

# Shaoyu Cai

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**Person Webpage:** <https://shaoyuca.github.io/mypage/>

**Citizenship:** China

## Research interests

Human-Computer Interaction, Cross-modal Learning, Multi-modal Interaction, Tactile Signal Processing, Haptic Interface, Virtual Reality

## Education

**City University of Hong Kong**

Hong Kong SAR, China

Ph.D in Creative Media

09/2019 – Present

Supervisor: Professor Kening Zhu.

**Huazhong Agricultural University**

Wuhan, China

B.Eng in Mechanical Design & Automation

09/2014 – 06/2018

Thesis: Designing of Automatic Flatness Detection System Based on PLC

## Publications

**[c5] FrictGAN: Frictional Signal Generation from Fabric Texture Images using Generative Adversarial Network**

**Shaoyu Cai**, Yuki Ban, Takuji Narumi, and Kening Zhu.

*In ICAT-EGVE 2020: International Conference on Artificial Reality and Telexistence & Eurographics Symposium on Virtual Environments*, pp. 11-15. The Eurographics Association, 2020.

**[c4] ThermAirGlove: A pneumatic glove for thermal perception and material identification in virtual reality**

**Shaoyu Cai**, Pingchuan Ke, Takuji Narumi, and Kening Zhu.

*In 2020 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, pp. 248-257. IEEE VR, 2020.

**[c3] Demonstration of thermairglove: A pneumatic glove for material perception in virtual reality through thermal and force feedback**

**Shaoyu Cai**, Pingchuan Ke, Shanshan Jiang, Takuji Narumi, and Kening Zhu.

*In SIGGRAPH Asia 2019 Emerging Technologies*, pp. 11-12. 2019.

**[j1] A sense of ice and fire: Exploring thermal feedback with multiple thermoelectric-cooling elements on a smart ring**

Kening Zhu, Simon Perrault, Taizhou Chen, **Shaoyu Cai**, and Roshan Lalintha Peiris.

*International Journal of Human-Computer Studies* 130 (2019): 234-247.

**[c2] Embodied Weather: Promoting Public Understanding of Extreme Weather Through Immersive Multi-Sensory Virtual Reality**

Pingchuan Ke, Kai-Ning Keng, Shanshan Jiang, **Shaoyu Cai**, Zhiyi Rong, and Kening Zhu.

*In The 17th International Conference on Virtual-Reality Continuum and its Applications in Industry*, pp. 1-2. 2019.

[c1] **HapTwist: creating interactive haptic proxies in virtual reality using low-cost twistable artefacts**

Kening Zhu, Taizhou Chen, **Shaoyu Cai**, Feng Han, and Yi-Shiun Wu.

*In SIGGRAPH Asia 2018 Virtual & Augmented Reality*, pp. 1-2. 2018.

Research experience	<b>The University of Tokyo</b>	Visiting Researcher
	Graduate School of Information Science and Technology	
	Cyber Interface Lab	01/2020 – 03/2020
	Mentors: Prof. Takuji Narumi and Prof. Yuki Ban	
	<b>City University of Hong Kong</b>	Research Assistant
	School of Creative Media	
	Multimodal and Embodied Interaction (MEI) Lab	09/2018 – 08/2019
	Mentor: Prof. Kening Zhu	
	<b>National Taipei University</b>	Exchanging Student
	Department of Electrical Engineering	
	Artificial Intelligence & Robotics Technology Lab	09/2016 – 01/2017
	Mentor: Prof. Hooman Samani	
Teaching experience	<b>SM1103A: Introduction to Media Computing</b>	Teaching Assistant
	School of Creative Media, City University of Hong Kong	Fall 2020
	<b>SM2715: Creative Coding</b>	Teaching Assistant
	School of Creative Media, City University of Hong Kong	Spring 2021
Industry experience	<b>WISfur Thermal Technology</b>	Wuhan, China
	Intern	Summer 2017
	<b>YTO Group Corporation</b>	Luoyang, China
	Student Intern	Summer 2016
Talks and tutorials	<b>ICAT-EGVE 2020</b>	12/2020
	Online presentation for <i>FrictGAN</i> published in ICAT-EGVE 2020	
	<b>The Night of IEEE VR, China VR 2020 workshop</b>	05/2020
	Online presentation for <i>ThermAirGlove</i> published in IEEE VR	
	<b>IEEE Virtual Reality 2020</b>	03/2020

Online oral presentation for the full paper of *ThermAirGlove*

**SIGGRAPH Asia 2019, Emerging Technologies**

11/2019

Oral presentation and real-time demo for *ThermAirGlove*

**Honors**

Best Paper Audience Choice Award

ICAT-EGVE 2020

Research Tuition Scholarship 2020/21

City University of Hong Kong

Special Thanks for Speakers

China VR 2020

Outstanding Graduate Certificate 2018

HZAU

**Skills**

**Programming**

Proficient in: Python, TensorFlow, PyTorch, Keras, MATLAB.

Familiar with: JavaScript, C.

**Prototyping**

Proficient in: Arduino, Processing, 3D Printing & Laser cutting.

Familiar with: PCB, AutoCAD.

**Languages**

Mandarin Chinese (Native), English (Fluent), Cantonese (Competent), Japanese (Basic)

**Service and outreach**

**Paper Reviewing**

CHI 2021 Papers, CHI 2020 Papers (Special Recognitions), MobileHCI 2020 Papers (Special Recognitions), SUI 2020 Papers

SIGGRAPH Asia 2019 & 2020, Emerging Technologies

CHI 2019 Late-Breaking Work

**Committee Member**

CHI 2021 Late-Breaking Work

CHI 2020 Late-Breaking Work

**Memberships**

ACM student member

2019.10-present

**References**

**Prof. Kening Zhu**

PhD supervisor

Assistant Professor at the School of Creative Media & Department of Computer Science, City University of Hong Kong

Email: [keninzhu@cityu.edu.hk](mailto:keninzhu@cityu.edu.hk)

**Prof. Takuji Narumi**

Research mentor

Associate Professor at the Graduate School of Information Science and Technology, The University of Tokyo

Email: [narumi@cyber.t.u-tokyo.ac.jp](mailto:narumi@cyber.t.u-tokyo.ac.jp)