

# Shaoyu Cai

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

**Citizenship:** China

## Research interests

Human-Computer Interaction, Multi/Cross-modal Interaction, Virtual & Augmented Reality, Tactile Signal Processing, Haptic Interface

## 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

**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.

**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.

**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.

**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.

**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.*

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

Online oral presentation for our paper *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 Huazhong Agricultural University

**Skills**

**Programming**

Proficient in: Python, TensorFlow, PyTorch, MATLAB.  
Familiar with: JavaScript, C.

**Prototyping**

Proficient in: Arduino, Processing, 3D Printing & Laser cutting.  
Familiar with: PCB, AutoCAD, Unity.

**Languages**

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

**Service and outreach**

**Paper Reviewing**

CHI 2021 Papers, CHI 2020 Papers, MobileHCI 2020 Papers, 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 advisor

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)