

# Seita Kayukawa, Ph. D.

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Researcher at IBM Research

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## Education

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- 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

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- 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

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Human-Computer Interaction; Accessibility; Video Browsing

# Publications

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## Journal Papers and Conference Full Papers

- [1] 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>
- [2] **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>
- [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] 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>
- [5] **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>
- [6] 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 24th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI '22)*. DOI: <https://dx.doi.org/10.1145/3546714>
- [7] 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](https://doi.org/10.1007/978-3-030-94822-1_9)
- [8] 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>

- [9] 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)*. 4, 3, Article 85 (September 2020), 22 pages.  
DOI: <https://doi.org/10.1145/3411825>
- [10] 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

- [11] 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>
- [12] 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>
- [13] 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>
- [14] 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>
- [15] 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>
- [16] 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

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- 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

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- 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

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**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