

Kazuya Sase

ASSOCIATE PROFESSOR

Tohoku Gakuin University, 3-1, Shimizukoji, Wakabayashi-ku, Sendai, Miyagi, Japan

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Education

Hokkaido University

Sapporo, Hokkaido, Japan

PHD IN INFORMATION SCIENCE AND TECHNOLOGY

2013 - 2017

- Dissertation: Development of a Real-time Brain Retraction Simulator Using Patient-specific Model
- Advisor: Dr. Atsushi Konno

Tohoku University

Sendai, Miyagi, Japan

MS IN MECHANICAL ENGINEERING

2011 - 2013

- Dissertation: A Numerical Model of Vessel Fracture and its Experimental Evaluation for a Brain Surgery Simulator
- Advisor: Dr. Masaru Uchiyama

Tohoku University

Sendai, Miyagi, Japan

BS IN MECHANICAL ENGINEERING

2007 - 2011

- Honors thesis/undergrad research advisor: Dr. Masami Nakano

Position Held

2020-
present

Associate Professor, Tohoku Gakuin University

2018-2020

Lecturer, Tohoku Gakuin University

2017-2018

Assistant Professor, Tohoku Gakuin University

Research Interests and Motivation

I am passionate about haptic rendering in virtual reality. I am particularly interested in the reproduction of the feel of soft objects. I have used real-time computation of finite element methods (FEM) as my primary tool in my research and development. In order to reproduce the feel of touching a soft object, it is necessary to know well not only the deformation of the object but also the deformation of the finger itself. Therefore, I believe that real-time prediction of finger deformation and mechanoreceptor activity in VR is important. So far, I have been working on FEM based real-time finger deformation prediction. I would like to improve it and try to incorporate machine learning techniques into some of my methods.

The application of the research will be in surgical training and assistance as well as in various other areas, e.g., robotic teleoperation, telepresence, 3D shape design, and educational tools. I am convinced that haptic rendering technology is a powerful tool to make people believe that virtual objects in VR really exist. It must be an intuitive and compelling teaching tool in the field of education. I often attend public science events to explore new forms of education and science communication.

Awards

2020

Research Encouragement Award, M. Ishida Foundation
Encouragement Award, Tokin Foundation for Science and Technology

2019

Academic Encouragement Award, Virtual Reality Society of Japan
Scienceday of the year 2019 Mayor of Sendai Award, Mayor of Sendai
Technical Committee Encouragement Award, Electronics, Information and Systems Division, Institute of Electrical Engineers of Japan

2018

IEEE ROBIO 2018 Finalist for Best Conference Paper, IEEE RAS

2017

Research Encouragement Award, Robotics Society of Japan
Audience Award, CEDEC2017

Grants (Only those for which I am the project leader are listed.)

2022–2026	JSPS KAKENHI Grant-in-Aid for Early-Career Scientists, Measurement and computation method for data-driven tactile distribution display , Japan Society for the Promotion of Science	¥4,550,000
2018–2020	JSPS KAKENHI Grant-in-Aid for Early-Career Scientists, 3D haptic scanner to automate flexible object modeling for force sense presentation , Japan Society for the Promotion of Science	¥4,030,000
2018	Funded Research A-1, Urban development simulator for tsunami disaster prevention using sandbox interface , Hayao Nakayama Science, Technology and Culture Foundation	¥1,400,000
2015–2017	JSPS DC Research Fellowship (DC2), Development of a networked neurosurgical simulator with haptic feedback , Japan Society for the Promotion of Science	¥1,900,000

Teaching Experience

2022–present	Exercises in Control Engineering and Mechatronics , Undergraduate Programs at Tohoku Gakuin University
2018–present	Ergonomics , Undergraduate Programs at Tohoku Gakuin University
2018–present	Introduction to Human Factors , Undergraduate Programs at Tohoku Gakuin University
2020–present	Advanced Dynamics Analysis , Master’s Programs at Tohoku Gakuin University
2018–present	Sequence control, Experiments in Mechanical Engineering and Intelligent Systems , Undergraduate Programs at Tohoku Gakuin University
2018–present	Characteristics of human perception, Experiments in Mechanical Engineering and Intelligent Systems , Undergraduate Programs at Tohoku Gakuin University
2018–2019	Mechanical Engineering for Welfare , Undergraduate Programs at Tohoku Gakuin University
2019	Advanced Biomechanical Engineering , Master’s Programs at Tohoku Gakuin University
2018	Mechanical Design and Drafting , Undergraduate Programs at Tohoku Gakuin University

