

Seita Kayukawa, Ph. D.

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Researcher at IBM Research

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Education

- Apr. 2020 - Sept. 2022** **Ph. D. of Engineering**
Graduate School of Advanced Science and Engineering, Waseda University
Advisor: Shigeo Morishima
- Apr. 2018 - Mar. 2020** **Master of Engineering**
Graduate School of Advanced Science and Engineering, Waseda University
Advisor: Shigeo Morishima
- Apr. 2014 - Mar. 2018** **Bachelor of Science**
Department of Applied Physics, Waseda University
Advisor: Shigeo Morishima

Work Experience

- Apr. 2023 - Current** **Researcher**
IBM Research
- Apr. 2021 - Mar. 2023** **Researcher**
Accessibility Lab., Miraikan - National Museum of Emerging Science and Innovation
- Apr. 2020 - Mar. 2023** **Research Fellow (~Sept. 2022: DC1, Oct. 2022~: PD)**
JSPS Research Fellowship for Young Scientists
- Feb. 2019 - Mar. 2020** **Research Intern**
IBM Research - Tokyo
- May 2018 - Sept. 2018** **Research Intern**
Cognitive Assistance Lab., Robotics Institute, Carnegie Mellon University

Research Interest

Human-Computer Interaction; Real World Accessibility; Video Browsing

Publications

Journal Papers and Conference Full Papers

- [1] Masaya Kubota*, Masaki Kuribayashi*, **Seita Kayukawa**, Hironobu Takagi, Chieko Asakawa, and 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 ACM on Human-Computer Interaction*, Volume 8, Issue MHCI, Article 275 (September 2024), 22 pages.
DOI: <https://doi.org/10.1145/3676522>
- [2] Yuka Kaniwa*, Masaki Kuribayashi*, **Seita Kayukawa**, Daisuke Sato, Hironobu Takagi, Chieko Asakawa, and Shigeo Morishima (* - equal contribution). 2024. **ChitChatGuide: Conversational Interaction Using Large Language Models for Assisting People with Visual Impairments to Explore a Shopping Mall**. In *Proceedings of the ACM on Human-Computer Interaction*, Volume 8, Issue MHCI, Article 247 (September 2024), 25 pages.
DOI: <https://doi.org/10.1145/3676492>
- [3] Xiyue Wang, **Seita Kayukawa**, Hironobu Takagi, Giorgia Masoero, and Chieko Asakawa. 2022. **Direct or Immersive? Comparing Smartphone-based Museum Guide Systems for Blind Visitors**. In *Proceedings of the 21st International Web for All Conference (W4A '24)*.
DOI: <https://doi.org/XXXXXXX/XXXXXX>
- [4] Xiyue Wang, **Seita Kayukawa**, Hironobu Takagi, and Chieko Asakawa. 2022. **TouchPilot: Designing a Guidance System that Assists Blind People in Learning Complex 3D Structures**. In *Proceedings of the 25th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '23)*.
DOI: <https://doi.org/10.1145/3597638.3608426>
- [5] **Seita Kayukawa**, Daisuke Sato, Masayuki Murata, Tatsuya Ishihara, Hironobu Takagi, Shigeo Morishima, and Chieko Asakawa. 2023. **Enhancing Blind Visitor's Autonomy in a Science Museum Using an Autonomous Navigation Robot**. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI 2023)*.
DOI: <https://doi.org/10.1145/3544548.3581220>
- [6] 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>
- [7] Xiyue Wang, **Seita Kayukawa**, Hironobu Takagi, and Chieko Asakawa. 2022. **BentoMuseum: 3D and Layered Interactive Museum Map for Blind Visitors**. In *Proceedings of the 24th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '22)*.
DOI: <https://doi.org/10.1145/3517428.3544811>
- [8] **Seita Kayukawa**, Daisuke Sato, Masayuki Murata, Tatsuya Ishihara, Akihiro Kosugi, Hironobu Takagi, Shigeo Morishima, and Chieko Asakawa. 2022. **How Users, Facility Managers, and Bystanders Perceive and Accept a Navigation Robot for Visually Impaired People in Public Buildings**. In *Proceedings of the 31st IEEE International Conference on Robot & Human Interactive Communication (IEEE RO-MAN '22)*.
DOI: <https://doi.org/10.1109/RO-MAN53752.2022.9900717>

