

Taku Hachisu, PhD (Eng.)

Last update: April 2017.

Career Objective

To work in a challenging research environment that would provide me with the opportunity to experience personal growth and development in my career as a researcher in Haptic and Engineering fields.

Research Interests

Augmented / Virtual Reality, Body Area Network, Children with ASD, Haptics, Human-Computer Interaction, Social Imaging, Wearable Device.

Education

- 2012-2015 **Department of Informatics, the University of Electro-Communications**, Tokyo, Japan.
- Degree conferred: PhD (Eng.)
- Thesis Title: Exaggeration-Based Haptic Interaction [in Japanese]
- Advised by Associate Professor Hiroyuki Kajimoto.
- 2010-2012 **Department of Informatics, the University of Electro-Communications**, Tokyo, Japan.
- Degree conferred: Master (Eng.)
- Advised by Associate Professor Hiroyuki Kajimoto.
- 2006-2010 **Department of Human Communication, the University of Electro-Communications**, Tokyo, Japan.
- Degree conferred: Bachelor (Eng.)
- Advised by Associate Professor Hiroyuki Kajimoto.

Experience

- 2015-present **University of Tsukuba**, Ibaraki, Japan.
- Researcher
- JST CREST Project (Principle Investigator: Professor Kenji Suzuki)
- 2012-2015 **Japan Society for the Promotion of Science (JSPS)**, Japan
- Research Fellow (DC1).
- 2013 (6 months) **Microsoft Research**, Beijing, China.
- 2015 (2 weeks) - Internship Fellow (2013), visiting PD fellow (2015).
- Human-Computer Interaction group.
- Advised by Dr. Masaaki Fukumoto.
- 2010 (3 months) **Institut National de Recherche en Informatique et en Automatique**, Rennes, France.
- Visiting Student.
- Bunraku team.
- Advised by Dr. Anatole Lécuyer, Dr. Maud Marchal and Dr. Gabriel Cirio.
- Institutional Program for Young Researcher Overseas Visits - Scholarship for Internship, by JSPS.

Languages

- French 3 months in Rennes.
Chinese 6 months in Beijing.
English
Japanese Mother tongue.

Skills

Programming Languages

C/C++, C#, Processing.

Applications

Adobe After Effects, Illustrator, Photoshop, Premiere,
MS-Word, Excel, PowerPoint,
Blender, Eagle, Max, MPLAB, Puredata, R, Scilab, SolidWorks.

Academic Services

Membership

Association for Computing Machinery (ACM)

Virtual Reality Society of Japan (VRSJ)

Conference Organizer

Organizing Committee: ACM CHI 2015 Symposium on Emerging Japanese HCI Research Collection

Demo Committee: The 21st Annual Conference of the Virtual Reality Society of Japan

Committee: International Collegiate Virtual Reality Contest (IVRC) 2016

Organizing Committee: ACM CHI 2017 Asian CHI Symposium: Emerging HCI Research Collection

Poster/Demo Chair: IFIP International Conference on Entertainment Computing 2017

Reviewer

Asia Haptics 2014

CHI 2016, 2017

EuroHaptics 2014, 2016

Haptics Symposium 2014

IEICE 2015

ISWC 2014

Journal of Robotics and Mechatronics 2016

SIGGRAPH Asia 2014, 2015, 2016

TEI 2016

Transactions of VRSJ 2015, 2016, 2017

UIST 2016

World Haptics 2015

Publications

Journal (with peer review)

