Sieun Kim

sieunk@umich.edu linkedin.com/in/sieunk08 kimsieun.com

Education

University of Michigan Aug 2025 – Present
Ph.D. in Electrical and Computer Engineering *Ann Arbor, USA*
- Advised by Prof. Junyi Zhu

Seoul National University Mar 2020 – Feb 2025
B.S. in Computer Science and Engineering, Chemical and Biological Engineering (double major) *Seoul, Korea*
- GPA: 4.22/4.3 (cumulative), 4.20/4.3 (CSE major), 4.20/4.3 (CBE major), Summa Cum Laude

University of Washington Mar 2024 – Jun 2024
Exchange Student Program *Seattle, USA*
- GPA: 3.98/4.0, Dean's List

Sejong Academy of Science and Arts Mar 2017 – Feb 2020
High-school for Specialized Students in Math and Science *Sejong, Korea*

Research Interests

- **Goals**: Context-Aware Human-Computer Interaction, Semantic Understanding of Human Actions, Intent Inference for Assistance
- **Approaches**: HCI, Applied ML, Ubiquitous Computing, AR/VR, Computer Vision, Sensing

Publications

[4] Tianyu Xu, **Sieun Kim**, Qianhui Zheng, Ruoyu Xu, Tejasvi Ravi, Anuva Kulkarni, Katrina Passarella-Ward, Junyi Zhu†, and Adarsh Kowdle†. 2026. MoXaRt: Audio-Visual Object-Guided Sound Interaction for XR. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '26).* To appear.

[3] **Sieun Kim**. 2025. Designing an Educational Tool to Improve Understanding and Planning in Chemistry Laboratory Courses. In *Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (CHI EA '25).*

[2] Jaewook Lee*, **Sieun Kim***, Minji Park, Catherine L Rasgaitis, and Jon E. Froehlich. 2024. Embodied AR Language Learning Through Everyday Object Interactions: A Demonstration of EARLL. In *Adjunct Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology (UIST Adjunct '24).* Article 52, 1–3.
(*: equal contribution)

[1] **Sieun Kim**, Kyungjin Lee, and Youngki Lee. 2024. Color-cued Efficient Densification Method for 3D Gaussian Splatting. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops.* 775–783.

Experience

Makeability Lab, UW Mar 2024 – Jun 2025
Research Assistant (Advisor: Prof. Jon E. Froehlich) *Seattle, US / Remote*
- **Embodied AR Language Learning Through Everyday Object Interactions**: Implemented head-mounted AR system enabling context-aware, subtle vocabulary learning through grab-and-hold interactions with everyday objects as cues. [2]
- **AR Systems for Low Vision Sports and Cooking**: Designed AR systems to assist people with low vision by enhancing visual saliency in cooking (CookAR, UIST 2024) and sports environments (full paper in preparation).

Human-Centered Computer Systems Lab, SNU Mar 23' – Mar 24', Jan 25' – Jun 25'
Research Intern (Advisor: Prof. Youngki Lee) *Seoul, Korea*
- **Real-time NeRF Streaming for Mobile Telepresence**: Optimized NeRF variants to meet size and latency requirements for mobile.
- **Color-cued Densification for 3D Gaussian Splatting**: Suggested new method for densifying Gaussian primitives using color cues to reduce data size while preserving quality. [1]

KIXLAB, KAIST Jul 2024 – Feb 2025
Research Intern (Advisor: Prof. Juho Kim) *Daejeon, Korea / Remote*
- **Understanding Gig Tutors and Their Perceptions on Algorithmic Feedback**: Implemented automated tutor feedback system for distributed language tutorship, and surveyed gig-tutors on how dual roles shape feedback perceptions. (Currently under review)

Hyundai Motor Company Jan 2023 – Feb 2023
Research Intern *Hwaseong, Korea*
- **EV Driving Pattern Analysis and Prediction Using Big Data**: Worked on predicting EV driving and charging patterns to simulate battery degradation across various driver personas.

