



# Jungeun Lee

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## SUMMARY

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I am Jungeun Lee, a Ph.D. student at [HIS Lab](#), CSE, POSTECH, advised by Prof. [Inseok Hwang](#). My research interests lie in HCI and ubiquitous computing, especially in personalization. I am also involved in interdisciplinary research, including health and child education.

My research centers on **principled generative personalization** — developing systemic ways to personalize common norms and systems based on individuals' unique characteristics. To achieve this, I draw on a broad range of computational and design methodologies, including generative AI, to understand individual diversity, create tailored embodiments, and integrate them naturally into everyday life. Through this work, I aim to design technologies that respect and embrace individual uniqueness.

## EDUCATION

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| <b>Pohang University of Science and Technology (POSTECH)</b><br><i>Ph.D. Student, Computer Science and Engineering</i>           | Pohang, South Korea<br>Sep 2021 – Current  |
| <b>Pohang University of Science and Technology (POSTECH)</b><br><i>B.S., Computer Science and Engineering</i><br>Magna Cum Laude | Pohang, South Korea<br>Feb 2017 – Aug 2021 |

## HONORS, AWARDS AND GRANTS

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|---|---------------------|
| [H.10] <b>POSTECHIAN Fellowship</b> (≈ USD 4.0K)<br>POSTECH   | Sep 2025 - Feb 2026 |
| [H.9] <b>NRF grant for doctoral research</b> (≈ USD 36.0K, Principal Investigator)<br>National Research Foundation of Korea (NRF) | Sep 2025 - Aug 2027 |
| [H.8] <b>Popular Choice Honorable Mention Award for Interactivity</b><br>ACM CHI 2025   | Apr 2025            |
| [H.7] <b>Best Presentation Award</b><br>HCI Korea 2025 - Top Conference Session   | Feb 2025            |
| [H.6] <b>Best Paper Honorable Mention Award (Top 5%)</b><br>ACM CHI 2024  | May 2024            |
| [H.5] <b>People's Choice Award for Demos</b><br>ACM UbiComp 2023  | Oct 2023            |
| [H.4] <b>BK21 Best Paper Award</b><br>Dept of CSE, POSTECH  | Jan 2023            |
| [H.3] <b>National Scholarship for Science and Engineering</b> (Full Scholarship)<br>Ministry of Science and ICT                   | Mar 2020 - Aug 2021 |
| [H.2] <b>The 7th POSTECH Hackathon (2nd Prize)</b><br>POSTECH   | Nov 2019            |
| [H.1] <b>Global Leadership Program</b> (≈ USD 9.0K)<br>Dept of CSE, POSTECH   | Mar 2017 - Feb 2019 |

## PUBLICATIONS (REGULAR PAPERS)

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|   |      |
|---|------|
| [C.4] <b><u>Toward Affective Empathy via Personalized Analogy Generation: A Case Study on Microaggression</u></b><br><i>Hyojin Ju, Jungeun Lee, Seungwon Yang, Jungseul Ok, Inseok Hwang</i><br>Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems ( <b>CHI</b> ) | 2025 |
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- [C.3] **Open Sesame? Open Salami! Personalizing Vocabulary Assessment-Intervention for Children via Pervasive Profiling and Bespoke Storybook Generation** (🏆 *Best Paper Honorable Mention Award*) 2024  
**Jungeun Lee**, Suwon Yoon, Kyoosik Lee, Eunae Jeong, Jae-Eun Cho, Wonjeong Park, Dongsun Yim, Inseok Hwang  
*Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI)*
- [C.2] **ProxiFit: Proximity Magnetic Sensing Using a Single Commodity Mobile toward Holistic Exercise Monitoring** 2023  
**Jiha Kim**, Younho Nam, **Jungeun Lee**, Young-Joo Suh, Inseok Hwang  
*Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) / Presented at ACM UbiComp 2023*
- [C.1] **SleepGuru: Personalized Sleep Planning System for Real-life Actionability and Negotiability** 2022  
**Jungeun Lee**, Sungnam Kim, Minki Cheon, Hyojin Ju, JaeEun Lee, Inseok Hwang  
*Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology (UIST)*