1. Yosuke. Kurihara, Seiya Takei, Yuriko Nakai, **Taku Hachisu**, Katherine J. Kuchenbecker, Hiroyuki Kajimoto:
Haptic Robotization of the Human Body by Data-Driven Vibrotactile Feedback,
Elsevier Journal on Entertainment Computing, vol. 5, no. 4, pp. 485-494, 2014.
2. **Taku Hachisu**, Hiroyuki Kajimoto:
HACHISStack: Low Latency Touch Panel using Two Photo Sensing Layers,
Transactions of Virtual Reality Society of Japan, vol. 19, no. 4, pp 503-512, 2014. [in Japanese]
3. **Taku Hachisu**, Hiroyuki Kajimoto:
Modulating Tooth Brushing Sounds to Affect User Impressions,
International Journal of Arts and Technology, vol. 8, no. 4, 2015.
4. Keisuke Hoshino, Masahiro Koge, **Taku Hachisu**, Ryo Kodama, Hiroyuki Kajimoto:
Jorro Beat: Improvement of Music Experience in the Bathroom by Shower Tactile Stimulation,
Transactions of Human Interface Society, vol. 18, no. 2, pp. 77-86, 2016. [Japanese]
5. **Taku Hachisu**, Yadong Pan, Tadayuki Tone, Baptiste Bourreau, Kenji Suzuki:
Wearable Device for Measuring Face-to-Face Behavior via Infrared Communication,
Transactions of Virtual Reality Society of Japan, vol. 22, no. 1, pp. 11-18, 2017. [in Japanese]
6. **Taku Hachisu**, Hiroyuki Kajimoto:
Vibration Feedback Latency Affects Material Perception during Rod Tapping Interactions,
IEEE Transactions on Haptics, vol. xx, issue xx, pp. xx-xx, 201x. [accepted]

International Conference (Full paper, with peer review)

7. Masahiro Furukawa, Hiromi Yoshikawa, **Taku Hachisu**, Shogo Fukushima, Hiroyuki Kajimoto:
“Vection Field” for Pedestrian Traffic Control,
in *Proceedings of ACM Augmented Human (AH) 2011*, Tokyo, Japan, 12-14 March 2011. **[Best Paper Award]**
8. **Taku Hachisu**, Michi Sato, Shogo Fukushima, Hiroyuki Kajimoto:
Augmentation of Material Property by Modulating Vibration Resulting from Tapping,
in *Proceedings of EuroHaptics 2012*, vol.1, pp.173-180, Tampere, Finland, 12-15 June, 2012.
9. **Taku Hachisu**, Hiroyuki Kajimoto:
Augmentation of Toothbrush by Modulating Sounds Resulting from Brushing,
in *Proceedings of the Advances in Computer Entertainment Conference (ACE) 2012*, pp.31-43,
Kathmandu, Nepal, 3-5 November, 2012.
10. **Taku Hachisu**, Hiroyuki Kajimoto:
HACHISStack: Dual-Layer Photo Touch Sensing for Haptic and Auditory Tapping Interaction,
in *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI) 2013*, pp.
1411-1420, Paris, France, 27 April-2 May, 2013.
11. Yosuke Kurihara, **Taku Hachisu**, Katherine J. Kuchenbecker, Hiroyuki Kajimoto:
Virtual Robotization of the Human Body via Data-Driven Vibrotactile Feedback,
in *Proceedings of the International Conference on Advances in Computer Entertainment Technology (ACE) 2013*, pp. 109-122, Enschede, Netherlands, 12-15 November, 2013. **[Best Paper Silver]**
12. **Taku Hachisu**, Masaaki Fukumoto:
VacuumTouch: Attractive Force Feedback Interface for Haptic Interactive Surface using Air Suction,
in *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI) 2014*, pp.
411-420, Toronto, Canada, 26 April-1 May, 2014.

13. Kenji Suzuki, **Taku Hachisu**, Kazuki Iida:
EnhancedTouch: A Smart Bracelet for Enhancing Human-Human Physical Touch,
in *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI) 2016*, pp. 1282-1293, San Jose, CA, USA, 7-12 May, 2016.

International conference (Not full paper, with peer review)

