

Yang Zhang

Curriculum Vitae

PROFESSIONAL EXPERIENCE

- 2021 - **UCLA, Samueli School of Engineering.**
Assistant Professor
- 2020 - 2021 **Apple, Accessibility+ML Research.**
Postdoctoral Fellow
- 2018 **Microsoft Research.**
Research Intern
- 2017 **Disney Research.**
Research Intern
- 2015 - 2020 **Carnegie Mellon University, School of Computer Science.**
Research Assistant

EDUCATION

- 2015 - 2020 **Carnegie Mellon University, School of Computer Science.**
Ph.D. student at Human-Computer Interaction Institute.
Thesis: *Smart Environments with Wide-Area Sensors*
- 2013 - 2015 **Carnegie Mellon University, School of Architecture.**
Master of Science in Computational Design
- 2009 - 2013 **Beihang University, School of Automation Science and Electrical Engineering.**
Bachelor of Engineering in Automation Science

AWARDS AND HONORS

- Google Research Scholar Award, 2025.
- Honorable Mention Award for T2IRay, ACM CHI 2025.
- Distinguished Paper Award for Mites, ACM IMWUT 2024.
- Honorable Mention Award for Watch Your Mouth, ACM CHI 2024.
- Honorable Mention Award for ForceSight Demo, ACM UIST 2022.
- Honorable Mention Award for Hand Interfaces, ACM CHI 2022.
- Distinguished Paper Award for OptoSense, ACM IMWUT 2021.
- Finalist for Vibrosight++, Fast Company Innovation by Design Award 2021.
- Best Paper Award for Wireality, ACM CHI 2020.
- Honorable Mention for ActiTouch, Fast Company Innovation by Design Award 2020.
- Honorable Mention Award for Posture-Aware Pen+Touch Interactions, ACM CHI 2019.
- Honorable Mention Award for Interferi, ACM CHI 2019.
- Honorable Mention for Pulp Nonfiction, Fast Company Innovation by Design Award 2019.
- Best Paper Award for Wall++, ACM CHI 2018.
- Honorable Mention Award for Vibrosight, ACM UIST 2018.
- Finalist for LumiWatch, Fast Company Innovation by Design Award 2018.
- Qualcomm Innovation Fellowship Winner, 2017.
- Finalist for Synthetic Sensors, Fast Company Innovation by Design Award 2017.
- Honorable Mention Award for SkinTrack, ACM CHI 2016.
- People's Choice Best Talks for SkinTrack, ACM CHI 2016.