Publications

JOURNAL PAPERS

- Natsumi Morita, Akio Ichijo, Masashi Konyo, Haruki Kato, **Kazuya Sase**, Hikaru Nagano, Satoshi Tadokoro, “Wearable High-resolution Haptic Display Using Suction Stimuli to Represent Cutaneous Contact Information on Finger Pad,” in IEEE Transactions on Haptics, Vol. 16, Issue. 4, pp. 687-694, 2023. doi: 10.1109/TOH.2023.3280391.
- S. Shibuya, N. Shido, R. Shirai, **K. Sase**, K. Ebina, X. Chen, T. Tsujita, S. Komizunai, T. Senoo, and A. Konno, “Proposal of Simulation-Based Surgical Navigation and Development of Laparoscopic Surgical Simulator that Reflects Motion of Surgical Instruments in Real-World,” Int. J. Automation Technol., Vol.17 No.3, pp. 262-276, 2023.
- Koki Ebina, Takashige Abe, Kiyohito Hotta, Madoka Higuchi, Jun Furumido, Naoya Iwahara, Masafumi Kon, Kou Miyaji, Sayaka Shibuya, Yan Lingbo, Shunsuke Komizunai, Yo Kurashima, Hiroshi Kikuchi, Ryuji Matsumoto, Takahiro Osawa, Sachiyo Murai, Teppei Tsujita, **Kazuya Sase**, Xiaoshuai Chen, Atsushi Konno and Nobuo Shinohara: “Automatic assessment of laparoscopic surgical skill competence based on motion metrics”, PLoS one, vol. 17, no. 11, pp. 1-13, 2022.
- Xiaoshuai Chen, Daisuke Sakai, Hiroaki Fukuoka, Ryosuke Shirai, Koki Ebina, Sayaka Shibuya, **Kazuya Sase**, Teppei Tsujita, Takashige Abe, Kazuhiko Oka, and Atsushi Konno: “Basic Experiments toward Mixed Reality Dynamic Navigation for Laparoscopic Surgery”, Journal of Robotics and Mechatronics, vol. 34, no. 6, pp. 1253-1267, 2022.

