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- 2020** [C.3] **Tengxiang Zhang**, Xin Zeng, Yinshuai Zhang, Ke Sun, Yuntao Wang, and Yiqiang Chen. 2020. ThermalRing: Gesture and Tag Inputs Enabled by a Thermal Imaging Smart Ring. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20), 1–13.
- [C.2] Yuntao Wang, Zichao (Tyson) Chen, Hanchuan Li, Zhengyi Cao, Huiyi Luo, **Tengxiang Zhang**, Ke Ou, John Raiti, Chun Yu, Shwetak Patel, and Yuanchun Shi. 2020. MoveVR: Enabling Multiform Force Feedback in Virtual Reality using Household Cleaning Robot. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20), 1–12.
- [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)*
- 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.
- [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.
- [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.
- [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. *(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

- 2022 [P.11] **Tengxiang Zhang**, Yanrong Li, Yiqiang Chen. Smart Glasses-based Facial Action Unit Detection Method and Apparatus (*pending*)
- [P.10] **Tengxiang Zhang**, Zitong Lan, Yanrong Li, Yiqiang Chen. A Device Selection System and Method: CN 202211410562.4 (*pending*)
- [P.9] **Tengxiang Zhang**, Xin Zeng, Yiqiang Chen. An AR Device Felicitated Multi-Device Interaction System and Method: CN 202211490160.X (*pending*)
- 2021 [P.8] **Tengxiang Zhang**, Xin Zeng, Yiqiang Chen. A Semantic-based Device Association Method: CN 202110359565.9
- 2020 [P.7] **Tengxiang Zhang**, Xin Zeng, Yiqiang Chen. A Smart Ring Based Gesture Recognition Method and System: CN 202010411317.X
- [P.6] **Tengxiang Zhang**, Jiayuan Gao, Yiqiang Chen. Apparatus and Method for Cognitive Load Analysis Based on Near-infrared Imaging of Subcutaneous Veins: CN 202010459503.0
- [P.5] **Tengxiang Zhang**, Jiayuan Gao, Yiqiang Chen. A Movement Symmetry Based Smart Prosthesis Control Method and System: CN 202010425034.0
- 2018 [P.4] Yuanchun Shi, Yinshuai Zhang, **Tengxiang Zhang**. One type of Smart Ring: CN 201821371671.9
- [P.3] Yuanchun Shi, Yinshuai Zhang, **Tengxiang Zhang**. Smart Ring: CN 201821371641.8
- [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: CN 201810723952.4

## GRANTS

- 2023 [I.6] **Principal Investigator:** Millimeter Wave Backscatter Tag Design and Localization from Head-mounted FMCW Radar (770K CNY). Industrial Grants.
- 2022 [I.5] **Principal Investigator:** Research on Pervasive Touch Interface and Interaction Design for IoT Device Control (300K CNY). NSFC Fund for Young Scholars.
- 2021 [I.4] **Principal Investigator:** Ultra-low-power Bluetooth-compatible Ubiquitous Touch Interface (20K CNY). Open project, Beijing Key Laboratory of Mobile Computing and Pervasive Device.
- 2020 [I.3] **Principal Executing Investigator:** A Movement Symmetry Based Smart Prosthesis Control Method (650K CNY). ICT, CAS Innovation Fund.

- [I.2] **Co-Principal Investigator:** Resources Cross-modality Association and Matching Techniques (2.28 Million CNY), sub-project of Key Technologies for Modern Service Resource Management, National Key Research and Development Plan.
- [I.1] **Co-investigator:** Hearing Aid Automatic Fitting Models (270K CNY), Key Technologies of Proactive Health and Aging Population, National Key Research and Development Plan.