PUBLICATIONS

- 2026 [C.57] William Huang, Siyou Pei, Leyi Zou, Eric J Gonzalez, Ishan Chatterjee, and **Yang Zhang**. 2026. Delta-Dorsal: Enhancing Hand Pose Estimation with Dorsal Features in Egocentric Views. In Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems (CHI'26), *Conditionally Accepted*.
- 2025 [C.56] Xiaoying Yang, Vivian Shen, Chris Harrison, and **Yang Zhang**. 2025. Hapt-Aids: Self-Powered, On-Body Haptics for Activity Monitoring. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'25).
- [C.55] Xiaoying Yang, Qian Lu, Jeeun Kim, and **Yang Zhang**. 2025. LuxAct: Enhance Everyday Objects for Visual Sensing with Interaction-Powered Illumination. In Proceedings of the 38th Annual ACM Symposium on User Interface Software and Technology (UIST'25).
- [C.54] Xue Wang and **Yang Zhang**. 2025. Invisibility Cloak: Personalized Smartwatch-Guided Camera Obfuscation. In Proceedings of the 38th Annual ACM Symposium on User Interface Software and Technology (UIST'25).
- [C.53] William Huang, Xia Su, Jon E. Froehlich, and **Yang Zhang**. 2025. Accessibility Scout: Personalized Accessibility Scans of Built Environments. In Proceedings of the 38th Annual ACM Symposium on User Interface Software and Technology (UIST'25).
- [C.52] Jina Kim, **Yang Zhang**, and Sang Ho Yoon. 2025. AT2IRay: Design of Thumb-to-Index based Indirect Pointing for Continuous and Robust AR/VR Input. In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI'25), **Honorable Mention Award**.
- [C.51] Qian Lu, Xiaoying Yang, Xue Wang, Jacob Sayono, **Yang Zhang**, and Jeeun Kim. 2025. LumosX: 3D Printed Anisotropic Light-Transfer. In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI'25).
- [C.50] Jingyu Li, Qingwen Yang, Kenuo Xu, **Yang Zhang**, and Chenren Xu. 2025. EchoSight: Streamlining Bidirectional Virtual-physical Interaction with In-situ Optical Tethering. In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI'25).
- 2024 [C.49] Yuxuan Guo, Yang Luo, Roshan Plamthottam, Siyou Pei, Chen Wei, Ziqing Han, Jiacheng Fan, Mason Possinger, Kede Liu, Yingke Zhu, Zhangqing Fei, Isabelle Winardi, Hyeonji Hong, **Yang Zhang**, Lihua Jin, and Qibing Pei. 2024. Haptic artificial muscle skin for extended reality. *Science Advances* 10, no. 43 (2024): eadr1765.
- [C.48] Xue Wang, Zixiong Su, Jun Rekimoto, and **Yang Zhang**. 2024. Watch Your Mouth: Silent Speech Recognition with Depth Sensing. In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI'24), **Honorable Mention Award**.
- [C.47] William Huang, Sam Ghahremani, Siyou Pei, and **Yang Zhang**. 2024. WheelPose: Data Synthesis Techniques to Improve Pose Estimation Performance on Wheelchair Users. In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI'24).
- [C.46] Siyou Pei, David Kim, Alex Olwal, **Yang Zhang**, and Ruofei Du. 2024. UI Mobility Control in XR: Switching UI Positionings between Static, Dynamic, and Self Entities. In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI'24).
- [C.45] Xue Wang and **Yang Zhang**. 2024. TextureSight: Texture Detection for Routine Activity Awareness with Wearable Laser Speckle Imaging. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'24).
- 2023 [C.44] Xiaoying Yang, Xue Wang, Gaofeng Dong, Zihan Yan, Mani Srivastava, Eiji Hayashi, and **Yang Zhang**. 2023. Headar: Sensing Head Gestures for Confirmation Dialogs on Smartwatches with Wearable Millimeter-Wave Radar. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'23).
- [C.43] Abul Al Arabi, Xue Wang, **Yang Zhang**, and Jeeun Kim. 2023. E3D: Harvesting Energy from Everyday Kinetic Interactions using 3D Printed Attachment Mechanisms. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'23).
- [C.42] John Nizar Mamish, Amy Guo, Thomas Cohen, Julian Richey, **Yang Zhang**, and Josiah Hester. 2023. Interaction Harvesting: A Design Probe of User-Powered Widgets. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'23).