1. **Taku Hachisu**, Sayaka Oshima, Yuki Hashimoto, Hiroyuki Kajimoto:
Haptic Illusion of Elasticity by Tactile Suppression during Motor Activity,
in *Proceedings of IEEE VR 2010 Haptics Symposium*, pp.55-58, Waltham, Massachusetts, USA, 25-26 March 2010.
2. **Taku Hachisu**, Gabriel Cirio, Maud Marchal, Anatole Lecuyer, Hiroyuki Kajimoto:
Pseudo-Haptic Feedback Augmented with Visual and Tactile Vibrations,
in *Proceedings of IEEE VR International Symposium on Virtual Reality Innovations (ISVRI) 2011*, pp.327-328, Singapore, 19-20 March, 2011. **[Best Poster Award]**
3. Hiromi Yoshikawa, **Taku Hachisu**, Shogo Fukushima, Masahiro Furukawa, Hiroyuki Kajimoto:
“Vection Field” for Pedestrian Traffic Control,
in *ACM SIGGRAPH 2011 Emerging Technologies*, Vancouver, British Columbia, Canada, 7-11 August, 2011.
4. **Taku Hachisu**, Michi Sato, Shogo Fukushima, Hiroyuki Kajimoto:
HaCHIStick: Simulating Haptic Sensation on Tablet PC for Musical Instruments Application,
in *Proceedings of ACM Symposium on User Interface Software and Technology (UIST) 2011*, pp.73-74, Santa Barbara, California, USA, 16-19 October, 2011.
5. **Taku Hachisu**, Gabriel Cirio, Maud Marchal, Anatole Lecuyer, Hiroyuki Kajimoto:
Virtual Chromatic Percussions Simulated by Pseudo-Haptic and Vibrotactile Feedback,
in *Proceedings of ACM International Conference on Advances on Computer Entertainment Technology (ACE) 2011*, Lisbon, Portugal, 8-11 November, 2011.
6. Shuyang Zhao, **Taku Hachisu**, Asuka Ishii, Yuuki Kuniyasu, Hiroyuki Kajimoto:
Obstacle Sensation Augmented by Enhancing Low Frequency Component for Horror Game Sound,
in *Proceedings of The 21st International Conference on Artificial Reality and Telexistence (ICAT)*, Osaka, Japan, 28-30 November, 2011.
7. Yosuke Kurihara, Yuki Kuniyasu, **Taku Hachisu**, Michi Sato, Shogo Fukushima, Hiroyuki Kajimoto:
Augmentation of Kinesthetic Sensation by Adding “Rotary Switch Feeling” Feedback,
in *Proceedings of ACM Augmented Human (AH) 2012*, Megeve, France, 8-9 March 2012.
8. Shuyang Zhao, **Taku Hachisu**, Asuka Ishii, Yuuki Kuniyasu, Hiroyuki Kajimoto:
Augmentation of Obstacle Sensation by Enhancing Low Frequency Component for Horror Game Background Sound,
in *Proceedings of ACM Augmented Human (AH) 2012*, Megeve, France, 8-9 March 2012.
9. Hiromi Yoshikawa, **Taku Hachisu**, Shogo Fukushima, Masahiro Furukawa, Hiroyuki Kajimoto, Takuya Nojima:
Studies of Vection Field II: A Method for Generating Smooth Motion Pattern,
in *Proceedings of Advanced Visual Interfaces (AVI) 2012*, pp.705-708, Capri Island, Italy, 21-25 May, 2012.
10. Hiroyuki Okabe, **Taku Hachisu**, Michi Sato, Shogo Fukushima, Hiroyuki Kajimoto:
Quantitative Evaluation of an Illusion of Fingertip Motion,
in *Proceedings of Interactive Tabletop & Surface (ITS) 2012*, pp.327-330, Cambridge, USA, 11-14 November, 2012.
11. Maki Yokoyama, **Taku Hachisu**, Michi Sato, Shogo Fukushima, Hiroyuki Kajimoto:
Control of Ridge by Using Visuotactile Cross-Modal Phenomenon,

in *Proceedings of Interactive Tabletop & Surface (ITS) 2012*, pp.335-338, Cambridge, USA, 11-14 November, 2012.

