



Kosuke Shikata

Ph.D student / Young Researcher supported by JSPS
Keio University

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Information

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Research interests

- **Motion control / Mechatronics / Network systems**
 - Physical human-robot-environment interactions
 - Control and utilization of vibration in mechanical systems
 - Teleoperation and telerobotics
 - Haptic sharing and Human motion information
 - Functional electrical stimulation and biosignals-based robotics

Education

- **Graduate School of Science and Technology, Keio University** *Apr. 2022 – Sep. 2023*
Master of Science in Engineering GPA – 3.88
 - Thesis title: Mutual Impedance-Based Force/Velocity Control for Motion Systems
 - Supervisor: Professor Seiichiro Katsura
- **Faculty of Science and Technology, Keio University** *Apr. 2018 – Mar. 2022*
Bachelor of Engineering GPA – 3.47
 - Thesis title: Vibration Control for Bilateral System with Resonance
 - Supervisor: Professor Seiichiro Katsura

Experiences

- **Research intern** *Jan. 2024 –*
Wrocław University of Science and Technology Wrocław, Poland
 - Towards collaborative research with the team led by Prof. Krzysztof Szabat
 - Local stay in Wrocław Poland for one month (Jan. 2024 – Feb. 2024)

- **Student member**

Fourth Editorial Subcommittee of the Institute of Electrical Engineers of Japan (IEEEJ)

Apr. 2022 – Present

Tokyo

– Interviewing with laboratories/companies and writing articles for the Journal of IEEEJ (in Japanese)    
- **Teaching assistant**

Keio University

Oct. 2022 – Jan. 2024

Yokohama

– Assistant for the lecture “Electromechanical Energy Conversion” given by Prof. Seiichiro Katsura
- **Tutor**

Keio University

Nov. 2022 – Sep. 2023

Yokohama

– Support for the study and research of the international student participating in the Japan-Europe Master on Advanced Robotics (JEMARO) project
- **Secretary**

International Symposium on Applied Abstraction and Integrated Design (AAID)

Mar. 2023

Yokohama

– Engaged in planning, preparation, and operation of the academic symposium

– Third International Symposium on Applied Abstraction and Integrated Design (AAID2023)
- **Summer intern**

Mitsubishi Electric Corporation

Aug. 2022

Itami, Hyogo

– Experienced the development of railway vehicle brakes in the transportation systems group
- **Butcher shop salesperson/cashier**

New-Quick CO.LTD.

May. 2018 – Aug. 2022

Yokohama

– Acquired customer service and interpersonal skills at the local store

Grants/Scholarships

- **Research Fellowships for Young Scientists, DC1**

Japan Society for the Promotion of Science (JSPS)

Apr. 2024 –

– Title: Establishment of Spatiotemporal Haptic Extension by Integrated Design of Human, Robot, and ICT
- **Scholarships for Doctoral Programs in Graduate Schools**

Amano Institute of Technology

Oct. 2023 –

– Title: Engineering of Interaction in Robot Manipulations
- **JST-SPRING**

Japan Science and Technology Agency (JST)

Oct. 2023 – Mar. 2024

JPMJSP2123

– As an adopter of the Keio-SPRING project

– Title: Constituent Unit in Motion Control and Information Communication for Multilateral Haptic Sharing
- **Fujiwara Scholarship**

Keio University

Dec. 2023

- **Koizumi fund travel assistance for graduate students** Nov. 2023
Keio University
- **Bakheet scholarship** Apr. 2022 – Sep. 2023
Keio University
- **Master's program research grant** Oct. 2022
Keio Leading-edge Laboratory of Science and Technology (KLL)

Publications/Achievements

Journal

1. **Kosuke Shikata** and Seiichiro Katsura, “Wave dynamics intrinsic in symmetric four-channel bilateral teleoperation: Mutual impedance-based motion control,” ***Mechatronics***, Vol. 102 p. 103209, October, 2024. 
2. **Kosuke Shikata** and Seiichiro Katsura, “Modal Space Control of Bilateral System with Elasticity for Stable Contact Motion,” ***IEEJ Journal of Industry Applications***, Vol. 12, No. 2, pp. 131–144, March, 2023. 

