Masaki Kuribayashi

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Doctor's Student at Waseda University. Interested in the field of Human-Computer Interaction, particularly in assistive systems for supporting navigation of people with visual impairment. Also interested in enhancing navigation experience using AI models, such as visual language navigation models. Experience in conducting user-centered & inclusive design, designing architecture of practical systems, development smartphones applications and robot systems, designing/conducting user studies, and conducting statistical analysis.

Education

Apr. 2023 - Current

Doctor of Engineering
Graduate School of Advanced Science and Engineering, Waseda University
Advisor: Shigeo Morishima

Apr. 2021 - Mar. 2023

Master of Engineering
Graduate School of Advanced Science and Engineering, Waseda University
Advisor: Shigeo Morishima

Apr. 2017 - Mar. 2021

Bachelor of Science
School of Advanced Science and Engineering, Department of Physics, Waseda University
Advisor: Shigeo Morishima

Work Experience

Apr. 2023 - Current

Research Fellow DC1
JSPS Research Fellowship for Young Scientists
Advisor: Shigeo Morishima
- Mentored five Bachelors and Masters students.
- 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
Accessibility Lab, Miraikan - The National Museum of Emerging Science and Innovation
- Developed AI-powered system to operate navigation robot in various location, without preparation
- Conducted user study to in public facility to reveal the assistance need by blind people.

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.
- Trained and evaluated an large language model-powered VLN model that navigates blind people.
- Developed an application to annotate video of motion of blind people
- Conducted user study to collect large scale annotation data to train AI model which models motion of blind people

Apr. 2021 - Dec. 2023	**Research Internship**
	IBM Research
	Advisor: Chieko Asakawa, Hironobu Takagi
	- Launched a research project by identifying a challenge people with visual impairment face.
	- Developed an iOS navigation application for people with visual impairment.
	- Developed an ML model for detecting intersections on iOS by gathering a unique dataset.
	- Conducted a user study and analyzed using statistical tests.

Jun. 2022 - Sep. 2022	**Visiting Researcher**
	Cognitive Assistance Lab, Robotics Institute, Carnegie Mellon University
	Advisor: Chieko Asakawa, Daisuke Sato
	- Identified technical challenges of navigation robots and launched and led a research project.
	- Designed a system through a user-centered design process with people with visual impairment.
	- Implemented a practical sign recognition algorithm using ML models.
	- Conducted a user study in a large-scale environment and analyzed using statistical tests.

Awards

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:	**XCode, Adobe CC (Illustrator, Premiere Pro, and InDesign), User Studies, Statistical Analysis**

Publications

Journal Papers and Conference 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)

[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)

[7]   Hee Jae Kim, Kathakoli Sengupta, **Masaki Kuribayashi**, Hernisa Kacorri, Eshed Ohn-Bar. 2024. **Text to Blind Motion**. Neural Information Processing Systems (NeurIPS 2024)

Short Papers and Posters

[8]   **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).

[9]   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).

[10]   **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).

[11]   **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).

Academic Service

Reviewer of CHI, Mobile HCI, IMWUT, ASSETS
CHI 2025 Local Arrangement Chair Assistant, Organzing Committee

Invited Talks

May. 2023   Masaki Kuribayashi, "**Introduction to Accessibility Research and My Experiences of Entrance Exams**", 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 (WISS)

Sep. 2024   Masaki Kuribayashi, "**PathFinder: Designing a Map-less Navigation System for Blind People in Unfamiliar Buildings**", FIT2024