- Akito Ema, Xiaoshuai Chen, **Kazuya Sase**, Teppei Tsujita, and Atsushi Konno, “Moving Particle Semi-Implicit and Finite Element Method Coupled Analysis for Brain Shift Estimation”, *Journal of Robotics and Mechatronics*, Vol.34, No.6, pp. 1306-1317, 2022.
- Koki Ebina, Takashige Abe, Kiyohito Hotta, Madoka Higuchi, Jun Furumido, Naoya Iwahara, Masafumi kon, Kou Miyaji, Sayaka Shibuya, Yan Lingbo, Shunsuke Komizunai, Yo Kurashima, Hiroshi Kikuchi, Ryuji Matsumoto, Takahiro Osawa, Sachiyo Murai, Teppei Tsujita, **Kazuya Sase**, Xiaoshuai Chen, Atsushi Konno and Nobuo Shinohara: “Objective evaluation of laparoscopic surgical skills in wet lab training based on motion analysis and machine learning”, *Langenbeck's Archives of Surgery*, vol. 407, no. 5, pp. 2123-2132, 2022.
- Xiaoshuai Chen, Ryosuke Shirai, Ken Masamune, Manabu Tamura, Yoshihiro Muragaki, **Kazuya Sase**, Teppei Tsujita, Atsushi Konno, “Numerical Calculation Method for Brain Shift Based on Hydrostatics and Dynamic FEM,” in *IEEE Transactions on Medical Robotics and Bionics*, doi: 10.1109/TMRB.2022.3168075.
- Kazuya Sase**, Xiaoshuai Chen, Teppei Tsujita, Atsushi Konno, “Development of Namako, a Game-engine Plugin for Haptic Rendering of Soft Objects”, *Transactions of Virtual Reality Society of Japan*, vol. 25, No. 4, 2020. (in Japanese)
- Koki Ebina, Takashige Abe, Madoka Higuchi, Jun Furumido, Naoya Iwahara, Masafumi Kon, Kiyohiko Hotta, Shunsuke Komizunai, Yo kurashima, Hiroshi Kikuchi, Ryuji Matsumoto, Takahiro Osawa, Sachiyo Murai, Teppei Tsujita, **Kazuya Sase**, Xiaoshuai Chen, Atsushi Konno, and Nobuo Shinohara: “Motion analysis for better understanding of psychomotor skills in laparoscopy: Objective assessment-based simulation training using animal organs”, *Surgical Endoscopy*, 2020.
- Xiaoshuai Chen, **Kazuya Sase**, Teppei Tsujita, and Atsushi Konno, A Nonlinear and Failure Numerical Calculation Method for Vessel Preservation Simulations based on Subarachnoid Space Structure Considerations, *IEEE Transactions on Medical Robotics and Bionics*, Vol. 2, No. 3, pp. 356-363, DOI: 10.1109/TMRB.2020.3009521, August 2020.
- Koki EBINA, Takashige ABE, Shunsuke KOMIZUNAI, Teppei TSUJITA, **Kazuya Sase**, Xiaoshuai CHEN, Madoka HIGUCHI, Jun FURUMIDO, Naoya IWAHARA, Yo KURASHIMA, Nobuo SHINOHARA, Atsushi KONNO, “Development and Validation of a Measurement System for Laparoscopic Surgical Procedures,” *SICE Journal of Control, Measurement, and System Integration*, Vol. 13, No. 4, pp. 191-200, 2020/07/10, <https://doi.org/10.9746/jcmsi.13.191>
- Xiaoshuai Chen, Atsushi Konno, **Kazuya Sase**, Akito Ema, Teppei Tsujita, “A Model of Stress Relaxation for Brain Retraction Simulation,” *Journal of Japan Society of Computer Aided Surgery*, vol. 20, no. 1, pp. 22-32, 2018.
- Kazuya Sase**, Teppei Tsujita, Atsushi Konno, “Haptic Interaction with Segmented Medical Image Embedded in Finite Element Mesh,” *Journal of Japan Society of Computer Aided Surgery*, vol. 19, no. 2, pp. 89-99, 2017.
- Xiaoshuai Chen, **Kazuya Sase**, Atsushi Konno, Teppei Tsujita, Shunsuke Komizunai, “A simple damage and fracture model of brain parenchyma for haptic brain surgery simulations,” *Journal of Biomechanical Science and Engineering(JBSE)*, vol. 11, no. 4, 2016.
- Akira Fukuhara, Teppei Tsujita, **Kazuya Sase**, Atsushi Konno, Atsuhiko Nakagawa, Toshiki Endo, Teiji Tominaga, Xin Jiang, Satoko Abiko and Masaru Uchiyama, “Securing an Optimum Operating Field without Undesired Tissue Damage in Neurosurgery,” *Advanced Robotics (AR)*, Taylor & Francis, vol. 30, no. 19, pp. 1245-1259, 2016.
- Kazuya Sase**, Akira Fukuhara, Teppei Tsujita, Atsushi Konno, “GPU-accelerated surgery simulation for opening a brain fissure,” *ROBOMECH Journal*, vol. 2, no. 1, Article 17, 2015.
- Akira Fukuhara, Teppei Tsujita, **Kazuya Sase**, Atsushi Konno, Xin Jiang, Satoko Abiko, Masaru Uchiyama, “Proposition and evaluation of a collision detection method for real time surgery simulation of opening a brain fissure,” *ROBOMECH Journal*, vol. 1, no. 1, 2014.
- Teppei Tsujita, **Kazuya Sase**, Atsushi Konno, Masano Nakayama, Xiaoshuai Chen, Koyu Abe, and Masaru Uchiyama, “Design and Evaluation of an Encountered-type Haptic Interface Using MR Fluid for Surgical Simulators,” *Advanced Robotics*, Taylor & Francis, vol. 27, no. 7, pp. 525-540, 2013.