International conference

1. **Kosuke Shikata** and Seiichiro Katsura, “Hybrid Velocity/Force Filtered Integral-Proportional Control for Damping of Torsional Vibration,” ***21st International Conference on Power Electronics and Motion Control (IEEE-PEMC2024)***, Pilsen, Czech Republic, October, 2024. (Accepted)
2. **Kosuke Shikata** and Seiichiro Katsura, “Hierarchical Control for Vibration Suppression Through Decoupling of Traveling/Reflected Waves,” ***49th Annual Conference of the IEEE Industrial Electronics Society (IECON 2023)***, Singapore, October, 2023, pp. 1–6. 
3. **Kosuke Shikata** and Seiichiro Katsura, “Vibration Suppression Control Tolerant to Inertial Variations Based on Transformation to Traveling/Reflected Wave Basis,” ***SICE Annual Conference 2023***, Mie, Japan, September, 2023, pp. 821–826.
4. **Kosuke Shikata** and Seiichiro Katsura, “Mutual Impedance-Based Force/Velocity Transmission Improvement for Bilateral Teleoperation,” ***22nd World Congress of the International Federation of Automatic Control (IFAC World Congress 2023)***, Yokohama, Japan, July, 2023, pp. 9992–9997. 
5. **Kosuke Shikata** and Seiichiro Katsura, “Disturbance-Observer-Based Admittance Control and Its Application to Safe Contact Regulation,” ***2023 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)***, Seattle, WA, USA, June, 2023, pp. 311–316. 
6. **Kosuke Shikata** and Seiichiro Katsura, “Controller Design Considering Intrinsic Wave System for Four-Channel Bilateral Teleoperation,” ***3rd International Symposium on Applied Abstraction and Integrated Design (AAID2023)***, Yokohama, Japan, March, 2023, pp. 22–27.
7. **Kosuke Shikata** and Seiichiro Katsura, “Reflected Wave Control for Generating Impact Motion Using a Flexible Manipulator,” ***48th Annual Conference of the IEEE Industrial Electronics Society (IECON2022)***, Brussels, Belgium, October, 2022, pp. 1–6. 
8. **Kosuke Shikata** and Seiichiro Katsura, “Impact Motion of a Flexible Manipulator Based on Reflected Wave Control,” ***SICE Annual Conference 2022***, Kumamoto, Japan, September, 2022, pp. 1265–1269.
9. **Kosuke Shikata** and Seiichiro Katsura, “Vibration Suppression for Bilateral System with Resonance,” ***8th IEEJ International Workshop on Sensing, Actuation, Motion Control, and Optimization (SAMCON2022)***, Saitama, Japan, March, 2022, pp. 526–527.

Domestic conference

8 presentations as the first author (in Japanese)   

Awards

- **Excellent Research Activity Award (Master)**
Keio University

– For the research activity in his master course”

Mar. 2024
- **Miura Award**
Japan Society Mechanical Engineers (JSME) 

– For the research activity in his master course”

Mar. 2024
- **Academic Encouragement Award**
Society of Instrument and Control Engineers (SICE) 

– For the research
titled “Identification of Distributed/Lumped-Parameter Coupling Model Toward Wave Control”

Mar. 2024
- **Excellent Presentation Award in the 66th Japan Joint Automatic Control Conference**
Society of Instrument and Control Engineers (SICE) 

– For the presentation
titled “Identification of Distributed/Lumped-Parameter Coupling Model Toward Wave Control”

Oct. 2023
- **Finalist in the SICE Annual Conference Young Author’s Award**
Society of Instrument and Control Engineers (SICE) 

– For the paper and presentation at the *SICE Annual Conference 2023*

Sep. 2023
- **IEEJ Industry Applications Society Excellent Presentation Award**
Institute of Electrical Engineers of Japan (IEEJ)

– For the presentation titled “Interaction Control of Flexible Structures based on Wave Model”

Jan. 2023
- **Encouragement Award in Electrical Engineering**
Tokyo Branch, Institute of Electrical Engineers of Japan (IEEJ) 

– For academic diligence and results as a student member of IEEJ

Mar. 2022
- **Excellent Presentation Award**
Tokyo Branch, Institute of Electrical Engineers of Japan (IEEJ) 

– For the presentation at the *11th Student Research Presentation Conference*

Aug. 2021

Skills

- **Programming and Simulation**
C/C++, Python, MATLAB
- **Hardware Development**
Mechanical design for robotics, Fusion 360 (CAD), 3D Printing, Electronic circuit design, KiCad, FPGA
- **Visualization and Design**
 $\text{\LaTeX}$, gnuplot, Adobe Illustrator, Microsoft PowerPoint

Professional associations

- **Institute of Electrical and Electronics Engineers (IEEE)**
 - Industrial Electronics Society (IES)
- **Institute of Electrical Engineers of Japan (IEEJ)**
- **Japan Society of Mechanical Engineers (JSME)**
- **Society of Instrument and Control Engineers (SICE)**

Languages

Japanese	Mothertongue	
English	Intermediate	Basic conversational ability

Interests

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|---------------------|--------------------|------------------------------|
| • Travel | • Geography | • Watching baseball |
| • Photograph | • Design | • Playing soft tennis |