## PUBLICATIONS (ADJUNCT)

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### DOCTORAL COLLOQUIUM

- [A.4] **Hyper-personalizing Common Norms through Principled Bespoke Generation** 2023  
**Jungeun Lee**, Inseok Hwang  
 UbiComp/ISWC '23 Adjunct: Adjunct Proceedings of the 2023 ACM International Joint Conference on Pervasive and Ubiquitous Computing & the 2023 ACM International Symposium on Wearable Computing (**UbiComp**)

### DEMO/INTERACTIVITY

- [A.5] **Toward Affective Empathy via Personalized Analogy Generation: A Case Study on Microaggression** 2025  
 (🏆 *Popular Choice Honorable Mention Award for Interactivity*)  
**Hyojin Ju**, **Jungeun Lee**, Seungwon Yang, Jungseul Ok, Inseok Hwang  
*CHI EA '25: Proceedings of the Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (CHI)*
- [A.3] **Demonstrating ProxiFit: Proximal Magnetic Sensing using a Single Commodity Mobile toward Holistic Weight Exercise Monitoring** (🏆 *People's Choice Award for Demos*) 2023  
**Jiha Kim**, Younho Nam, **Jungeun Lee**, Young-Joo Suh, Inseok Hwang  
*UbiComp/ISWC '23 Adjunct: Adjunct Proceedings of the 2023 ACM International Joint Conference on Pervasive and Ubiquitous Computing & the 2023 ACM International Symposium on Wearable Computing (UbiComp)*
- [A.2] **Demonstrating SleepGuru: Personalized Sleep Planning System for Real-life Actionability and Negotiability** 2022  
**Jungeun Lee**, Hyojin Ju, Sungnam Kim, Minki Cheon, JaeEun Lee, Inseok Hwang  
 Adjunct Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology (**UIST**)
- [A.1] **TouchVR: A Modality for Instant VR Experience** 2022  
**Sungjae Cho**, **Jungeun Lee**, Inseok Hwang  
 Adjunct Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology (**UIST**)

## EXPERIENCE

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### Research Intern

Mar 2025 – Sep 2025

NAVER AI Lab

- Designed and developed *AutiHero*, a generative AI-based social narrative system to support behavioral guidance for autistic children.
- Built an end-to-end LLM-based story generation pipeline; implemented full-stack system story creation and reading.
- Led a 2-week deployment study with 16 parent-child dyads; analyzed generated stories and user logs to evaluate engagement and behavioral outcomes.

### Web Developer (Intern)

Jul 2018 – Jul 2019

Plat Corp

- Developed and maintained *Carplat* and *Carplat Partners* websites with React, Redux, Node, and PostgreSQL. (*Carplat* is a mobility platform for door-to-door delivery car rental and enterprise community car sharing service.)
- Maintained *Carplat* Android app with Kotlin.
- Engaged in the entire software development lifecycle, adopting agile techniques.
- Actively collaborated with developers, designers, sales managers, and other teams to design and improve services.

## INVITED TALKS

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| <b>Seoul National University</b><br>Invited Talk at Human-Computer Interaction Lab  | Sep 2025<br>Seoul, Korea     |
| <b>POSTECH-Keio Joint Workshop</b><br>Invited Talk at Keio University (Shonan-Fujisawa Campus) <ul style="list-style-type: none"><li>• Topic - <i>Hyper-personalization through Principled Bespoke Generation</i></li></ul>   | Apr 2025<br>Fujisawa, Japan  |
| <b>EHWA Womans University</b><br>Invited Talk at the Language Development Disorders Seminar <ul style="list-style-type: none"><li>• Topic - <i>Computational Support for Children with Language Delays</i></li></ul>  | Jun 2025<br>Seoul, Korea     |
| <b>HCI Korea (KHCI) 2025</b><br>Oral Presentation at Doctoral Consortium<br>Oral Presentation at Top Conference Session (🏆 <i>Best Presentation Award</i> )   | Feb 2025<br>Hongcheon, Korea |
| <b>Korea Computer Congress (KCC) 2024</b><br>Oral Presentation at Top Conference Session <ul style="list-style-type: none"><li>• Topic - <i>Open Sesame? Open Salami! Personalizing Vocabulary Assessment-Intervention for Children via Pervasive Profiling and Bespoke Storybook Generation</i></li></ul>  | Jun 2024<br>Jeju, Korea      |
| <b>Korea Computer Congress (KCC) 2023</b><br>Oral Presentation at Top Conference Session <ul style="list-style-type: none"><li>• Topic - <i>SleepGuru: Personalized Sleep Planing System for Real-life Actionability and Negotiability</i></li></ul>  | Jun 2023<br>Jeju, Korea      |
| <b>Google ExploreCSR Workshop for Women in EECS</b><br>Oral Presentation <ul style="list-style-type: none"><li>• Topic - <i>Hyper-personalization through Principled Bespoke Generation</i></li></ul>   | Mar 2023<br>Pohang, Korea    |
| <b>DelightRoom Co., Ltd.</b><br>Invited Talk <ul style="list-style-type: none"><li>• Topic - <i>Personalization of sleep schedules considering individuals' real-life constraints</i></li><li>• DelightRoom is a start-up company on sleep technology, with more than 75 million users worldwide.</li></ul> | Aug 2022<br>Seoul, Korea     |

