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
- 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 levearging 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
- Developed navigation robot for blind people to explore shopping malls and museums.
- Conducted in-the-wild user studies with 15 blind poeple in shopping malls and museums.

Jan. 2024 - May. 2024 **Visiting Researcher**
Human-to-Everything (H2X) Lab, Boston University
Advisor: Eshed Ohn-Bar
- Constructed a dataset using simulating social navigation of a pedestrian on CARLA simulater.
- 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
- Launched a research project by identifying of people with visual impairment that they require assistance when navigating a maze-like indoor environement 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
- 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.

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, Pytorch**

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/10.11 45/3411764.3445451

[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. (* - equal contribution) 2024. **Memory-Maze: Scenario Driven Benchmark and Visual Language Navigation Model for Guiding Blind People,** arXiv. Under Review in Robotics and Automation Letters. (RA-L) DOI: https://doi.org/10.48550/arXiv.2405.0706

[9] **Masaki Kuribayashi**, Kohei Uehara, Allan Wang, Shigeo Morishima and Chieko Asakawa. 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).
arXiv: https://arxiv.org/abs/2502.03804

[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.
arXiv: https://arxiv.org/abs/2502.08906

[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). To appear

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, Organzing 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, “**Research Introduction; Map-less Navigation System for Blind People**”, A11y Meetup, Cybozu, Japan

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