

I'm an assistant researcher at Pervasive Computing Research Center, Institute of Computing Technology, Chinese Academy of Sciences. My research interests are:

- 1) Ultra low-power sensing techniques;
- 2) Wearables interactive devices;
- 3) Interconnection techniques for resource distribution.

## EDUCATION

<b>2016-2019</b>	<b>PhD, Human Computer Interaction, Computer Science (with honor)</b> Tsinghua University, China	Advisor: Prof. Yuanchun Shi
<b>2011-2013</b>	<b>MSc, Electromagnetics, Electrical Engineering</b> The University of Texas at Austin, USA	Advisor: Prof. Andrea Alu
<b>2007-2011</b>	<b>BSc, Chien-Shiung Wu Honors College/Electrical Engineering</b> Southeast University, China	Prof. Tiejun Cui's Lab

## PUBLICATIONS

- 2020** [C.3] **Tengxiang Zhang**, Xin Zeng, Yinshuai Zhang, Ke Sun, Yuntao Wang, Yiqiang Chen. ThermalRing: Gesture and Tag Inputs Enabled by a Thermal Imaging Smart Ring. *The 2020 CHI Conference on Human Factors in Computing Systems (CCF A, Accepted)*
- [C.2] Yuntao Wang, Zichao (Tyson) Chen, Hanchuan Li, Zhengyi Cao, **Tengxiang Zhang**, Huiyi Luo, Ke Ou, John Raiti, Chun Yu, Shwetak Patel, Yuanchun Shi. MoveVR: Enabling Multiform Force Feedback in Virtual Reality using Household Cleaning Robot. *The 2020 CHI Conference on Human Factors in Computing Systems (CCF A, Accepted)*
- [O.4] **Tengxiang Zhang** and Steve Hodges. New Opportunities for Sustainable Interaction using Backscatter Sensors. *Workshop on self-powered sustainable interfaces and interactions (SelfSustainableCHI 2020) (Accepted)*
- 2019** [J.5] **Tengxiang Zhang**, Xin Yi, Ruolin Wang, Jiayuan Gao, Yuntao Wang, Chun Yu, Simin Li, Yuanchun Shi. Facilitating Temporal Synchronous Target Selection through User Behavior Modeling. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, 2,4:159. *(CCF A)*
- [J.4] Yuntao Wang, Jianyu Zhou, Hanchuan Li, **Tengxiang Zhang**, Minxuan Gao, Zhuolin Cheng, Chun Yu, Shwetak Patel, and Yuanchun Shi. FlexTouch: Enabling Large-Scale Interaction Sensing Beyond Touchscreens Using Flexible and Conductive Materials. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, 3,3:109. *(CCF A)*
- [O.3] Jianfei Shen, **Tengxiang Zhang**, and Yiqiang Chen. Tap2Pair: Associating Wireless Devices with Tapping. *Adjunct Proceedings of UbiComp/ISWC '19*, Pages 346-349.
- 2018** [J.3] **Tengxiang Zhang**, Xin Yi, Ruolin Wang, Yuntao Wang, Chun Yu, Yiqin Lu, and Yuanchun Shi. 2018. Tap-to-Pair: Associating Wireless Devices with Synchronous Tapping. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.* 2, 4: 201. *(CCF A)*

- [O.2] **Tengxiang Zhang**. 2018. Toward Pervasive Interaction: Empowering and Enriching Interactions on Resource-constrained Devices. *Adjunct Proceedings of UbiComp/ISWC '18*, Pages 504-509.
- [O.1] **Tengxiang Zhang**, Xin Yi, Chun Yu, Yuntao Wang, Nicholas Becker, and Yuanchun Shi. 2018. TOUCHPOWER: Interaction-based Power Transfer for Power-as-needed Devices. *GetMobile: Mobile Comp. and Comm.* 22, 2: 27–31. *(Invited Highlights)*
- 2017 [J.2] **Tengxiang Zhang**, Xin Yi, Chun Yu, Yuntao Wang, Nicholas Becker, and Yuanchun Shi. 2017. TouchPower: Interaction-based Power Transfer for Power-as-needed Devices. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.* 1, 3: 121:1–121:20. *(CCF A, Discussion Paper)*
- [C.1] **Tengxiang Zhang**, Nicholas Becker, Yuntao Wang, Yuan Zhou, and Yuanchun Shi. 2017. BitID: Easily Add Battery-Free Wireless Sensors to Everyday Objects. *In 2017 IEEE International Conference on Smart Computing (SMARTCOMP)*, 1–8. *(Best Paper Runner-up)*
- 2013 [J.1] Huifeng Ma, Bengeng Cai, **Tengxiang Zhang**, Yan Yang, Weixiang Jiang, and Tiejun Cui. 2013. Three-Dimensional Gradient-Index Materials and Their Applications in Microwave Lens Antennas. *IEEE Transactions on Antennas and Propagation* 61, 5: 2561–2569.