- [C.41] Siyou Pei, Alexander Chen, Chen Chen, Mingzhe "Franklin" Li, Megan Fozzard, Hao-Yun Chi, Nadir Weibel, Patrick Carrington, and **Yang Zhang**. 2023. Embodied Exploration: Facilitating Remote Accessibility Assessment for People in Wheelchairs with Virtual Reality. In Proceedings of the 25th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'23).
- [C.40] Xiaoying Yang, Jacob Sanoyo, and **Yang Zhang**. 2023. CubeSense++: Smart Environment Sensing with Interaction-Powered Corner Reflector Mechanisms. In Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology (UIST'23).
- [C.39] Hao-Yun Chi, Mina Sha, and **Yang Zhang**. 2023. Bring Environments to People – A Case Study of Virtual Tours in Accessibility Assessment for People with Limited Mobility. In Proceedings of the 2023 International Web for All Conference (W4A '23).
- [C.38] Zihan Yan, Yuxiaotong Lin, Guanyun Wang, Yu Cai, Peng Cao, Haipeng Mi, and **Yang Zhang**. 2023. LaserShoes: Low-Cost High-Accuracy Ground Surface Detection Using Laser Imaging. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23).
- [C.37] Sudershan Boovaraghavan, Chen Chen, Mike Czapik, Anurag Maravi, **Yang Zhang**, Chris Harrison, and Yuvraj Agarwal. 2023. Mites: Design and Deployment of a General Purpose Sensing Infrastructure for Buildings. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'23), **Distinguished Paper Award**.
- [C.36] Zihong Zhou, Pei Chen, Yinyu Lu, Qiang Cui, Deying Pan, Yilun Liu, Jiaji Li, **Yang Zhang**, Ye Tao, Xuanhui Liu, Lingyun Sun and Guanyun Wang. 2023. 3D Deformation Capture via A Configurable Self-Sensing IMU Sensor Network. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'23).
- 2022 [C.35] Xiaoying Yang, Jacob Sayono, Jess Xu, Jiahao "Nick" Li, Josiah Hester, and **Yang Zhang**. 2022. MiniKers: Interaction-Powered Smart Environment Automation. In the Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT '22).
- [C.34] Siyou Pei, Pradyumna Chari, Xue Wang, Xiaoying Yang, Achuta Kadambi, and **Yang Zhang**. 2022. ForceSight: Non-Contact Force Sensing with Laser Speckle Imaging. In Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology (UIST'22).
- [C.33] Chen Chen, Matin Yarmand, Varun Singh, Michael Sherer, James D. Murphy, **Yang Zhang**, and Nadir Weibel. 2022. VRContour: Bringing Contour Delineations of Medical Structures Into Virtual Reality. In Proceedings of the 21st IEEE International Symposium on Mixed and Augmented Reality (ISMAR '22).
- [C.32] Chen Chen, Matin Yarmand, Zhuoqun Xu, Varun Singh, **Yang Zhang**, and Nadir Weibel. 2022. Investigating Input Modality and Task Geometry on Precision-First 3D Drawing in Virtual Reality. In Proceedings of the 21st IEEE International Symposium on Mixed and Augmented Reality (ISMAR '22).
- [C.31] Mingzhe Li, Xieyang Liu, **Yang Zhang**, and Patrick Carrington. 2022. Freedom to Choose: Understanding Input Modality Preferences of People with Upper-body Motor Impairments for Activities of Daily Living. In Proceedings of the 2022 International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'22).
- [C.30] Siyou Pei, Alexander Chen, Jaewook Lee, and **Yang Zhang**. 2022. Hand Interfaces: Using Hands to Imitate Objects in AR/VR for Expressive Interactions. In Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (CHI '22), **Honorable Mention Award**.
- [C.29] Zihan Yan, Yufei Wu, **Yang Zhang**, and Xiang 'Anthony' Chen. 2022. EmoGlass: an End-to-End AI-Enabled Wearable Platform for Enhancing Self-Awareness of Emotional Health. In Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (CHI '22).
- [C.28] Zihan Yan, Jiayi Zhou, Yufei Wu, Guanhong Liu, Danli, Luo, Zihong Zhou, Haipeng Mi, Lingyun Sun, Xiang 'Anthony' Chen, Ye Tao, **Yang Zhang**, and Guanyun Wang. 2022. Shoes++: A Smart Detachable Sole for Social Foot-to-foot Interaction. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'22).
- [C.27] Dingtian Zhang, Canek Fuentes-Hernandez, Raaghesh Vijayan, **Yang Zhang**, Yunzhi Li, Jung Wook, Yiyang Wang, Yuhui Zhao, Nivedita Arora, Ali Mirzazadeh, Youngwook Do, Tingyu Cheng, Saiganesh Swaminathan, Thad Starner, Trisha L. Andrew and Gregory D. Abowd. 2022. Flexible Computational Photodetectors for Self-Powered Activity Sensing. Nature. (NPJ Flexible Electronics '22).

