

# Hee Jeong Han

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## Education

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### Pennsylvania State University

Doctor of Philosophy in Informatics

- Advisor: Saeed Abdullah

University Park, Pennsylvania, U.S.A

Aug. 2020 - Present

### University of California, Irvine

Master of Science in Computer Science

- Advisor: Nikil Dutt
- Thesis title: Objective Stress Monitoring based on Wearable Sensors in Everyday Settings

Irvine, California, U.S.A

Sep. 2017 - Jun. 2019

### Ewha Womans University

Bachelor of Science in Computer Science and Engineering

- Advisor: Dong Sub Cho
- ABEEK (Accreditation Board for Engineering Education of Korea)

Seoul, Korea

Mar. 2012 - Feb. 2017

### University of Hawaii at Manoa

Exchange Student [22 credits]

Manoa, Hawaii, U.S.A

Jan. 2014 - Dec. 2014

### École pour l'informatique et les techniques avancées

Summer course for Web Security [3 credits]

- Graduate School of Computer Science and Advanced Technologies

Paris, France

Jul. 2013

## Publications

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**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 2023

**Hee Jeong Han**, Sanjana Mendu, Beth K Jaworski, Jason E Owen, and Saeed Abdullah, "PTSDialogue: 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-varying clustering DBSCAN," in *Proceedings of 2016 Information and Control Symposium*, 2016

## 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

## Research Experience

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### 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 - Present

PTSDialogue - A conversational agent to sustain patient engagement in PTSD

Aug. 2020 - Present

- Develops a conversational agent that can deliver therapeutic content and provide supportive accountability in PTSD and assesses feasibility and acceptability of the developed conversational agent for sustaining engagement with patients with PTSD.

### Dutt Research Group

Department of Computer Science, University of California, Irvine

Irvine, California, U.S.A

Graduate Research Assistant

Jun. 2018 – Jul. 2019

Healthcare IoT - Ubiquitous Stress Monitoring using Shimmer's Device

Jun. 2018 – Jul. 2019

- Proposed a new stress monitoring system. Its algorithm, using PPG, ECG and GSR sensors on wearable device, predicts stress level in everyday settings.

### Computer Architecture and System Design Laboratory

Department of Computer Science and Engineering, Ewha Womans University

Seoul, Korea

Undergraduate Research Assistant

Aug. 2015 – Jun. 2016

Multimodal Pedestrian Counting System using Key-Matrix pad and Sonic-Bar

Aug. 2015 – Jun. 2016

- Proposed new pedestrian counting system. It contains two algorithms, Adaptive-DBSCAN and Pedestrian Algorithm. and two new hardware, F-pad and Sonic-Bar.

## Projects

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### Machine Learning in Healthcare Project

Detecting Mental Health Symptoms From Text Data Enhanced by ChatGPT

Jan. 2023 - Present

- Built a deep learning-based model to assess mental health symptoms from text data. The model achieved 90.4% accuracy. Also, the model will be enhanced by labels generated by ChatGPT after evaluating the accuracy of the annotations.

### W3PHIAI-22 Data Hackallenge Project

Automatic Classification of Dementia using Text and Speech data

Feb. 2022 - 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.

### Human-Centered Design Project

WiSDoM: Guiding Internet Users Toward Safer Privacy Decisions

Jan. 2021 – Jun. 2021

- Built a Chrome extension tool that informs users about their disclosing behaviors. It is powered by a BERT-based objective disclosure detection model.

## IoT Data Management Project

Acquisition Manager

Apr. 2019 – Jun. 2019

- Built acquisition manager of the Perpetual DB, which requires a way to pass the raw data from various sources. The acquisition engine will handle message passing from various sources to the ingestion engine on Apache Kafka.

## Individual Research Project

Stress Monitoring with PPG and GSR

Apr. 2018 – Jun. 2018

- Built the stress monitoring system using PPG sensor and GSR sensors on SHIMMER device. It contains the server, database and application for gathering data and showing the result.

## Health Intelligence Project

Stress Monitoring with food intake

Apr. 2018 – Jun. 2018

- Investigated the relation between stress and food intake based on heart rate and heart rate variability.

## Embedded System Project

Physiological signals Monitoring

Sep. 2017 – Dec. 2017

- Calculated heart rate, respiration rate, and SPO2 based on collected data from hardware including PPG sensor and 3D accelerometer and investigated the relation between physiological signals and daily activities.

## Computer Network Project

Long Life to you

Sep. 2016 – Dec. 2016

- Built a network between IoT devices and servers to provide exercise service for elder people.

## Smart Software Project

Fettler

Mar. 2015 – Jun. 2015

- Investigated the sewage system using a Smart Car based on Arduino hardware. It finds the path autonomously based on infrared sensors for exploration of the sewage.

## Teaching Experience

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

## Awards

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2021	CRA-WP Grad Cohort for Women
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>

## Extracurricular Activities

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### W3PHIAI-22 Data Hackallenge (Hackathon/Challenge)

First Winner

Mar. 2022

- Develop an analysis pipeline for combining data from two separate datasets of audio recordings and transcriptions of picture descriptions performed as part of neuropsychological testing and with the corresponding metadata to discriminate between or characterize participants with dementia and healthy controls.

## Ubicomp/ISWC 2021

Student Volunteer

Sep. 2021

## International Summer Undergraduate Research Fellowship

Mentor

University of California, Irvine

Jun. 2018 – Aug. 2018

- Mentored undergraduate researchers working on healthcare IoT

## 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

## Work Experience

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### Mother Tongue

Editor, Writer

Seoul, Korea

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.

### Health Technology Assessment International 10th Annual Meeting

Conference Staff

Seoul, Korea

Jun. 2013

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

## Skills

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### Research Methods

Experimental Research, Surveys, Interviews, Usability Testing.

### Programming Languages and Tools

Python, C/C++, Java, JavaScript, SPSS, JMP,  $\text{\LaTeX}$ (Overleaf), Git.

## 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.