

Masaki Kuribayashi

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Doctoral candidate at Waseda University with a focus on Human-Computer Interaction, particularly in developing assistive systems for visually impaired individuals. Passionate about AI-driven solutions, including visual language navigation models, robots, and smartphone-based systems to enhance user navigation experiences. Proven expertise in designing and developing these assistive technologies, with experience in user-centered participatory and co-design, large-scale user studies, AI model development, dataset development and statistical analysis. Deeply interested in exploring cutting-edge AI models to further improve accessibility and human-computer interaction.

Expected to complete the Doctor's program in Mar. 2026.

Keyword: Human Computer Interaction, Accessibility, Navigation, Computer Vision, Visual Language Navigation

Education

Apr. 2023 - Current	Doctor of Engineering Graduate School of Advanced Science and Engineering, Waseda University Major: Human-Computer Interaction Advisor: Shigeo Morishima
Apr. 2021 - Mar. 2023	Master of Engineering Graduate School of Advanced Science and Engineering, Waseda University Major: Human-Computer Interaction Advisor: Shigeo Morishima
Apr. 2017 - Mar. 2021	Bachelor of Science School of Advanced Science and Engineering, Department of Physics, Waseda University Major: Theoretical Physics

Work Experience

Apr. 2023 - Current	Research Fellow DC1 JSPS Research Fellowship for Young Scientists <ul style="list-style-type: none">- Mentored five Bachelors and Masters students. Initiated their projects and led them to publish to well-known conferences such as CHI, MobileHCI, and Augmented Humans.- Developed smartphone-based system for blind people to explore shopping mall, stand in lines and navigate indoor spaces.- Conducted in-the-wild user studies at a public shopping mall and analyzed using statistical tests.- Worked on visual language navigation (VLN) model by leveraging large language models.- Collected dataset and constructed virtual environment for VLN task.
Aug. 2024 - Current	Researcher (Internship Position) Accessibility Lab, Miraikan - The National Museum of Emerging Science and Innovation <ul style="list-style-type: none">- Developed navigation robot for blind people to explore shopping malls and museums.- Conducted in-the-wild user studies with 15 blind people in shopping malls and museums.

Jan. 2024 - May. 2024	Visiting Researcher Human-to-Everything (H2X) Lab, Boston University Advisor: Eshed Ohn-Bar <ul style="list-style-type: none"> - Constructed a dataset using simulating social navigation of a pedestrian on CARLA simulator. - Trained and evaluated an large language model-powered VLN model that generates navigations instructions for blind people with temporal awareness. - Developed an application to annotate video of motion of blind people with TKinter library. - Conducted user studies to collect motion data to train motion generation model.
Apr. 2021 - Dec. 2023	Research Internship IBM Research Advisor: Chieko Asakawa, Hironobu Takagi <ul style="list-style-type: none"> - Launched a research project by identifying of people with visual impairment that they require assistance when navigating a maze-like indoor environment with many intersections. - Developed an iOS navigation application for people with visual impairment. - Gathered a unique image dataset of intersections scanned by LiDAR sensor. - Developed an machine learning model for detecting intersections on iOS using CoreML library. - Conducted a user study and analyzed using statistical tests. - Conducted a demo session of AI suitcase (navigation robot for blind people) at CSUN conference.
Jun. 2022 - Sep. 2022	Visiting Researcher Cognitive Assistance Lab, Robotics Institute, Carnegie Mellon University Advisor: Chieko Asakawa, Daisuke Sato <ul style="list-style-type: none"> - Identified a technical challenge of navigation robots for blind people that they cannot navigate in unmapped locations and launched a research project. - Designed a system through a participatory design process with people with visual impairment. - Implemented a practical sign recognition algorithm using a self-trained object detection model. - Conducted a user study in a large-scale environment and analyzed using statistical tests.

Awards

Mar. 2025	Azusa Ono Memorial Award Waseda University The most prestigious award by Waseda University, which 0.014% of students receive. The second student ever to receive two Azusa Ono Memorial Award.
Mar. 2021	Azusa Ono Memorial Award Waseda University The most prestigious award by Waseda University, which 0.014% of students receive.
Dec. 2020	Best Paper Award JSPS WISS 2020 (a domestic conference in Japan) An award that the top 3% of paper receive.

