Hee Jeong Han

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Education

Pennsylvania State University — *University Park, Pennsylvania, U.S.A*
Doctor of Philosophy in Informatics — *Aug. 2020 - Present*
- *Advisor*: Saeed Abdullah

University of California, Irvine — *Irvine, California, U.S.A*
Master of Science in Computer Science — *Sep. 2017 - Jun. 2019*
- *Advisor*: Nikil Dutt
- *Thesis title*: Objective Stress Monitoring based on Wearable Sensors in Everyday Settings

Ewha Womans University — *Seoul, Korea*
Bachelor of Science in Computer Science and Engineering — *Mar. 2012 – Feb. 2017*
- *Advisor*: Dong Sub Cho
- ABEEK (Accreditation Board for Engineering Education of Korea)

University of Hawaii at Manoa — *Manoa, Hawaii, U.S.A*
Exchange Student [22 credits] — *Jan. 2014 – Dec. 2014*

École pour l'informatique et les techniques avancées — *Paris, France*
Summer course for Web Security [3 credits] — *Jul. 2013*
- Graduate School of Computer Science and Advanced Technologies

Publications

[In press] **Hee Jeong Han**, Suhas BN, Ling Qiu, and Saeed Abdullah, "**Automatic Classification of Dementia using Text and Speech data**," in *Studies in Computational Intelligence, Springer*, 2022

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*

Han, Hee Jeong, 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

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

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.

A conversational agent to support people living with dementia — Aug. 2022 - Present

- Develops a conversational agent that can deliver Cognitive Stimulation Therapy for persons living with dementia based on voice-based interactions, and develops interfaces for care partners to easily tailor and customize interventions to reduce their burden.

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 hardwares, F-pad and Sonic-Bar.

Projects

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 PrivacyDecisions — *Jan. 2021 – Jun. 2021*

- Built a Chrome extension tool that informs users about their disclosing behaviors. It is powered by a BERT-based objective disclose 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. Stress is analyzed by 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

2022 Fall **HCDD 264: Design Practice in Human-Centered Design and Development**
2022 Fall **HCDD 340: Human-Centered Design for Mobile Computing**

Awards

2021 **CRA-WP Grad Cohort for Women**
2016 **Silver Prize** 2016 Ewha Engineering Student Portfolio Contest
2014 **Hoakipa Scholarship** University of Hawaii at Manoa *Manoa, Hawaii, U.S.A*
2012 **Merit Scholarship** Megastudy Group *Seoul, Korea*

Extracurricular Activities

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 *University of California, Irvine*

Mentor *Jun. 2018 – Aug. 2018*

- Mentored undergraduate researchers working on healthcare IoT

Career Mentoring *Ewha Womans University*

Leader of IT section Team *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

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.

Health Technology Assessment International 10th Annual Meeting *Seoul, Korea*

Conference Staff *Jun. 2013*

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

Skills

Research Methods Experimental Research, Surveys, Interviews, Usability Testing.

Programming Languages and Tools Python, C/C++, Java, JavaScript, SPSS, JMP, LaTeX(Overleaf), Git.

Certification

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.