PEER-REVIEWED CONFERENCE PAPERS

- Koki Ebina, Takashige Abe, Lingbo Yan, Kiyohiko Hotta, Madoka Higuchi, Naoya Iwahara, Jun Furumido, Masafumi Kon, Sachiyo Murai, Yo Kurashima, Shunsuke Komizunai, Teppei Tsujita, **Kazuya Sase**, Xiaoshuai Chen, Taku Senoo, Nobuo Shinohara, Atsushi Konno, “Development of Machine Learning-Based Assessment System for Laparoscopic Surgical Skills Using Motion-Capture,” *Proceedings of the 2024 IEEE/SICE International Symposium on System Integration (SII)*, Paper TueAK1.1, Ha Long, Vietnam, 2024/01/08-2024/01/11.
- Ebina Koki, Takashige Abe, Kiyohiko Hotta, Madoka Higuchi, Jun Furumido, Naoya Iwahara, Masafumi Kon, Shunsuke Komizunai, Yo Kurashima, Hiroshi Kikuchi, ryuji Matsumoto, Takairo Osawa, Sachiyo Murai, Teppei Tsujita, **Kazuya Sase**, Xiaoshuai Chen, Nobuo Shinohara, Atsushi Konno, “Development and validation of a measurement system for laparoscopic surgical procedures in practical surgery training,” *2023 IEEE/SICE International Symposium on System Integra-*

tion (SII), Atlanta, GA, USA, 2023, pp. 1-6, doi: 10.1109/SII55687.2023.10039340. [IEEE Xplore] SICE International Young Authors Award (SIYA) (to the presenter)

