

Jae (Jaewook) Lee

Curriculum Vitae
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Last Updated: 08/27/2023

RESEARCH INTERESTS

HCI, Augmented Reality (AR), Human-AI Interaction, and Accessibility

EDUCATION

University of Washington Seattle, WA
Ph.D. in Computer Science (HCI), Advised by Prof. Jon Froehlich Aug. 2022 –Present

University of Illinois at Urbana-Champaign Urbana, IL
B.S. in Computer Science, Minor in Psychology (GPA: 3.96/4.00) Aug. 2018 –May 2022

PROFESSIONAL EXPERIENCE

Meta Redmond, WA
Research Scientist Intern, Advised by Tianyi Wang, Jacqui Fashimpaur, and Tanya Jonker Jun. 2023 - Present
– Designing adaptive, context-aware interaction techniques for wearable AR devices.

University of Washington Seattle, WA
Graduate Research Assistant, Advised by Prof. Jon Froehlich Aug. 2022 - Present
– I design AI-powered AR solutions capable of comprehending us and our surroundings, providing personalized assistance during our everyday tasks. I also study how such a system can assist the blind or low vision (BLV) and deaf or hard of hearing (DHH) communities. I am re-imagining AR for all!

NASA Virtual
AR/VR Intern Jun. 2022 - Aug. 2022
– Contributed to the Mixed Reality Exploration Toolkit (MRET) open-source software. Designed a set of tools for virtual reality that enables scientists and researchers to easily author space-related experiences.

Microsoft Research Virtual
Open Source Researcher, Advised by Dr. Eyal Ofek May. 2021 - Aug. 2022
– Led an effort to design an open-source Unity toolkit to facilitate remote user studies for VR researchers. This modular and platform-agnostic toolkit allows researchers to observe participants across multiple remote locations, collect behavioral data, and replay data from multiple media sources. [C9]

Carnegie Mellon University - Human-Computer Interaction Institute Virtual
REU Research Intern, Advised by Prof. David Lindlbauer Jun. 2021 - Nov. 2021
– Studied which MR navigation visualizations (e.g., arrows, avatar) work best in scenarios consisting of different combinations of contexts (e.g., environment – outdoors vs. indoors). [C7]

University of California, Los Angeles Virtual
Research Intern, Advised by Prof. Yang Zhang Apr. 2021 - Sep. 2021
– Designed an on-body interaction method for VR, which enable users to use their hands as tools in a VR environment (e.g., a user can form scissors using their index and middle fingers). [C6]

University of Michigan

Virtual

Research Intern, Advised by Prof. Anhong Guo

Aug. 2020 - Sep. 2021

- Designed a layer-based tactile interaction method for smartphones to empower blind users to judge the accuracy of AI-generated captions. [P1, C5]

Carnegie Mellon University - Human-Computer Interaction Institute

Virtual

REU Research Intern, Advised by Prof. Vincent Alevan

Jun. 2020 - Nov. 2020

- Studied whether a mid-fidelity prototyping method (which we call Virtual Prototyping Method) can be an effective tool in remotely co-designing spatial displays. [C2]

University of Illinois at Urbana-Champaign

Urbana, IL

Undergraduate Research Assistant, Advised by Prof. Alex Kirlik and Prof. Brian P. Bailey

May. 2019 - May 2022

- Conducted a field study using Decipher, a tool that facilitates understanding a large feedback set. This work was done in collaboration with Dr. Joy Kim from Adobe Research. [J1]
- Studied how a data-driven conversational agent can best assist under-contributing members to contribute more in a group chat setting. [C8, C10]
- Researched whether a tool that visualizes data from multiple teamwork-related software (e.g., Google Drive, Slack, Github) can be effective in assisting the peer evaluation process. [C4]
- Researched whether touch is a good additional modality to resolving ambiguities (e.g., “What is this?” – ‘this’ is ambiguous) in voice assistant queries. [C3]
- Examined the effects of complacency on humans as they interact with autonomous agents in a human-agent team. This work was done in collaboration with the *Army Research Lab (ARL)*. [C1]

PEER-REVIEWED PUBLICATIONS (* DENOTES EQUAL CONTRIBUTION)