### 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

### PROFESSIONAL EXPERIENCE

- 2023-2023** **Visiting Scholar, Biomedical Engineering Department, National University of Singapore, Singapore**
- Worked on flexible electronics, skin sensors, and electrochemical sensors
- 2021-** **Research Associate Professor, Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China**
- 2019-2021** **Research Assistant Professor, Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China**
- Conduct research on pervasive sensing and interactive systems with focuses on mixed-reality and ultra-low-power wireless tags
  - Published papers on top-tier journals and conferences like CHI and IMWUT
  - Granted research funds ~3 million CNY with 2 National Key Research and Development Plan funds
- 2015-2016** **RF Engineer/Product Manager, Tomoon Technology, Beijing, China**
- Smartwatch and Bluetooth tracker antenna design
  - Bluetooth tracker product definition, project management, field deployment
- 2013-2015** **Product and Test Engineer, Silicon Labs, Austin, Texas, USA**
- 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

- Committee Member** SIGCHI Sustainability Committee  
CCF HCI Technical Program Committee  
CCF Ubicomp Technical Program Committee
- Chair** CHI'24 Associate Chair for Blending Interaction Subcommittee  
CHI'25 Sustainability Chair  
UbiComp'23 Workshop Track Co-chair  
HHME'22 (largest conference for HCI and ubicomp in China) Tutorial
- Review** CHI'20'21'22'23, IMWUT'21'22, UIST'20, MobileHCI'20, ISS'20, IUI'20, TEI'20, EICS'19, , TEI'21 WIP Program Committee
- Volunteer** ACM UBICOMP/ISWC 2018, Singapore;

**Invited Speaker** The 4th UN World Urban Forum 2008, Nanjing, China  
 Sensing and Interaction Panel, ChinaVR'23  
 School of Computing and Information Systems, SMU, Singapore  
 School of Computing Science, NUS, Singapore  
 Microsoft Research (Redmond)  
 Tsinghua-UW GIX ACSP (Access Computing Summer Program) 2020

**Mentor** Tsinghua-UW GIX ACSP '21'22, GIX 2019 Winter Camp

### **STUDENT SUPERVISION AND MENTORSHIP**

**Xin Zeng** UCAS Ph.D (CS). Co-supervising with Prof. Yiqiang Chen  
**Yanrong Li** UCAS Master (CS). Co-supervising with Prof. Yiqiang Chen  
**Haotian Zhang** Southeast University Undergraduate (EE)  
**Xiaoyu Wang** Peking University Undergraduate (CS); Now Master at HKUST  
**\*Bo Liang** Peking University Ph.D  
**\*Yuming Liuxing** Peking University Undergraduate  
**\*Jiayuan Gao** UCAS Ph.D (CS)  
**\*Zhengtai Gou** Tsinghua Undergraduate (Automation)  
**\*Zitong Lan** SEU Undergraduate (EE); Now Ph.D at UPenn.  
**\*Xinran Chen** UESTC Undergraduate (CS)  
**\*Yaobin Su** University of Copenhagen Master (CS)  
**\*Xinyi Yang** BJTU Undergraduate (CS); Now Master at CUHK  
**\*Jiayin Wang** Tsinghua Undergraduate (CS); Now Master at Tsinghua (CS)  
**\*Simin Li** Beihang Undergraduate (CS); Now Master at Georgia Tech (CS)  
**\*Zi Qian** Tsinghua Undergraduate (CS); Now Master at U of Toronto (CS)  
**\*Hsuan-Wei Fan** Tsinghua Undergraduate (CS); Now Master at Cornell Tech (CS)  
**\*Hanwei Wang** Tsinghua Undergraduate (Physics); Now Ph.D at UIUC (EE)

*\* Alumni*

### **SKILLS**

**Programming languages:** Python, C, C++, C#, Java, Matlab  
**Prototyping:** Arduino, Processing, Altium, 3D printing  
**Fabrication:** LPKF ProtoLaser, Oxygen Plasma Cleaner, E-Microscope  
**Software:** Matlab, CST, Keras, Scikit-learn  
**Hardware:** Signal generator, Vector network analyzer, Spectrum analyzer

### **REFEREES**

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