Sangwook Lee

Ph.D. Student, Department of Computer Science, Virginia Tech (echolab)

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Research Interests

I design, build, and deploy LLM-based agents that **bridge gaps between people**, spanning human-AI interaction, social computing, and accessibility. Rather than acting for one person, my agents mediate: they understand each person's context, surface gaps in what people know, and translate information so that people can understand one another:

- **Knowledge gap** — turning everyday lab communication into organizational memory (CHOIR, CHI '26)
- **Digital divide** — adapting GUIs and navigation to each user's preferences (MAESTRO, UIST '26)
- **Expertise gap** — letting domain experts, not engineers, shape AI behavior (ModSandbox, CHI '23; SCORE)

Education

08/2024 – Present **Virginia Tech**, Blacksburg, VA
Ph.D. Student in Computer Science **(expected graduation: 05/29)**
Advisor: Sang Won Lee

09/2021 – 02/2024 **Korea Advanced Institute of Science and Technology (KAIST)**, Daejeon, Korea
M.S. in Computer Science. Advisor: Insik Shin
Thesis: *TOMAS: A Task-Oriented Multimodal Agent System to Enhance Mobile User Interface Accessibility for Older Adults*

03/2014 – 08/2020 **Pohang University of Science and Technology (POSTECH)**, Pohang, Korea
B.S. in Convergence IT Engineering, *Cum Laude*

Research Experience

08/2024 – Present Graduate Research Assistant, **echolab, Virginia Tech**, Blacksburg, VA
Advisor: Sang Won Lee. Collaborators: Young-Ho Kim (NAVER AI Lab), Yan Chen (Virginia Tech)

CHOIR — *chatbot-mediated organizational memory from lab communication [P4]*
LLM Slack chatbot for document-grounded Q&A and AI-assisted document updates; one-month deployment in 4 research labs (N=21). CHI '26 Best Paper Honorable Mention.

MAESTRO — *conversational agent that adapts GUIs to user preferences [P5]*
Preference memory drives in-place GUI adaptation and workflow backtracking; a within-subjects study (N=33) showed fewer preference violations than a baseline agent; UIST '26 paper and demo.

SCORE — *configuring classroom LLM chatbots without prompt engineering (in progress)*
Instructors split a course chatbot's instructions by kind of student question (intent → rule) instead of one monolithic prompt, previewed on real student–chatbot logs; a within-subjects study with writing instructors is under way. Built on SWAG, my writing platform (101 students).

RYLAI — *chatbot role-play training against cybergrooming for adolescents (NSF SaTC #2330940)*
Sole developer of the web platform and the self-hosted model server running the team's StagePilot policy (An et al., SIGDIAL '26) on a Qwen2.5-7B generator; deployed under IRB.

09/2021 – 02/2024 Graduate Research Assistant, **Cyber-Physical Systems Lab, KAIST**, Daejeon, Korea
Advisor: Insik Shin
Mobile UI automation and accessibility: multi-app UI mashup [P1]; M.S. thesis on TOMAS, a multimodal agent that simplifies smartphone UIs for older adults [T1].

06/2023 – 08/2023 Visiting Student, **SaNDwich Lab, University of Notre Dame**, Notre Dame, IN
Mentor: Toby Jia-Jun Li
Led the design and implementation of TOMAS [T1] with the OpenAI API; mentored two undergraduate interns.

09/2020 – 09/2021 Research Intern, **KIXLAB, KAIST**, Daejeon, Korea
Mentors: Juho Kim, Jean Y. Song
Led ModSandbox, a sandbox that predicts errors of rule-based moderation before deployment; formative interviews and a between-subjects study with 20 Reddit moderators [P2].

07/2017 – 08/2017 Research Intern, **HCI+D Lab, Seoul National University**, Seoul, Korea
Mentor: Joonhwan Lee
Participatory design workshop with female gamers on harassment in online games [W3].

Industry Experience

02/2024 – 08/2024 Software Engineer, **Fluiz, Inc.**, Seoul, Korea
KAIST faculty startup building mobile AI agents; Samsung Electronics C-Lab Outside (2026)
Designed and prototyped LLM-based workflow automation for judicial scriveners with legal-software partner NSSAM: a Chrome extension records an expert's interactions and rationale, an LLM compiles them into reusable document-issuance workflows, and a remote Playwright server executes them.

Publications

Peer-Reviewed Conference and Journal Papers

[P5] **Sangwook Lee**, Adnan Abbas, Sang Won Lee, Young-Ho Kim, and Yan Chen. 2026. MAESTRO: Adapting GUIs and Guiding Navigation with User Preferences in Conversational Agents with GUIs. *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST '26), to appear Nov. 2026* [Video].