## PATENTS

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|---|------|
| [P.7] <b>Electronic device and method for providing similar situation for emotional empathy using artificial intelligence model</b><br>Korea Patent Pending (Application No. 10-2025-0107924)   | 2025 |
| [P.6] <b>Device and Method for Extracting Words that a Child Needs to Learn by Profiling the Child's Conversation(al) Content</b><br>U.S. Patent Pending (Application No. 19/186640, Application Date: 23-APR-2025)   | 2025 |
| [P.5] <b>Motion Detection Device and Method Using Earth's Magnetic Field</b><br>U.S. Patent Pending (Application No. 18/973156, Application Date: 09-DEC-2024)  | 2024 |
| [P.4] <b>Personalized Storybook Creation System for Vocabulary Assessment and Intervention by Profiling Children's Language Environment</b><br>Korea Patent Pending (Application No. 10-2024-0182284)   | 2024 |
| [P.3] <b>Proximity Magnetic Sensing Using a Single Commodity Mobile for Weight Exercise Monitoring</b><br>Korea Patent Pending (Application No. 10-2024-0086028)  | 2024 |
| [P.2] <b>Personalized Sleep Planning System Considering Individual Dynamic Constraints and Sleep Schedule Creating Method Using Same</b><br>U.S. Patent Pending (Application No. 17/886446, Application Date: 11-AUG-2022)  | 2022 |
| [P.1] <b>Personalized Sleep Planning System Considering Individual Dynamic Constraints and Sleep Schedules Creation Method Therefore</b><br>Korea Patent No. 10-2839271 (Issue Date: 23-JUL-2025; Application No. 10-2022-0078946; Application Date: 28-JUN-2022) | 2022 |