- Koki Ebina, Takashige Abe, Shunsuke Komizunai, Teppei Tsujita, **Kazuya Sase**, Xiaoshuai Chen, Madoka Higuchi, Jun Furumido, Naoya Iwahara, Yo Kurashima, Nobuo Shinohara, and Atsushi Konno, "Surgical skill analysis based on the way of grasping organs with forceps in dissection procedure of laparoscopic surgery," Proceedings of 23rd CISM IFToMM Symposium on Robot Design, Dynamics and Control (ROMANSY 2020), pp. 76-83, 2020/09/20-24, online. [link] Finalist: Best Student Paper Award
- A. Konno, N. Shido, **K. Sase**, X. Chen and T. Tsujita, "A Hepato-Biliary-Pancreatic Deformable Model for a Simulation-Based Laparoscopic Surgery Navigation," Proc. 2020 IEEE/SICE International Symposium on System Integration (SII), Honolulu, HI, USA, 2020, pp. 39-44, doi: 10.1109/SII46433.2020.9025967. [IEEE Xplore]
- Ryosuke Shirai, Xiaoshuai Chen, **Kazuya Sase**, Shunsuke Komizunai, Teppei Tsujita, Atsushi Konno, "AR Brain-Shift Display for Computer-Assisted Neurosurgery," Proceedings of the 58th Annual Conference of the Society of Instrument and Control Engineers of Japan (SICE 2019), pp. 1113-1118, Hiroshima, Japan, 2019. [IEEE Xplore]
- Koki Ebina, Takashige Abe, Shunsuke Komizunai, Teppei Tsujita, **Kazuya Sase**, Xiaoshuai Chen, Madoka Higuchi, Jun Furumido, Naoya Iwahara, Yo Kurashima, Nobuo Shinohara, Atsushi Konno, "A Measurement System for Skill Evaluation of Laparoscopic Surgical Procedures," Proceedings of the 58th Annual Conference of the Society of Instrument and Control Engineers of Japan (SICE 2019), pp. 1099-1106, Hiroshima, Japan, 2019. SICE Annual Conference International Award of the SICE2019 (to the presenter)
- Xiaoshuai Chen, Mio Hashimoto, **Kazuya Sase**, Teppei Tsujita, Atsushi Konno, "Vessel Dissection Simulation for Neurosurgery Simulators Considering Subarachnoid Space Structure," Proceedings of the 2019 IEEE International Conference on Cyborg and Bionic Systems and HBP Workshop (CBS 2019), Paper No. 6, Munich, Germany, 2019.
- Hikaru Nagano, **Kazuya Sase**, Masashi Konyo, Satoshi Tadokoro, "Wearable Suction Haptic Display with Spatiotemporal Stimulus Distribution on a Finger Pad, ", Proceedings of the 2019 IEEE World Haptics Conference (WHC), pp. 389-394, Tokyo, Japan, 9-12 July 2019.
- Xiaoshuai Chen, **Kazuya Sase**, Teppei Tsujita, Atsushi Konno, "Numerical Model of Connective Tissue for Splitting Brain Fissure Simulation," Proceedings of the 2019 IEEE/SICE International Symposium on System Integration (SII), pp. 118-123, Paris, France, 14-16 January 2019.
- Teppei Tsujita, **Kazuya Sase**, Xiaoshuai Chen, Masashige Tomita, Atsushi Konno, Masano Nakayama, Atsuhiko Nakagawa, Koyu Abe and Masaru Uchiyama, "Development of a Surgical Simulator for Training Retraction of Tissue with an Encountered-type Haptic Interface Using MR Fluid", Proceedings of the 2018 IEEE International Conference on Robotics and Biomimetics (ROBIO 2018), pp. 898-903, Kuala Lumpur, Malaysia, December 14, 2018. Finalist for Best Conference Paper
- Xiaoshuai Chen, **Kazuya Sase**, Atsushi Konno, Teppei Tsujita, "A Viscoelastic Model of Brain Parenchyma for Haptic Brain Surgery Simulations," Proceedings of the 2016 IEEE/SICE International Symposium on System Integration (SII), pp.490-495, Sapporo, Japan, 14 December 2016.
- Kazuya Sase**, Teppei Tsujita, Atsushi Konno, "Haptic Rendering of Contact Between Rigid and Deformable Objects based on Penalty Method with Implicit Time Integration," Proceedings of the 2016 IEEE International Conference on Robotics and Biomimetics (ROBIO 2016), pp. 1594-1600, Qingdao, China, 6 December, 2016.
- Xiaoshuai Chen, **Kazuya Sase**, Atsushi Konno, Teppei Tsujita, "Experimental and Numerical Analysis of Damage Fracture Mechanics of Brain Parenchyma," Proceedings of the 2016 IEEE International Conference on Robotics and Biomimetics (ROBIO 2016), pp. 485-490, Qingdao, China, 4 December, 2016. Finalist of Best Paper in Biomimetics Award.
- Kazuya Sase**, Teppei Tsujita, Atsushi Konno, "Embedding Segmented Volume in Finite Element Mesh with Topology Preservation," Proceedings of the 19th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI2016), pp. 116-123, October 17-21, 2016, Athens, Greek.
- Akira Fukuhara, Teppei Tsujita, **Kazuya Sase**, Atsushi Konno, Xin Jiang, Satoko Abiko, Masaru Uchiyama, "Optimization of retraction in neurosurgery to avoid damage caused by deformation of brain tissues," Proceedings of the 2014 IEEE International Conference on Robotics and Biomimetics (ROBIO 2014), December 5-10, 2014, Bali, Indonesia.
- Xiaoshuai Chen, **Kazuya Sase**, Atsushi Konno and Teppei Tsujita, "Identification of Mechanical Properties of Brain Parenchyma for Brain Surgery Haptic Simulation," Proceedings of the 2014 IEEE International Conference on Robotics and Biomimetics (ROBIO 2014), December 5-10, 2014, Bali, Indonesia.
- Teppei Tsujita, Manabu Ohara, **Kazuya Sase**, Atsushi Konno, Masano Nakayama, Koyu Abe, and Masaru Uchiyama, "Development of a haptic interface using MR fluid for displaying cutting forces of soft tissues," in Proceedings of the 2012 IEEE International Conference on Robotics and Automation (ICRA 2012), pp. 1044-1049, Saint Paul, 2012.