Scholarship

May. 2024	Travel support from the Telecommunications Advancement Foundation to MobileHCI 2024
Jan. 2024 - May. 2024	Visiting support from Super Global University (SGU), ICT & Robotics, Waseda University
Jan. 2024 - May. 2024	Scholarship for short-term study abroad, Japan Student Services Organization (JASSO)
Apr. 2023 - Mar. 2026	Research Fellowship for Young Scientists DC1, Japan Society for the Promotion of Science
Mar. 2023	Isao Okawa Scholarship for Information Technology Science, Waseda University. 200K JPY
Apr. 2021 - Mar. 2023	Scholarship for Outstanding Master Students, Japan Student Services Organization (JASSO)

Skills

Programming Language: **Swift, Python**

Frameworks / Platforms: **Xcode, ARKit, OpenCV, Docker, ROS**

Others: **Adobe CC (Illustrator, Premiere Pro, and InDesign)**

Publications

Journal Papers and Full Papers

- [1] **Masaki Kuribayashi***, Seita Kayukawa*, Hironobu Takagi, Chieko Asakawa, and Shigeo Morishima (* - equal contribution). 2021. **LineChaser: A Smartphone-Based Navigation System for Blind People to Stand in Line**. In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems. (CHI 2021). DOI: <https://doi.org/10.1145/3411764.3445451>
- [2] **Masaki Kuribayashi**, Seita Kayukawa, Jayakorn Vongkulbhisal, Daisuke Sato, Chieko Asakawa, Hironobu Takagi, Shigeo Morishima. 2022. **Corridor-Walker: Mobile Indoor Walking Assistance for Blind People to Avoid Obstacles and Recognize Intersections**. In Proceedings of the 24th International Conference on Human-Computer Interaction with Mobile Devices and Services. (Mobile HCI 2022). DOI: <https://doi.org/10.1145/3546714>
- [3] **Masaki Kuribayashi**, Tatsuya Ishihara, Daisuke Sato, Jayakorn Vongkulbhisal, Karnik Ram, Seita Kayukawa, Hironobu Takagi, Shigeo Morishima, and Chieko Asakawa. 2023. **PathFinder: Designing a Map-less Navigation System for Blind People in Unfamiliar Buildings**. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems. (CHI 2023). DOI: <https://doi.org/10.1145/3544548.3580687>
- [4] Yusuke Miura, Erwin Wu, **Masaki Kuribayashi**, Hideki Koike, Shigeo Morishima. 2023. **Exploration of Sonification Feedback for People with Visual Impairment to Use Ski Simulator**. Augmented Humans 2023. (AHs 2023). DOI: <https://doi.org/10.1145/3582700.3582702>
- [5] Yuka Kaniwa*, **Masaki Kuribayashi***, Seita Kayukawa, Daisuke Sato, Hironobu Takagi, Chieko Asakawa, Shigeo Morishima (* - equal contribution). 2024. **ChitChatGuide: Enabling Exploration in a Shopping Mall for People with Visual Impairments through Conversational Interaction Using Large Language Models**. In Proceedings of the 26th International Conference on Human-Computer Interaction with Mobile Devices and Services. (Mobile HCI 2024) DOI: <https://doi.org/10.1145/3676492>
- [6] Masaya Kubota*, **Masaki Kuribayashi***, Seita Kayukawa, Hironobu Takagi, Chieko Asakawa, Shigeo Morishima (* - equal contribution). 2024. **Snap&Nav: Smartphone-based Indoor Navigation System For Blind People via Floor Map Analysis and Intersection Detection**. In Proceedings of the 26th International Conference on Human-Computer Interaction with Mobile Devices and Services. (Mobile HCI 2024) DOI: <https://doi.org/10.1145/3676522>
- [7] Hee Jae Kim, Kathakoli Sengupta, **Masaki Kuribayashi**, Hernisa Kacorri, Eshed Ohn-Bar. 2024. **Text to Blind Motion**. Neural Information Processing Systems (NeurIPS 2024). Project Page: <https://blindways.github.io/>
- [8] **Masaki Kuribayashi**, Kohei Uehara, Allan Wang, Daisuke Sato, Simon Chu and Shigeo Morishima. 2024. **Memory-Maze: Scenario Driven Benchmark and Visual Language Navigation Model for Guiding Blind People**, arXiv. DOI: <https://doi.org/10.48550/arXiv.2405.0706>
- [9] **Masaki Kuribayashi**, Kohei Uehara, Allan Wang, Daisuke Sato, Simon Chu and Shigeo Morishima. 2025.