- [9] Masaki Kuribayashi, **Seita Kayukawa**, Jayakorn Vongkulbhisal, Daisuke Sato, Chieko Asakawa, Hironobu Takagi, and Shigeo Morishima. 2022. **Corridor-Walker: Mobile Indoor Walking Assistance for Blind People to Avoid Obstacles and Recognize Intersections**. In *Proceedings of the ACM on Human-Computer Interaction*, Volume 6, Issue MHCI, Article 179 (September 2022), 22 pages.
DOI: <https://dx.doi.org/10.1145/3546714>
- [10] Yutaro Yamanaka, **Seita Kayukawa**, Hironobu Takagi, Yuichi Nagaoka, Yoshimune Hiratsuka, and Satoshi Kurihara. 2021. **One-Shot Wayfinding Method for Blind People via OCR and Arrow Analysis with a 360-degree Smartphone Camera**. In *Proceedings of the 18th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous '21)*.
DOI: https://doi.org/10.1007/978-3-030-94822-1_9
- [11] 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 '21)*.
DOI: <https://doi.org/10.1145/3411764.3445451>
- [12] **Seita Kayukawa**, Tatsuya Ishihara, Hironobu Takagi, Shigeo Morishima, and Chieko Asakawa. 2020. **Guiding Blind Pedestrians in Public Spaces by Understanding Walking Behavior of Nearby Pedestrians**. In *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*. Volume 4, Issue 3, Article 85 (September 2020), 22 pages.
DOI: <https://doi.org/10.1145/3411825>
- [13] **Seita Kayukawa**, Keita Higuchi, João Guerreiro, Shigeo Morishima, Yoichi Sato, Kris Kitani, and Chieko Asakawa. 2019. **BBeep: A Sonic Collision Avoidance System for Blind Travellers and Nearby Pedestrians**. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19)*.
DOI: <https://doi.org/10.1145/3290605.3300282>

Conference Short Papers, Demonstrations, and Posters

- [14] **Seita Kayukawa**, Keita Higuchi, Shigeo Morishima, and Ken Sakurada. 2023. **3DMovieMap: An Interactive Route Viewer for Multi-Level Buildings**. In *Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23 LBW)*.
DOI: <https://doi.org/10.1145/3544549.3585885>
- [15] Masaki Kuribayashi, **Seita Kayukawa**, Jayakorn Vongkulbhisal, Daisuke Sato, Chieko Asakawa, Hironobu Takagi, and Shigeo Morishima. 2021. **Designing a Smartphone-Based Assistance System for Blind People to Recognize Intersections and Obstacles in Indoor Corridors**. In *Proceedings of the 18th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous '21 Poster)*.
DOI: <https://doi.org/10.1007/978-3-030-94822-1>
- [16] **Seita Kayukawa**, Hironobu Takagi, João Guerreiro, Shigeo Morishima, and Chieko Asakawa. 2020. **Smartphone-Based Assistance for Blind People to Stand in Lines**. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20 LBW)*.
DOI: <https://doi.org/10.1145/3334480.3382954>
- [17] **Seita Kayukawa**, Tatsuya Ishihara, Hironobu Takagi, Shigeo Morishima, and Chieko Asakawa. 2020. **BlindPilot: A Robotic Local Navigation System that Leads Blind People to a Landmark Object**. In

Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20 LBW).

DOI: <https://doi.org/10.1145/3170427.3189085>

[18] Ryo Shimamura, Seita Kayukawa, Takayuki Nakatsuka, Shoki Miyagawa, and Shigeo Morishima. 2019. **A Study on the Sense of Burden and Body Ownership on Virtual Slope.** In *Proceedings of the IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR '19 Poster)*.

DOI: <https://doi.org/10.1109/VR.2019.8797960>

[19] Seita Kayukawa, Keita Higuchi, Ryo Yonetani, Masanori Nakamura, Yoichi Sato, and Shigeo Morishima. 2018. **Dynamic Object Scanning: Object-Based Elastic Timeline for Quickly Browsing First-Person Videos.** In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18 LBW and DEMO)*.

DOI: <https://doi.org/10.1145/3170427.3189085>

Awards

May 2024 Best Technical Paper Award

W4A 2024 (co authored paper, 1st author: Xiyue Wang)

Nov. 2021 Outstanding Student Paper Award

MobiQuitous 2021 (co authored paper, 1st author: Yutaro Yamanaka)

Dec. 2020 Best Paper Award

JSSST WISS 2020 (a Domestic Conference in Japan)

Mar. 2020 IPSJ Yamashita SIG Research Award

Information Processing Society of Japan (IPSJ)

Mar. 2019 Azusa Ono Memorial Award

Waseda University

Mar. 2019 Best Paper Award

IPSJ Interaction 2019 (a Domestic Conference in Japan)

Scholarships

**May 2020 - Mar. 2021 Early Bird Program (Support for Young Researchers),
Waseda Research Institute for Science and Engineering**

Apr. 2018 - Mar. 2020 JASSO Scholarship for Outstanding Master Students

May 2018 - Sept. 2018 Visiting Support from Super Global University

May 2018 - Aug. 2018 JASSO Scholarship for Short-term Study Abroad

Skills

Programming Languages: C++, Python, Swift, HTML, CSS

Libraries / Platforms: OpenCV, Qt5, ROS, Arduino, CMake

OS: macOS, Ubuntu

Others: Adobe CC (Illustrator, Premiere Pro, Photoshop, InDesign)

User Studies, Statistical Analysis

Machine Learning, Coursera MOOC by Andrew NG, Nov. 2018