OTHER PRESENTATIONS AND DEMOS

- Kazuya Sase**, “Soft Tactile Presentation in Virtual Reality,” 66th Automatic Control Union Lecture Meeting, OS: Future Interaction by Soft Design, Kawauchi Campus, Tohoku University, Sendai, 2023/10/07. (in Japanese) **Invited Talks**
- Kaito Yamada, Masanobu Suzuki, Kou Miyaji, Koki Ebina, **Kazuya Sase**, Teppei Tsujita, Xiaoshuai Chen, Takashige Abe, Shunsuke Komizunai, Yuji Nakamaru, Taku Senoo, Akihiro Homma, Atsushi Konno, “Development of a Classification System for Surgical Skills in Endoscopic Sinus Surger,” Abstract Booklet of the 16th IFToMM World Congress, 6A2-84, Tokyo, 2023/11/05-2023/11/10. (Extended abstract)
- Akio Ichijo, Natsumi Morita, Masashi Konyo, **Kazuya Sase**, Hikaru Nagano and Satoshi Tadokoro, “Cutaneous Sensory Representation of Surface Shape Using a High-resolution Suction Tactile Display through a Real-time Contact Simulation,” IEEE World Haptics Conference 2023, Hands-on Demos, D.S.8, TU Delft, 2023.
- Natsumi Morita, Akio Ichijo, Masashi Konyo, **Kazuya Sase**, Hikaru Nagano, and Satoshi Tadokoro, A high-resolution tactile display integrated with a kinesthetic haptic AsiaHaptics2022 Tokyo Satellite Presentations, No. 22, University of Tokyo, 2022/11/12. **Silver Winner**
- Kazuya Sase**, “Squeaking Jelly: An Application for Studying Pseudo Force Sensing of Flexible Objects,” 25th Virtual Reality Society of Japan Conference, Open Virtual Exhibition, C07-(3), 2020/09/18. (in Japanese)
- Hikaru Nagano, **Kazuya Sase**, Masashi Konyo, Satoshi Tadokoro, “Wearable Suction Haptic Display with Spatiotemporal Stimulus Distribution on a Finger Pad,” IEEE World Haptics Conference 2019, DM1.28, sola city Conference Center, Tokyo, Japan, 2019/07/09-2019/09. 07/11.
- Kazuya Sase**, Shinya Kishimoto, Teppei Tsujita, Atsushi Chikano, “Tactile Interaction for Virtual Flexible Organisms,” CEDEC 2017 Interactive Session, Yokohama, Japan, 2017/08/30-9/1. (in Japanese) CEDEC2017 Audience Award 1st Prize
- (Lecture, Demonstration) **Kazuya Sase**, “Real-Time Elastic Body Simulation Method for Force Presentation,” 112th Tokyo City University Sokendai Seminar (11th TCU Robotics Workshop), Tokyo, 2016/10/30. (in Japanese)
- (Demonstration) **Kazuya Sase**, Akito Ema, Shuhei Ogawa, Teppei Tsujita, Atsushi Chikano, “Real-time contact simulation and tactile presentation method for elastic bodies (demonstration version),” Tokyo Game Show 2016 (CEDEC2016 Interactive Session Special Exhibition), Chiba, 2016/09/15-18. (in Japanese)
- (Lecture) **Kazuya Sase**, Akito Ema, Shuhei Ogawa, Teppei Tsujita, Atsushi Chikano, “Real-time contact simulation and tactile presentation method for elastic objects (Theory),” CEDEC 2016 Short Session, Yokohama, 2016/08/24-26. (in Japanese)
- (Demo) **Kazuya Sase**, Akito Ema, Shuhei Ogawa, Teppei Tsujita, Atsushi Chikano, “Real-time contact simulation and tactile presentation method for elastic objects (Demonstration),” CEDEC 2016 Interactive Session, Yokohama, 2016/08/24-26. (in Japanese)
- (talk) **Kazuya Sase**, Akito Ema, Ko Fukuhara, Teppei Tsujita, Atsushi Chikano, “Implementation of Finite Element Method for Interactive Elastic Body Simulation and Its Acceleration by GPU,” CEDEC 2015 Short Session, Yokohama, 2015/08/26-28. (in Japanese)
- (Demo) **Kazuya Sase**, Akito Ema, Ko Fukuhara, Teppei Tsujita, Atsushi Chikano, “Interactive elastic body simulation using finite element method,” CEDEC 2015 Interactive Session, Yokohama, 2015/08/26-28. (in Japanese)
- (demo) **Kazuya Sase**, Hiroki Matsunaga, Osamu Fujiwara, Rihei Endo, Atsushi Konno, “Interactive physics simulation using HTML5 -Calculation of dynamics of flexible bodies and fluids using tablet terminals-,” CEDEC 2014 Interactive Session, Yokohama, 2014/09/02-04. (in Japanese)
- (Poster) **Kazuya Sase**, Atsushi Chikano, “Real-time deformation and fracture simulation of biological soft tissue using GPGPU,” GTC Japan 2014, Tokyo, 2014/07/16. (in Japanese)