WanderGuide: Indoor Map-less Robotic Guide for Exploration by Blind People, In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI 2025). Accepted and to be published.

- [10] Yusuke Miura, Chi-Lan Yang, **Masaki Kuribayashi**, Keigo Matsumoto, Hideki Kuzuoka, and Shigeo Morishima. 2025. **Understanding and Supporting Formal Email Exchange by Answering AI-Generated Questions**, In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI 2025). Accepted and to be published.
- [11] Toshihiro Hirano, Yichen Peng, **Masaki Kuribayashi**, Erwin Wu, Shigeo Morishima and Hideki Koike. 2025 **SlopeNav: A Realtime Wearable Blind Ski Assistance System with Adaptive Path Planning for Simulated Environments**. Augmented Humans. (AHs2025). Accepted and to be published.

Short Papers and Posters

- [12] **Masaki Kuribayashi**, Seita Kayukawa, Jayakorn Vongkulbhisal, Daisuke Sato, Chieko Asakawa, Hironobu Takagi, Shigeo Morishima. 2021. **Designing a Smartphone-Based Assistance System for Blind People to Recognize Intersections and Obstacles in Indoor Corridors**. Mobile and Ubiquitous Systems. (Mobiquitous 2021).
- [13] Yusuke Miura, **Masaki Kuribayashi**, Erwin Wu, Hideki Koike, Shigeo Morishima. 2022. **A Study on Sonification Method of Simulator-Based Ski Training for People with Visual Impairment**. SIGGRAPH Asia 2022 Posters. (SA '22 Posters).
- [14] **Masaki Kuribayashi**, Hironobu Takagi, Chieko Asakawa, Shigeo Morishima. 2023. **Textual and Directional Sign Recognition Algorithm for People with Visual Impairment by Linking Texts and Arrows**. The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2023 Workshop (CVPR 2023 Workshop).
- [15] **Masaki Kuribayashi**, Kohei Uehara, Allan Wang, Daisuke Sato, Simon Chu and Shigeo Morishima. 2024. **Memory-Maze: Benchmark and Visual Language Navigation Model for Guiding Blind People**. Robotics: Science and Systems Assistive Robotics Workshop (RSS 2024 Workshop).
- [16] Hee Jae Kim, Kathakoli Sengupta, **Masaki Kuribayashi**, Hernisa Kacorri, Eshed Ohn-Bar. 2024. **A Multi-Modal Dataset for Urban Navigation by Blind Individuals**. The 4th Annual Workshop on The Future of Urban Accessibility (ASSETS 2024 Workshop)

Academic Service

Reviewer of CHI, Mobile HCI, IMWUT, ASSETS, Disability and Rehabilitation: Assistive Technology

Associate Reviewer of CHI LBW

CHI 2025 Assistant of Local Arrangement Chair, Organizing Committee

Talks

- May. 2023 Masaki Kuribayashi, "**Introduction to Accessibility Research**", Hong Kong Japanese School
- Nov. 2023 Masaki Kuribayashi, "**PathFinder: Designing a Map-less Navigation System for Blind People in Unfamiliar Buildings**", Workshop on Interactive Software and Systems 2023 (WISS2023)
- Sep. 2024 Masaki Kuribayashi, "**PathFinder: Designing a Map-less Navigation System for Blind People in Unfamiliar Buildings**", Forum of Information Teachnology (FIT2024)
- Feb. 2025 Masaki Kuribayashi, "**Map-less Navigation System for Blind People**", A11y Meetup
- Mar. 2025 Masaki Kuribayashi, "**PathFinder: Designing a Map-less Navigation System for Blind People in Unfamiliar Buildings**", Global Creative Leaders Society, Tokyo University