1 paper in submission

- D.4 **Jaewook Lee**, Devesh P. Sarda, Eujan Lee, Amy Seunghyun Lee, Jun Wang, Adrian Rodriguez, and Jon E. Froehlich. 2023. Towards Real-time Computer Vision and Augmented Reality to Support Low Vision Sports: A Demonstration of ARTennis. *To Appear in UIST 2023*
- D.3 **Jaewook Lee**, Jun Wang, Elizabeth Brown, Liam Chu, and Jon E. Froehlich. 2023. Towards Designing a Context-Aware Multimodal Voice Assistant for Pronoun Disambiguation: A Demonstration of GazePointAR *To Appear in UIST 2023*
- D.2 Xia Su, Kaiming Cheng, Han Zhang, **Jaewook Lee**, Wyatt Olson, and Jon E. Froehlich. 2023. A Demonstration of RASSAR: Room Accessibility and Safety Scanning in Augmented Reality. *To Appear in ASSETS 2023*
- C.10 Hyo Jin Do, Ha-Kyung Kong, Pooja Tetali, **Jaewook Lee**, and Brian P. Bailey. 2023. To Err is AI: Imperfect Interventions and Repair in a Conversational Agent Facilitating Group Chat Discussions. *Proc. ACM Hum.-Comput. Interact.* 7, CSCW1, Article 99 (April 2023), 23 pages. <https://doi.org/10.1145/3579532>
- J.1 Patrick Crain, *Jaewook Lee*, Yu-Chun Yen, Joy Kim, Alyssa Aiello, and Brian Bailey. 2023. Visualizing Topics and Opinions Helps Students Interpret Large Collections of Peer Feedback for Creative Projects. *ACM Trans. Comput.-Hum. Interact.* 30, 3, Article 49 (June 2023), 30 pages. <https://doi.org/10.1145/3571817>
- W.1 Xia Su, Kaiming Cheng, Han Zhang, **Jaewook Lee**, Yueqian Zhang, and Jon E. Froehlich. 2022. Towards Semi-automatic Detection and Localization of Indoor Accessibility Issues using Mobile Depth Scanning and Computer Vision. *ASSETS '22 - Future of Urban Accessibility Workshop*. <https://doi.org/10.48550/arXiv.2210.02533>

- C.9 **Jaewook Lee**, Raahul Natarrajan, Sebastian S. Rodriguez, Payod Panda, and Eyal Ofek. 2022. RemoteLab: A VR Remote Study Toolkit. In Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology (UIST '22). Association for Computing Machinery, New York, NY, USA, Article 51, 1–9. <https://doi.org/10.1145/3526113.3545679>
- C.8 Hyo Jin Do, Ha-Kyung Kong, **Jaewook Lee**, and Brian P. Bailey. 2022. How Should the Agent Communicate to the Group? Communication Strategies of a Conversational Agent in Group Chat Discussions. Proc. ACM Hum.-Comput. Interact. 6, CSCW2, Article 387 (November 2022), 23 pages. <https://doi.org/10.1145/3555112>
- C.7 **J. Lee**, F. Jin, Y. Kim and D. Lindlbauer, “User Preference for Navigation Instructions in Mixed Reality,” 2022 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), 2022, pp. 802-811, doi: <https://doi.org/10.1109/VR51125.2022.00102>
- C.6 Siyou Pei, Alexander Chen, **Jaewook Lee**, and Yang Zhang. 2022. Hand Interfaces: Using Hands to Imitate Objects in AR/VR for Expressive Interactions. In CHI Conference on Human Factors in Computing Systems (CHI '22). Association for Computing Machinery, New York, NY, USA, Article 429, 1–16. <https://doi.org/10.1145/3491102.3501898> [**Honorable Mention Award**]
- C.5 **Jaewook Lee**, Jaylin Herskovitz, Yi-Hao Peng, and Anhong Guo. 2022. ImageExplorer: Multi-Layered Touch Exploration to Encourage Skepticism Towards Imperfect AI-Generated Image Captions. In CHI Conference on Human Factors in Computing Systems (CHI '22). Association for Computing Machinery, New York, NY, USA, Article 462, 1–15. <https://doi.org/10.1145/3491102.3501966>
- C.4 Wenxuan Wendy Shi, Akshaya Jagannadharao, **Jaewook Lee**, and Brian P. Bailey. 2021. Challenges and Opportunities for Data-Centric Peer Evaluation Tools for Teamwork. Proc. ACM Hum.-Comput. Interact. 5, CSCW2, Article 432 (October 2021), 20 pages. <https://doi.org/10.1145/3479576>
- C.3 **Jaewook Lee**, Sebastian S. Rodriguez, Raahul Natarrajan, Jacqueline Chen, Harsh Deep, and Alex Kirlik. 2021. What’s This? A Voice and Touch Multimodal Approach for Ambiguity Resolution in Voice Assistants. In Proceedings of the 2021 International Conference on Multimodal Interaction (ICMI '21). Association for Computing Machinery, New York, NY, USA, 512–520. <https://doi.org/10.1145/3462244.3479902>
- D.1 **Jaewook Lee**, Yi-Hao Peng, Jaylin Herskovitz, and Anhong Guo. 2021. Image Explorer: Multi-Layered Touch Exploration to Make Images Accessible. In The 23rd International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '21). Association for Computing Machinery, New York, NY, USA, Article 69, 1–4. <https://doi.org/10.1145/3441852.3476548>
- C.2 JiWoong Jang*, **Jaewook Lee***, Vanessa Echeverria, LuEttaMae Lawrence, and Vincent Aleven. 2021. Explorations of Designing Spatial Classroom Analytics with Virtual Prototyping. In LAK21: 11th International Learning Analytics and Knowledge Conference (LAK21). Association for Computing Machinery, New York, NY, USA, 518–524. <https://doi.org/10.1145/3448139.3448192>
- C.1 Sebastian S. Rodriguez, Jacqueline Chen*, Harsh Deep*, **Jaewook (Jae) Lee***, Derrik E. Asher, and Erin Zaroukian “Measuring complacency in humans interacting with autonomous agents in a multi-agent system”, Proc. SPIE 11413, Artificial Intelligence and Machine Learning for Multi-Domain Operations Applications II, 114130U (21 April 2020); <https://doi.org/10.1117/12.2559474>