12. Yosuke Kurihara, **Taku Hachisu**, Michi Sato, Shogo Fukushima, Hiroyuki Kajimoto:
Virtual Alternation of Body Material by Periodic Vibrotactile Feedback,
in *Proceedings of IEEE Virtual Reality Conference (VR)*, pp. 31-34, Orlando, Florida, USA, 16-23 March, 2013.
13. Ryuta Okazaki, **Taku Hachisu**, Michi Sato, Shogo Fukushima, Vincent Hayward, Hiroyuki Kajimoto:
Frequency Consonance between Tactile and Audio,
in *Proceedings of IEEE World Haptics Conference (WHC) 2013*, pp. 663-666, Daejeon, Korea, 14-17 April, 2013.
14. Yosuke Kurihara, **Taku Hachisu**, Michi Sato, Shogo Fukushima, Hiroyuki Kajimoto:
Periodic Tactile Feedback for Accelerator Pedal Control,
in *Proceedings of IEEE World Haptics Conference (WHC) 2013*, pp. 187-192, Daejeon, Korea, 14-17 April, 2013.
15. Ryo Watanabe, Naoki Saito, Yuichiro Mori, **Taku Hachisu**, Michi Sato, Shogo Fukushima, Hiroyuki Kajimoto:
Development of Roller-Type Itch-Relief Device Employing Alternating Hot and Cold Stimuli,
in *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI EA) 2013*, pp. 403-408, Paris, France, 27 April-2 May, 2013.
16. Shinya Kudo, Hiroyuki Okabe, **Taku Hachisu**, Michi Sato, Shogo Fukushima, Hiroyuki Kajimoto:
Input Method Using Divergence Eye Movement,
in *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI EA) 2013*, pp. 1335-1340, Paris, France, 27 April-2 May, 2013.
17. Sakiko Ikeno, Ryuta Okazaki, **Taku Hachisu**, Michi Sato, Hiroyuki Kajimoto:
Audio-Haptic Rendering of Water Being Poured from Sake Bottle,
in *Proceedings of the International Conference on Advances in Computer Entertainment Technology (ACE) 2013*, Enschede, Netherlands, 12-15 November, 2013.
18. Yosuke Kurihara, **Taku Hachisu**, Katherine J. Kuchenbecker, Hiroyuki Kajimoto:
Jointonation: Robotization of the Human Body by Vibrotactile Feedback,
in *ACM SIGGRAPH Asia 2013 Emerging Technologies*, Hong Kong, China, 19-22 November, 2013.
[Emerging Technologies Prize]
19. **Taku Hachisu**, Hiroyuki Kajimoto:
Haptic Augmentation of Touch Panel with Approaching Velocity Sensing and Contact Time Prediction,
Appeared at *the IEEE Haptics Symposium 2014*, Houston, Texas, USA, 23-26 February, 2014. [demo]
20. Taira Nakamura, Manami Katoh, **Taku Hachisu**, Ryuta Okazaki, Michi Sato, Hiroyuki Kajimoto:
Localization Ability and Polarity Effect of Underwater Electro-Tactile Stimulation,
in *Proceedings of EuroHaptics Conference 2014*, pp. 216-223, Versailles, France, 24-26 June, 2014.
21. Daichi Ogawa, Sakiko Ikeno, Ryuta Okazaki, **Taku Hachisu**, Hiroyuki Kajimoto:
Tactile Cue Presentation for Vocabulary Learning with Keyboard,
in *Proceedings of ACM Symposium on User Interface Software and Technology (UIST) 2014*, pp. 73-74, Honolulu, HI, USA, 5-8 October, 2014.
22. **Taku Hachisu**, Gabriel Cirio, Maud Marchal, Anatole Lecuyer, Hiroyuki Kajimoto:
Visual Vibrations to Simulate Taps on Different Materials,
in *Proceedings of Asia Haptics 2014*, pp. 297-303, 18-20 November, 2014, Tsukuba, Japan.
23. Takuto Nakamura, Narihiro Nishimura, **Taku Hachisu**, M. Sato, H. Kajimoto:
Pressure Threshold of the Hanger Reflex at the Wrist,
in *Proceedings of Asia Haptics 2014*, pp. 121-125, 18-20 November, 2014, Tsukuba, Japan.