Awards and Scholarships

National Presidential Science Scholarship | Korea Student Aid Foundation — Mar 2020 – Feb 2024
- Recognized as one of Korea's top 120 STEM students by the President; awarded $44,000 covering full tuition and stipend.

Learning Sciences Research Grant | SNU Learning Sciences Research Institute — Sept 2024 – Jan 2025
- Awarded $2,000 research grant for [Prj1] / [3].

Specialized Semiconductor Scholarship | SNU Semiconductor Program — Nov 2023 – Feb 2025
- Recognized for excellence in interdisciplinary studies; awarded $14,300.

Best Poster - SNU Computer Science and Engineering Thesis Showcase | SNU CSE — Feb 2025

Grand Prize - Creative Design Fair *awarded to* [Prj2]| SNU College of Engineering — Sep 2023

Grand Prize - National ICT Smart Device Contest *awarded to* [Prj2]| Ministry of Science and ICT — Aug 2023

Grand Prize - Social Responsibility Plus+ Contest *awarded to* [Prj3]| SNU Social Responsibility — Oct 2021

Grand Prize - Creative Design Contest for the Under-privileged 90% *awarded to* [Prj4]| Sharing and Tech Inc. — Nov 2020

Sejong Gifted Award | Sejong Academy of Science and Arts — Feb 2020
- Recognized as the most outstanding student among 91 graduates.

Projects

[Prj1] **ChemLab Planner: Automating Methods into Timelines for Enhanced Experiment Planning** — Sep 2024 – Feb 2025
- Developing system that converts text lab manuals into interactive timelines, enhancing experiment planning in real lab conditions.
- Bachelor's Thesis in Chemical and Biological Engineering (Advisor: Prof. Moo Sun Hong)
- Selected for presentation at the Student Research Contest at CHI 2025. [3]

[Prj2] **PlayEye: Toy for Preventing Child Myopia** — Jul 2023 – Nov 2023
- Developed child-friendly physical toy and software UI to gamify eye exercises for myopia prevention and cognitive development.
- Implemented gaze-tracking algorithm and software to detect eye movement and manage audio, visual, and haptic I/Os.

[Prj3] **Yaksok: Medication Pouch Design for Improving Elderly Medication Compliance** — Mar 2021 – Jun 2022
- Designed medication pouch to improve compliance and conducted user study with senior centers; served as design lead.

[Prj4] **Real-Time Emergency Communication System for Overturned Tractors** — May 2020 – May 2021
- Developed hardware prototype with IMUs, GPS, and discarded phones for real-time tractor emergency reporting; served as tech lead.

Extracurricular Activities

SRT Chair, SNU Engineering Honor Society (STEM) — Mar 2022 – Feb 2025
- Represented top-performing engineering student society, with 300 selected members over a 15-year legacy
- Chaired the **Northeast Asia Student Round Table (SRT) 2023**, an international academic conference with students from five countries, discussing goals on international relations and technological development for a sustainable future.
- Organized mentoring programs and public seminars, and delivered multiple talks at academic events.

Volunteering Engineers & Scientists of SNU (VESS) — Apr 2020 – Jun 2022
- Executed multiple team-based projects on human-centered design and engineering, including [Prj3] and [Prj4].

Group Leader, SNU Buddy | SNU Office of International Affairs — Jan 2021 – Dec 2021
- Supported exchange students at SNU and organized cultural activities as leader of 27 international and Korean students.

Teaching Experiences

Teaching Assistant, Engineering Mathematics 2 (033.015) — Fall 2024

Learning Assistant, Calculus 1 (L0442.000100) — Winter 2023

Lecturer, STEM Vision Exhibition — Feb 2023

Mentor, SNU Mentoring | SNU Social Responsibility — Mar 2022 – Nov 2023
- Provided mentorship and emotional support to middle school students from underserved communities.

Technical Skills

Programming Languages: Python, C/C++, Java, SQL
Software Development and Tools: Linux, Pytorch, CUDA, Docker, Unity, Git
Others: Human Study Design and Analysis, Hardware and Prototyping (Verilog, Raspberry Pi)
Languages: Korean (native), English (full professional proficiency, TOEFL Score 117)