PRESENTATIONS AT DOMESTIC CONFERENCES

This CV omits approximately 100 presentations (without review) at domestic conferences in Japan. These can be found on my lab’s website or on my researchmap.

Service and Outreach _____

SOCIETY COMMITTEE

- 2020–present **Secretary**, Special Interest Group for Haptics, Virtual Reality Society of Japan (VRSJ)
- 2018–2019 **Committee member**, Special Interest Group for Haptics, Virtual Reality Society of Japan (VRSJ)
- 2018–present **Committee member**, Haptics Committee, The Society of Instrument and Control Engineers (SICE)
- 2024 **Executive committee chairman**, Robotics Competition Executive Committee (for Intelligent Robot Contest in Sendai)
- 2018–present **Committee Member**, Robotics Competition Executive Committee (for Intelligent Robot Contest in Sendai)

EXHIBITIONS FOR THE PUBLIC

- “Let’s Control Robots with Facial Expressions!” Science Day in Tagajo 2023, Tagajo City Cultural Center, 2023/12/2.
- “Let’s try image processing!” , Science Day in Tagajo 2023, Tagajo City Cultural Center (online), 2023/12/2.
- “Let’s Control Robots with Facial Expressions!” Science Day 2023, Kawauchi Campus, Tohoku University, 2023/07/16.
- “Let’s try image processing!” , Science Day in Tagajo 2022, Tagajo City Cultural Center, 2023/01/28.
- “Let’s make the ‘shape’ you thought of with paper and pencil with a 3D printer!” , Science Day in Tagajo 2022, Tagajo City Cultural Center, 2023/01/28.
- “Let’s make a ‘shape’ thought up with paper and pencil using a 3D printer!” , Science Day 2022, Tohoku University Kawauchi Campus, 2022/07/17.
- “Let’s try image processing!” , Science Day in Tagajo 2021 (6th) - At Home, online, 2021/12/24-2022/01/31.
- “Tsunami Disaster Prevention City Planning through Games! Earth Science Week Japan 2021, 3M Sendai Science Museum, 2021/10/30-2021/10/31. *Collaboration with Hydraulic Engineering Laboratory, School of Engineering, Tohoku Gakuin University
- “Let’s Learn How Digital Images Work with a Virtual Professor!” Science Day 2021, online, 2021/07/18.
- “Easy Experiments on the Computer! Image Processing!” , Science Day in Tagajo 2020 - Challenge at Home - Online Course, 2020/12/24-2021/01/31.
- “Let’s experience haptic technology!” , Science Day 2018, Sendai, 2018/07/15.
- “Experience the latest research using liquids that harden with magnets! The surgical simulator of the future!” , Science Day, 2017/07/16. *Collaboration with Shibaura Institute of Technology Space Robotics Laboratory and Department of Biomechanical Engineering, National Defense Academy of Japan
- “Let’s experience haptic technology!” , Science Day 2017, Sendai, 2017/07/16.
- “Let’s touch virtual objects in the computer!” , Science Day 2016, 2016/07/17.
- “Touch something that shouldn’t be there? Experience a virtual reality simulator!” , Science Day 2014, 2014/07/20.
- Digital Hollywood Graduate School x DWARF PLANET Corporation, “Concrete Method of New Music Lesson (Prototype Version)” Appearance (about PICK FEEL developed with Fumiyoshi Kamo), Online Live Broadcast, 2020/09/07.
- Unko Society of Japan, Tohoku Gakuin University Sase Laboratory, K’s Design Lab, “Tactile Experience! Unko Tsun Tsun: Challenge to Excretion Care,” Yahoo! Hack Day 2019, Akihabara UDX, Tokyo, Japan, 2019/12/15.
- “Hepatitis Tactile Experience”, Hepatitis Medical Coordinator Training Workshop, Saga University School of Medicine, 2019/12/1. <https://www3.nhk.or.jp/lnews/saga/20191211/5080004659.html>
- Unko Society of Japan, Sase Laboratory, Tohoku Gakuin University, K’s Design Lab, “Tactile Experience! Unko Tsun Tsun - Challenge to Excretion Care”, Playful Health Exhibition 2018, Digital Hollywood Graduate School, Tokyo, 2018/12/23.
- Unko Society of Japan, Tohoku Gakuin University Sase Laboratory, K’s Design Lab, “Tactile Experience! Unko Tsun Tsun: Challenge to Excretion Care,” Toda City Health and Welfare Forest Festival, Toda City Welfare and Health Center, Toda, 2018/10/7.
- Tohoku Electric Power Company Green Plaza Summer Vacation Special Event “7 wonders and GP Science Base”, Sendai, 2018/07/31-2018/08/12.