24. Sakiko Ikeno, Ryo Watanabe, Ryuta Okazaki, **Taku Hachisu**, Michi Sato, Hiroyuki Kajimoto: Change in the Amount Poured as a Result of Vibration when Pouring a Liquid, in *Proceedings of Asia Haptics 2014*, pp. 7-11, 18-20 November, 2014, Tsukuba, Japan.
25. Masahiro Koge, Yosuke Kurihara, Ryuta Okazaki, **Taku Hachisu**, Hiroyuki Kajimoto: Auditory Feedback for Earpicks, in *Proceedings of Asia Haptics 2014*, pp. 21-27, November, 2014, Tsukuba, Japan.
26. Seiya Takei, Ryo Watanabe, Ryuta Okazaki, **Taku Hachisu**, Hiroyuki Kajimoto: Presentation of Softness Using Film-Type Electro-Tactile Display and Pressure Distribution Measurement, in *Proceedings of Asia Haptics 2014*, pp. 91-96, November, 2014, Tsukuba, Japan.
27. Shinya Kudo, Ryuta Okazaki, **Taku Hachisu**, Michi Sato, Hiroyuki Kajimoto: Personally Supported Dynamic Random Dot Stereogram by Measuring Binocular Parallax, in *Proceedings of Augmented Human 2015*, pp. 195-196, Singapore, Singapore, 9-11 March, 2015.
28. Masahiro Koge, **Taku Hachisu**, Hiroyuki Kajimoto: VisuaLift Studio: Study on Motion Platform using Elevator, in *Proceedings of IEEE 3D User Interface (3DUI) 2015*, Arles, France, 23-24 March, 2015. **[Most Original Award]**
29. Sakiko Ikeno, Ryuta Okazaki, **Taku Hachisu**, Hiroyuki Kajimoto: Creating an Impression of Virtual Liquid by Modeling Japanese Sake Bottle Vibrations, in *Proceedings of IEEE 3D User Interface (3DUI) 2015*, Arles, France, 23-24 March, 2015.
30. Keisuke Hoshino, Masahiro Koge, **Taku Hachisu**, Ryo Kodama, Hiroyuki Kajimoto: Jorro Beat: Shower Tactile Stimulation Device in the Bathroom, in *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI EA) 2015*, pp.1675-1680, Seoul, Korea, 18-23 April, 2015.
31. Takuto Nakamura, Narihiro Nishimura, **Taku Hachisu**, Michi Sato, Hiroyuki Kajimoto: Controlling the Strength of the Hanger Reflex on the Wrist by Presenting Vibration, in *Proceedings of IEEE World Haptics Conference (WHC) 2015*, Chicago, IL, USA, 22-16 June, 2015.
32. Haruya Uematsu, Daichi Ogawa, Ryuta Okazaki, **Taku Hachisu**, Hiroyuki Kajimoto: Projection-based Vibrotactile: Vibration Unit for Recognition of Shape Image Projection onto Whole Body, in *Proceedings of IEEE World Haptics Conference (WHC) 2015*, Chicago, IL, USA, 22-16 June, 2015.
33. Seiya Takei, Ryo Watanabe, Ryuta Okazaki, **Taku Hachisu**, Michi Sato, Hiroyuki Kajimoto: WholeGrip: Grip Type Master Hand with the Whole Hand Tactile Feedback, in *ACM SIGGRAPH Asia 2015 Emerging Technologies*, Kobe, Japan, 2-5 November, 2015.
34. Soichiro Matsuda Satoru Sekine, Junichi Yamamoto, Airi Tsuji, **Taku Hachisu**, Kenji Suzuki: Use of Technology for Facilitating Positive Social Behaviors in Children with Autism, in *Proceedings of The First Asia Pacific International Conference on Positive Behavior Support (APPBS) 2016*, pp. 20-21, Taipei, Taiwan, 23 – 26 June, 2016.
35. Takuto Nakamura, Narihiro Nishimura, **Taku Hachisu**, Michi Sato, Hiroyuki Kajimoto: Perceptual Force on the Wrist under the Hanger Reflex and Vibration, in *Proceedings of EuroHaptics 2016*, pp. 462-471, London, United Kingdom, 4-7 July, 2016.
36. Haruya Uematsu, Daichi Ogawa, Ryuta Okazaki, **Taku Hachisu**, Hiroyuki Kajimoto: HALUX: Projection-based Interactive Skin for Digital Sports, in *ACM SIGGRAPH 2016 Emerging Technologies*, 10, Anaheim, CA, USA, 24-28 July, 2016.
37. Daichi Ogawa, Kenta Tanabe, Vibol Yem, **Taku Hachisu**, Hiroyuki Kajimoto: HapTONE: Haptic Instrument for Enriched Musical Play, in *ACM SIGGRAPH 2016 Emerging Technologies*, 12, Anaheim, CA, USA, 24-28 July, 2016.

38. Kensuke Sakai, **Taku Hachisu**, Yuki Hashimoto:
Sole Tactile Display using Tactile Illusion by Vibration on Toenail,
in *Proceedings of Asia Haptics 2016*, Chiba, Japan.
39. Kenta Tanabe, Akifumi Takahashi, Keisuke Hoshino, Daichi Ogawa, **Taku Hachisu**, Hiroyuki Kajimoto:
HapTONE: Haptic Instrument for Enriched Musical Play (II) –System Detail-,
in *Proceedings of Asia Haptics 2016*, Chiba, Japan.