[P4] **Sangwook Lee**, Adnan Abbas, Yan Chen, Young-Ho Kim, and Sang Won Lee. 2026. CHOIR: A Chatbot-mediated Organizational Memory Leveraging Communication in University Research Labs. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '26)* [Video].
★ Best Paper Honorable Mention (Top 5%)

[P3] Donghan Hu, Junghoon Chung, Daniel Vargas Diaz, **Sangwook Lee**, Sang Won Lee, and Sol Lim. 2026. Toward Context-Aware and Personalized Sit-Stand Desk Interventions: Insights from a Field Observational Study. *International Journal of Human-Computer Studies, 215.*

[P2] **Sangwook Lee***, Jean Y. Song*, Jisoo Lee, Mina Kim, and Juho Kim (*equal contribution). 2023. ModSandbox: Facilitating Online Community Moderation Through Error Prediction and Improvement of Automated Rules. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '23).*

[P1] Sunjae Lee, Hoyoung Kim, Sijung Kim, **Sangwook Lee**, Hyosu Kim, Jean Y. Song, Steven Y. Ko, Sangeun Oh, and Insik Shin. 2022. A-Mash: Providing Single-App Illusion for Multi-App Use Through User-centric UI Mashup. *Proceedings of the ACM International Conference on Mobile Computing and Networking (MobiCom '22).*

Thesis

[T1] **Sangwook Lee**. 2023. TOMAS: A Task-Oriented Multimodal Agent System to Enhance Mobile User Interface Accessibility for Older Adults. *M.S. thesis, KAIST (Advisor: Insik Shin), with Qianhui Zhao, Haoming Ma, and Toby Jia-Jun Li.*

Workshop Papers, Posters, and Extended Abstracts

[W6] **Sangwook Lee** and Sang Won Lee. 2026. Redistributing Interdependence in Organizational Knowledge Work: Lessons from Deploying an LLM Mediator in Research Labs. *Co-Data: Cultivating Effective Human-LLM Collaboration for Collaborative Data Processing, Workshop at CHI '26.*

[W5] **Sangwook Lee** and Sang Won Lee. 2026. TUNING: Adaptive GUI Modification as Agent Tools in Task-Oriented Chatbots. *Human-AI-UI Interactions Across Modalities, Workshop at CHI '26.*

[W4] Hansoo Lee, **Sangwook Lee**, Youngji Koh, and Uichin Lee. 2022. LV-Linker: Supporting Fine-grained User Interaction Analyses by Linking Smartphone Log and Recorded Video Data. *Adjunct Proceedings of the ACM Symposium on User Interface Software and Technology (UIST '22 Adjunct).*

[W3] Wookjae Maeng, Hyeok Kim, Junhee Woo, Youngjin Huh, Seo-young Lee, Jeewon Choi, **Sangwook Lee**, Jinsu Eun, Kung Jin Lee, and Joonhwan Lee. 2018. Implications for the Design of Sexual Harassment Prevention System for Online Games. *Proceedings of HCI Korea 2018.*

[W2] **Sangwook Lee** and Hyunggu Jung. 2016. Mutiv: Music-based Mobile Application to Support Joggers. *Poster, IEEE International Conference on Healthcare Informatics (ICHI '16).*

[W1] **Sangwook Lee**, Yunho Kang, and Yukyoung Lee. 2016. LaneMate: Car Sensing System for the Deaf. *Extended Abstracts of the ACM Conference on Human Factors in Computing Systems (CHI EA '16).*
★ Student Design Competition Honorable Mention (Final Round)

Awards & Honors

2026	**Best Paper Honorable Mention** (Top 5%), ACM CHI 2026 [P4]
2026	**Special Recognition for Outstanding Reviews** (×3), ACM CHI 2026
2022	**Gary Marsden Travel Award**, ACM SIGCHI
2016	**Honorable Mention**, ACM CHI 2016 Student Design Competition (Final Round) [W1]

Academic Service

2023 – 2026	**Reviewer** — ACM CHI 2023–26 (3 Outstanding Reviews, 2026), UIST 2026, CSCW 2024
2020 – 2026	**Student Volunteer** — CHI 2021–26 (Photo SV 2024–26, Video Lead 2025), CSCW 2020

Mentoring

2026 – Present	Joshua Hairston, M.S. student, Virginia Tech (SCORE)
2023	Chloe Qianhui Zhao, undergraduate intern, Univ. of Notre Dame (now Ph.D. student, UW)
2023	Haoming Ma, undergraduate intern, University of Notre Dame (now ML Engineer, TikTok)

Talks

05/2026	*Bridging Gaps Between People with AI-Based Agents* (thesis seminar). **HCI+D Lab, Seoul National University** (Joonhwan Lee); **HAI Lab, SeoulTech** (Kyoungwon Seo)
03/2026	Opener talk, **CHCI@VT Weekly Seminar**, Virginia Tech
07/2023	*Leveraging NLP Models in Practice.* **DGP Lab, University of Toronto** (SuHyeon Yoo)

Teaching

Teaching Assistant	CS 4104 Data and Algorithm Analytics, Virginia Tech (Fall 2025); CS 584 Human-Computer Interaction, KAIST (Fall 2023); CS 330 Operating Systems and Lab, KAIST (Fall 2021)

Skills

Methods	Experiments, field deployments, interviews, surveys; GLMM/LMM, thematic analysis
Engineering	Python, TypeScript, R; React/Next.js, Django; OpenAI/Anthropic APIs, RAG, Ollama