Unko Society of Japan, Tohoku Gakuin University Sase Laboratory, K's Design Lab, "Tactile Experience! Unko Tsun Tsun - Challenge to Excretion Care -", Nico Nico Ultra Conference 2018, Makuhari Messe, Chiba, 2018/04/28.

K's Design Lab (co-developer: Kazuya Sase), "Sea Cucumber VR", JapanVR Fest 2018 Ginza, Ginza Phoenix Plaza, Tokyo, 2018/01/13, 14. Unko Society of Japan.

K's Design Lab, Microsoft, Altair Engineering (co-developer: Kazuya Sase), "Haptic Interaction for Digital Models in VR Space", solidThinking Converge 2017. The Garden Room, Ebisu, Tokyo, 2017/11/22. Unko Society of Japan.

Kazuya Sase, Shinya Kishimoto, Teppei Tsujita, Atsushi Chikano, "Tactile Interaction for Virtual Flexible Organisms," Tokyo Game Show 2017 (CEDEC2017 Interactive Session Special Exhibition), Chiba, Japan, 2017/09/21-9/24.

Kazuya Sase, Akito Ema, Shuhei Ogawa, Teppei Tsujita, Atsushi Chikano, "Real-time contact simulation and tactile presentation method for elastic objects (demonstration version)," Tokyo Game Show 2016 (CEDEC2016 Interactive Session Special Exhibition), Chiba. 2016/09/15-18.

LECTURES FOR THE PUBLIC

Sase Laboratory, "Picatto Buruburubukun," Tohoku Gakuin Kindergarten Science Experience, 2024/02/14.

K. Sase, "Virtual Reality of the Sense of Touch", Techno Aoba 60th 382nd Meeting, AIST Sendai-Aoba Site, 2019/10/10.

K. Sase, "Virtual Reality of the Sense of Touch," Mini-Lecture at Yume Navi Live 2019 Sendai Venue, Yume Messe Miyagi, 2019/10/05.

Kazuya Sase, "Contribution to Safe and Secure Society by VR - Application to Surgical Support and Disaster Prevention Education -," Open Lecture at Engineering Research Institute, Tohoku Gakuin University, 2019/09/18.

K. Sase, "Virtual Reality of the Sense of Touch", Lecture of the 27th Ordinary General Meeting of Tohoku Gakuin University Mechanical TG Society, Hotel Sendai Garden Palace, Sendai, 2019/05/27.

K. Sase, "Touch things that aren't there! Virtual reality of touch!" Satellite Campus Open Lecture 2018, Sendai Consortium for Academic City Sendai, Sendai, 2018/12/08.

Kazuya Sase, "Visual x Tactile: VR technology to create the sense of touch," Industry-University Collaboration Seminar 125th Terakoya Sendai, Sendai, 2018/10/29.

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