## **PATENTS**

- 2018 [P.5] Yuanchun Shi, Yinshuai Zhang, **Tengxiang Zhang**. Smart Ring and its Wearing Method: CN 201810971684.8 *(pending)*
- [P.4] Yuanchun Shi, Yinshuai Zhang, **Tengxiang Zhang**. One type of Smart Ring: CN 201821371671.9 *(pending)*
- [P.3] Yuanchun Shi, Yinshuai Zhang, **Tengxiang Zhang**. Smart Ring: CN 201821371641.8 *(pending)*
- [P.2] Yuanchun Shi, **Tengxiang Zhang**, Xin Yi, Yuntao Wang and Chun Yu. Pairing method and wireless device for pairing using wireless signals. International Patent No. PCT/CN2018/094468.
- [P.1] Yuanchun Shi, **Tengxiang Zhang**, Xin Yi, Yuntao Wang, Chun Yu. An association method and apparatus to pair devices based on wireless signals *(pending)*

## **HONORS AND AWARDS**

- 2019 Graduate with Honor (CS), Tsinghua University, China
- 2018 Finalist, Global Innovation Competition'18
- 2017 Best Paper Runner-up, SMARTCOMP'17
- 2017 Discussion Paper, UbiComp'17
- 2012 First Prize, International Mathematical Contest in Modeling

## **PROFESSIONAL EXPERIENCE**

\* Still has 4 years of H1B period for working in the US without lottery

**2019-present**    **Assistant Researcher, Institute of Computing Technology,  
Chinese Academy of Sciences, Beijing**

- Conduct research on ultra-low-power sensors, wearable devices, and distributed interfaces design

**2015-2016**    **RF Engineer/Product Manager, Tomoon Technology, Beijing**

- Smartwatch and Bluetooth tracker antenna design
- Bluetooth tracker product definition, project management, and field deployment

**2013-2015**    **Product and Test Engineer, Silicon Labs, Austin, Texas**

- IoT MCU chips (e.g. Sub-GHz, ZigBee) RF calibration and test
- Test program (C/Perl) development, hardware design and layout
- Developed on-chip test program that saved over 30% test time for EM357

## **SERVICES**

**Reviewer**    CHI'20, IMWUT/UbiComp'20, MobileHCI'20, IUI'20, TEI'20, EICS'19

**Mentor**    GIX Winter Camp 2019, Seattle, USA

**Volunteer**    ACM UBICOMP/ISWC 2018, Singapore;  
The 4th UN World Urban Forum 2008, Nanjing, China

## **STUDENT SUPERVISION AND MENTORING**

\* *Alumni*

**Xin Zeng**    UCAS Ph.D (CS). Co-supervising with Prof. Yiqiang Chen

**Xinyi Yang**    BJTU Undergraduate (CS)

**Jiayin Wang**    Tsinghua Undergraduate (CS)

**Jiayuan Gao**    Tsinghua Undergraduate (CS)

\***Zi Qian**    Tsinghua Undergraduate (CS)

\***Hsuan-Wei Fan**    Tsinghua Undergraduate (CS)

\***Hanwei Wang**    Tsinghua Undergraduate (Physics); Now Ph.D student at UIUC (EE)

## **SKILLS**

**Programming languages:**    Python, C, C++, C#, Java, Matlab

**Prototyping:**    Arduino, Processing, Altium, 3D printing

**Software:**    Matlab, CST, Keras, Scikit-learn

**Hardware:**    Signal generator, Vector network analyzer, Spectrum analyzer