AWARDS AND HONORS

- NSF GRFP (\$34,000 per year, 3 years) 2022
- Best Paper Honorable Mention Award - CHI 2022 2022

- **Bridge to VR Scholarship** - IEEE VR Conference 2021
- **3rd Place, Voice Capabilities and AI Category** - Illinois Datathon 2021 2021
- **Runner-Up Masterpiece (2nd Place Overall)** - VandyHacks VI 2019
- **Best Oculus Hack** - Facebook @ HackIllinois 2019 2019
- **President's Volunteer Service Award** - 141 hours in one year 2016

MENTORSHIP

- **Eujean Lee** Jun. 2023 - Present
CSE Undergraduate Student at the University of Washington
- **Andrew Darmawan Tjahjadi** Feb. 2023 - Present
CSE Undergraduate Student at the University of Washington
- **Andrew Darmawan Tjahjadi** Feb. 2023 - Present
CSE Undergraduate Student at the University of Washington
- **Jun Wang** Nov. 2022 - Present
CSE Undergraduate Student at the University of Washington
- **Davin Kyi** Nov. 2022 - Present
CSE Undergraduate Student at the University of Washington
- **Arvind Manivannan** Oct. 2022 - Present
CSE Undergraduate Student at the University of Washington
- **Amy Seunghyun Lee** Jun. 2023 - Aug. 2023
CogSci Undergraduate Student at the University of California, Davis
- **Junpu Yu** Feb. 2023 - Jun. 2023
CSE Undergraduate Student at the University of Washington
- **Jamil Islam** Feb. 2023 - Jun. 2023
CSE Undergraduate Student at the University of Washington
- **Devesh Pankaj Sarda** Jan. 2023 - Aug. 2023
Next Position - CS Ph.D. at the University of Wisconsin-Madison
- **Libbey Brown** Nov. 2022 - Apr. 2023
Next Position - Data Scientist (Generative AI) at T-Mobile
- **Liam Chu** Nov. 2022 - Apr. 2023
Applied Mathematics Undergraduate Student at the University of Washington
- **Peyton Rapo** Oct. 2022 - Jun. 2023
CSE Undergraduate Student at the University of Washington
- **Student Mentor** at ACM SIGCHI, UIUC Chapter Sep. 2021 - May 2022
Providing mentorship to undergraduate students who are interested in HCI

PAPER REVIEWING

- **ACM ICMI** 2023
- **ACM CHI Late-Breaking Work (LBW)** 2023
- **ACM CHI** 2023
- **ACM ICMI** 2022
- **ACM MobileHCI** 2022
- **ACM CHI Late-Breaking Work (LBW)** 2022
- **ACM ICMI** 2021

INVITED TALKS AND PRESENTATIONS

- **UW MHCI+D Program Guest Lecturer** - Future of Access Technology 2022
- **Undergraduate Research Seminar Panel Speaker** - Participating in Research as an Undergraduate 2020

SELECTED PRESS COVERAGE

- **Early Impact: Undergraduate Jaewook Lee Learns to Quickly Thrive Through Research** 2022