- Leveraging Generative AI in Social Narratives to Engage Parents in Story-Driven Behavioral Guidance for Autistic Children** 2025  
(in submission)
- Social narratives are known to help autistic children understand and navigate social situations through stories. To ensure effectiveness, however, the materials need to be customized to reflect each child's unique behavioral context, requiring considerable time and effort for parents to practice at home. We present AutoHero, a generative AI-based social narrative system for behavioral guidance, which supports parents to create personalized stories for their autistic children and read them together. AutoHero generates text and visual illustrations that reflect their children's interests, target behaviors, and everyday contexts. In a two-week deployment study with 16 autistic child-parent dyads, parents created 218 stories and read an average of 4.25 stories per day, demonstrating a high level of engagement. AutoHero also provided an effective, low-demanding means to guide children's social behaviors, encouraging positive change. We discuss the implications of generative AI-infused tools to empower parents in guiding their children's behaviors, fostering their social learning.
- Toward Affective Empathy via Personalized Analogy Generation: A Case Study on Microaggression** 2023 - 2025  
[H.8], [C.4], [A.5], [P.7]
- The importance of empathy cannot be overstated in modern societies where people of diverse backgrounds increasingly interact together. The HCI community has strived to foster affective empathy through immersive technologies. Many previous techniques are built upon a premise that presenting the same experience as-is may help evoke the same emotion, which however faces limitations in matters where the emotional responses largely differ across individuals. In this paper, we present a novel concept of generating a personalized experience based on a large language model (LLM) to facilitate affective empathy between individuals despite their differences. As a case study to showcase its effectiveness, we developed EmoSync, an LLM-based agent that generates personalized analogical microaggression situations, facilitating users to personally resonate with a specific microaggression situation of another person. EmoSync is designed and evaluated along a 3-phased user study with 100+ participants. We comprehensively discuss implications, limitations, and possible applications.
- Personalizing Vocabulary Assessment-Intervention for Children via Pervasive Profiling and Bespoke Storybook Generation** 2023 - 2024  
[H.6], [H.7], [C.3], [P.4], [P.6]
- Children acquire language by interacting with their surroundings. Due to the different language environments each child is exposed to, the words they encounter and need in their life vary. *Open Sesame? Open Salami! (OSOS)* is a personalized vocabulary assessment and intervention system, collaboratively developed with speech-language pathologists. Melded into a child's daily life and powered by large language models (LLM), OSOS profiles the child's language environment, extracts priority words therein, and generates bespoke storybooks naturally incorporating those words. We evaluated OSOS through 4-week-long deployments to 9 families, and reported their experiences with OSOS, as well as its implications in supporting personalization outside standards.
- Proximity Magnetic Sensing Using a Single Commodity Mobile toward Holistic Exercise Monitoring** 2021 - 2023  
[H.5], [C.2], [A.3], [P.3], [P.5]
- Most exercise monitoring works with smartphones and smartwatches require the device to be in motion to detect exercises with inertial sensors. *ProxiFit* is a highly practical on-device exercise monitoring system capable of classifying and counting exercises even if the device stays still. Utilizing novel proximity sensing of natural magnetism in exercise equipment, ProxiFit brings (1) a new category of exercise not involving device motion such as lower-body machine exercise, and (2) a new off-body exercise monitoring mode where a smartphone can be conveniently viewed in front of the user during workouts. We evaluated ProxiFit on up to 10 weight machines (5 lower- and 5 upper-body) and 4 free-weight exercises, on both wearable and signage mode and verified the robustness against various conditions, e.g., user and weather variations, spatial and rotational device location deviations.
- Personalized Sleep Planning System for Real-life Actionability and Negotiability** 2021 - 2022  
[H.4], [C.1], [A.2], [P.1], [P.2]
- Widely-accepted sleep guidelines advise regular bedtimes and sleep hygiene. However, there are times when we cannot follow them because of our professional and social duties. *SleepGuru* is an individually actionable sleep planning system pursuing co-existence of both healthy sleep and the user's real-life circumstances. Adopting theories on sleep physiology, SleepGuru provides multi-day sleep schedules that optimize the upcoming sleep pressure, by predicting the progression of the user's sleep pressure over a course of upcoming schedules and past activities sourced from one's online calendar and wearable fitness tracker. SleepGuru also provides alternatives and explanations of the system-generated sleep guides via mobile interfaces. We conducted 8-week in-the-wild deployment study with 20 participants, consisting of daily questionnaires, weekly interviews, and exit interview. The results show SleepGuru's positive effects in sleep quality, compliance rate, and so on.
- TouchVR: A Modality for Instant VR Experience** 2021 - 2022  
[A.1]

- We envision instant and ubiquitous access to the VR worlds in the future. However, existing highly portable VR devices usually lack rich and convenient input modality. *TouchVR* is a system that enables Back-of-Device (BoD) interaction in instant VR supported by mobile HMDs. We developed prototype of the TouchVR system in Android platform, and implemented a sample application (360° video player) to demonstrate the usage of our system.

## ACADEMIC SERVICES

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### Artifact Evaluation Reviewer

ACM MobiSys

2022

### Reviewer

ACM CHI (2024-2026), ACM UIST (2024-2026), ACM IDC (2026)

## TEACHING EXPERIENCES

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### TA, CSED800B Computer Science Colloquium

POSTECH

Fall 2023

### TA, CSED490D Introduction to Mobile & Ubiquitous Computing

POSTECH

Fall 2022

### TA, CSED353 Computer Networks

POSTECH

Spring 2022

## SKILLS

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**Programming Language** : Python, C, C++, C#, JavaScript, Java, Kotlin, MATLAB, Ocaml

**Web Development** : React, React Native, Redux, FastAPI, Node, Flask

**Mobile-IoT Development** : Android, Arduino

**Databases** : MySQL, PostgreSQL

**Multimedia** : Figma, Adobe Photoshop, Adobe Premier, Adobe Illustrator

**Research & Evaluation** : User Study Design, Interview, Thematic Analysis, Field Deployment Study

**Human Language** : Korean (native), English (fluent)