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 Interact*ion, 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 Interact*ion, 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/10.1145/3677846.3677856

[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