in *CHI 2025 Workshop on the Future of Money and HCI*, 2025

**Hee Jeong Han**, Sanjana Mendu, Beth K Jaworski, Jason E Owen, and Saeed Abdullah, "Assessing Acceptance and Feasibility of a Conversational Agent to Support Individuals Living with Post-traumatic Stress Disorder," in *Digital Health*, 10, 2024

**Hee Jeong Han**, Sanjana Mendu, Beth K Jaworski, Jason E Owen, and Saeed Abdullah, "Preliminary Evaluation of a Conversational Agent to Support Self-management of Individuals Living with PTSD: An Interview Study with Clinical Experts," in *JMIR Formative Research*, 7, e45894 2023

**Hee Jeong Han**, Suhas BN, Ling Qiu, and Saeed Abdullah, "Automatic Classification of Dementia using Text and Speech data," in *Multimodal AI in Healthcare*, pp. 399-407. Springer, Cham 2022

**Hee Jeong Han**, Sanjana Mendu, Beth K Jaworski, Jason E Owen, and Saeed Abdullah, "PTSDDialogue: Designing a Conversational Agent to Support Individuals with Post-Traumatic Stress Disorder," in *Adjunct Proceedings of the 2021 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2021 ACM International Symposium on Wearable Computers (UbiComp '21)* 2021

**Hee Jeong Han**, Sina Labbaf, Jessica L. Borelli, Nikil Dutt, and Amir M. Rahmani, "Objective stress monitoring based on wearable sensors in everyday settings," in *Journal of Medical Engineering & Technology* 44, no. 4: 177-189, 2020

**Hee Jeong Han**, Miso Kwon, You Hyun Kang, Dong Sub Cho, "Pedestrian Management System for Real-time Pedestrian Detection," in *Proceedings of Korea Multimedia Society Conference of the Spring*, 2016

- Best Paper Award

**Hee Jeong Han**, You Hyun Kang, Miso Kwon, Dong Sub Cho, "Pedestrian Pattern Classification For the Pedestrian Counting Systems using Key Matrix," in *Proceedings of Korea Computer Congress*, 2016

- Best Paper Award

**Hee Jeong Han**, You Hyun Kang, Miso Kwon, Dong Sub Cho, "Pedestrian Safety Management Systems based on Multiple-input enabled F-pad," in *Proceedings of The Korean Institute of Electrical Engineers(KIEE) Summer Conference*, 2016

You Hyun Kang, Miso Kwon, **Hee Jeong Han**, Dong Sub Cho, "A System on the Formation of Pedestrian Pattern for Pedestrian Volume Analysis," in *Proceedings of The 2016 Spring Conference of the Korea Information Processing Society (KIPS)*, 2016

Miso Kwon, You Hyun Kang, **Hee Jeong Han**, Dong Sub Cho, "Adaptive for time-varing clustering DBSCAN," in *Proceedings of 2016 Information and Control Symposium*, 2016

## Presentations

**Hee Jeong Han**, "Large Language Models for Context-Aware Conversational Decision-Making in Digital Mental Health," *Symposium: Building an Intelligent Mental Health App: Integrating Passive Sensing, Prediction, and Conversational AI Interventions, Technology in Psychiatry Summit (TIPS)*, 2025

## Posters

**Hee Jeong Han**, Suhas BN, Ling Qiu, and Saeed Abdullah, "Dementia Diagnosis using Text and Speech Data," in *ICDS Fall 2022 Symposium: Data Science, AI, and a Sustainable, Resilient, and Equitable Future*, 2022

**Hee Jeong Han**, Suhas BN, Ling Qiu, and Saeed Abdullah, "ACOUSTICS : AutomatiC classificatiOn of sUbjectS with demenTia and healthy Controls using text transcriptions and Speech data," in *36TH AAAI Conference on Artificial Intelligence*, 2022

# Extracurricular Activities

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## Grace Hopper Celebration

Attendee

Philadelphia, Pennsylvania, USA

Oct. 2024

- World's largest tech conference for women and nonbinary people, focused on technology and innovation.

## W3PHIAI-22 Data Hackathon/Challenge

First Winner

Mar. 2022

- Built an ensemble model with two deep learning-based architectures for text and speech analysis. The model achieved 89.8% accuracy when classifying individuals with dementia and health controls.

## Ubicomp/ISWC 2021

Student Volunteer

Sep. 2021

- Assisted with the organization and management of the conference, supported speakers and attendees, and facilitated smooth event operations.

## CRA-WP Grad Cohort for Women

Attendee

Apr. 2021

- A mentoring workshop that supports women graduate students in computing, offering guidance on academic and career advancement, networking, and professional development.

## International Summer Undergraduate Research Fellowship

Mentor

University of California, Irvine

Jun. 2018 – Aug. 2018

- Mentored undergraduate researchers working on healthcare IoT.

## Health Technology Assessment International 10th Annual Meeting

Student Volunteer

Seoul, Korea

Jun. 2013

- Aided foreign speakers and audience with administrative support, and managed keynote back-up system.

## Career Mentoring

Leader of IT section Team

Ewha Womans University

Mar. 2013 – Jun. 2013

- Researched Korean software and network equipment market from a prospected technology report, and also researched future technology such as Google Glass and 3Doodler.

# Skills

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## AI & Machine Learning

Deep learning (transformers, CNNs, RNNs), self-supervised learning, time-series analysis, NLP for health applications.

## Research Methods

User-Centered Design, Experimental Research, Usability Testing, Clinical Data Analysis, Human Subjects Research.

## Programming & Tools

Python, MATLAB, R, C/C++, Java, JavaScript, TensorFlow, PyTorch, SQL, Git, LATEX (Overleaf)

## Data Science & Engineering

Statistical modeling, data visualization, large-scale healthcare data processing.

# Teaching Experience

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2025 Spring	IST 597: Human Centered Artificial Intelligence
2023 - 2024	IST 525: Computer-Supported Cooperative Work
2023 - 2024	IST 311: Object-Oriented Design and Software Applications
2023 Fall	IST 520: Foundations of Human-Centered Design
2022 - 2023	HCDD 340: Human-Centered Design for Mobile Computing
2022 Fall	HCDD 264: Design Practice in Human-Centered Design and Development

## Awards

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2016	Silver Prize 2016 Ewha Engineering Student Portfolio Contest
2014	Hoakipa Scholarship University of Hawaii at Manoa <i>Manoa, Hawaii, U.S.A</i>
2012	Merit Scholarship Megastudy Group <i>Seoul, Korea</i>

## Work Experience

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### Mother Tongue

*Seoul, Korea*

Editor, Writer

*Feb. 2017 – Aug. 2017*

- Edited “Visual Phonics” for children learning English phonics first with images and songs. I wrote and edited “Middle School English Grammar 3800” series for 7th to 9th grade students.

## Certification

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### Level 2 of Test Of Practical Competency in ICT (TOPCIT)

TOPCIT is a performance-evaluation-centered test designed to diagnose and assess the competency of ICT specialists and SW developers critically needed to perform jobs on the professional frontier.

### Accreditation Board for Engineering Education of Korea (ABEEK)

Korean version of Accreditation Board for Engineering and Technology (ABET)

**References available upon request.**