- 2021 [C.26] Alexander Curtiss, Blaine Rothrock, Abu Bakar, Nivedita Arora, Jason Huang, Zachary Englhardt, Aaron-Patrick Empedrado, Chixiang Wang, Saad Ahmed, **Yang Zhang**, Nabil Alshurafa and Josiah Hester. 2021. FaceBit: Smart Face Masks Platform. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'21).
- [C.25] Jung Wook Park, Tingyu Cheng, Dingtian Zhang, Yuhui Zhao, Rosa I. Arriaga, Thad Starner, Mohit Gupta, **Yang Zhang** and Gregory D. Abowd. 2021. Applying Compute-Proximal Energy Harvesting to Develop Self-Sustained Systems for Automobiles. In IEEE Pervasive Computing 2021.
- [C.24] Tingyu Cheng, Bu Li, **Yang Zhang**, Yunzhi Li, Charles Ramey, Eui Min Jung, Yepu Cui, Sai Ganesh Swaminathan, Youngwook Do, Manos Tentzeris, Gregory Abowd, and HyunJoo Oh. 2021. Duco: Autonomous Large-Scale Direct-Circuit-Writing (DCW) on Vertical Everyday Surfaces Using A Scalable Hanging Plotter. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'21).
- [C.23] **Yang Zhang**, Sven Mayer, Jesse T. Gonzalez, and Chris Harrison. 2021. Vibrosight++: City-Scale Sensing Using Existing Retroreflective Signs and Markers. In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21).
- 2020 [C.22] Guanyun Wang, Fang Qin, Haolin Liu, Ye Tao, **Yang Zhang**, Yongjie Jessica Zhang, and Lining Yao. 2020. MorphingCircuit: An Integrated Design, Simulation, and Fabrication Workflow for Self-morphing Electronics. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'20).
- [C.21] Dingtian Zhang, Jung Wook Park, **Yang Zhang**, Yuhui Zhao, Yiyang Wang, Yunzhi Li, Tanvi Bhagwat, Wen-Fang Chou, Xiaojia Jia, Bernard Kippelen, Canek Fuentes-Hernandez, Thad Starner, and Gregory Abowd. 2020. OptoSense: Towards Ubiquitous Self-Powered Ambient Light Sensing Surfaces. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'20), *Distinguished Paper Award*.
- [C.20] Cathy Fang, **Yang Zhang**, Matthew Dworman, and Chris Harrison. 2020. Wireality: Enabling Complex Tangible Geometries in Virtual Reality with Worn Multi-String Haptics. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20). ACM, New York, NY, USA, 10 pages, *Best Paper Award*.
- [C.19] Tingyu Chen, Koya Narumi, Youngwook Do, **Yang Zhang**, Tung D. Ta, Takuya Sasatani, Eric Markvicka, Yoshihiro Kawahara, Lining Yao, Gregory Abowd, and HyunJoo Oh. 2020. Silver Tape: Inkjet Printed Circuits Peeled-and-Transferred on Versatile Substrates. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'20). ACM, New York, NY, USA, 17 pages.
- 2019 [C.18] **Yang Zhang**, Yasha Irvantchi, Haojian Jin, Swarun Kumar, and Chris Harrison. 2019. Sozu: Self-Powered Radio Tags for Building-Scale Activity Sensing. In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology (UIST'19). ACM, New York, NY, USA, 973-985.
- [C.17] **Yang Zhang**, Wolf Kienzle, Yanjun Ma, Shiu S. Ng, Hrvoje Benko, and Chris Harrison. 2019. Acti-Touch: Robust Touch Detection for On-Skin AR/VR Interfaces. In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology (UIST'19). ACM, New York, NY, USA, 1151-1159.
- [C.16] **Yang Zhang**, Michel Pahud, Christian Holz, Haijun Xia, Gierad Laput, Michael McGuffin, Xiao Tu, Andrew Mittereder, Fei Su, William Buxton, and Ken Hinckley. 2019. Sensing Posture-Aware Pen+Touch Interaction on Tablets. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19). ACM, New York, NY, USA, 14 pages, *Honorable Mention Award*.
- [C.15] Yasha Irvantchi, **Yang Zhang**, Evi Bernitsas, Mayank Goel and Chris Harrison. 2019. Interferi: Gesture Sensing using On-Body Acoustic Interferometry. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19). ACM, New York, NY, USA, 13 pages, *Honorable Mention Award*.
- 2018 [C.14] **Yang Zhang**, Gierad Laput and Chris Harrison. 2018. Vibrosight: Long-Range Vibrometry for Smart Environment Sensing. In Proceedings of the 31st Annual Symposium on User Interface Software and Technology (UIST'18). ACM, New York, NY, USA, 225-236, *Honorable Mention Award*.

- [C.13] **Yang Zhang**, Chouchang(Jack) Yang, Scott E. Hudson, Chris Harrison, and Alanson Sample. 2018. Wall++: Room-Scale Interactive and Context-Aware Sensing. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18). ACM, New York, NY, USA, Paper 273, **Best Paper Award**.
- [C.12] **Yang Zhang** and Chris Harrison. 2018. Pulp Nonfiction: Low-Cost Touch Tracking for Paper. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18). ACM, New York, NY, USA, Paper 117.
- [C.11] Robert Xiao, Teng Cao, Ning Guo, Jun Zhuo, **Yang Zhang** and Chris Harrison. 2018. LumiWatch: On-Arm Projected Graphics and Touch Input. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18). ACM, New York, NY, USA. Paper 95.
- 2017 [C.10] Jun Gong, **Yang Zhang**, Xia Zhou, and Xing-dong Yang. 2017. Pyro: Thumb-Tip Gesture Recognition Using Pyroelectric Infrared Sensing. In Proceedings of the 30th Annual Symposium on User Interface Software and Technology (UIST'17). ACM, New York, NY, USA, 553-563.
- [C.9] **Yang Zhang**, Gierad Laput, and Chris Harrison. 2017. Electrick: Low-Cost Touch Sensing Using Electric Field Tomography. In Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI '17). ACM, New York, NY, USA, 1-14.
- [C.8] Gierad Laput, **Yang Zhang**, and Chris Harrison. 2017. Synthetic Sensors: Towards General-Purpose Sensing. In Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI '17). ACM, New York, NY, USA, 3986-3999.
- [C.7] Robert Xiao, Gierad Laput, **Yang Zhang**, and Chris Harrison. 2017. Deus EM Machina: On-Touch Contextual Functionality for Smart IoT Appliances. In Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI '17). ACM, New York, NY, USA, 4000-4008.
- 2016 [C.6] **Yang Zhang**, Robert Xiao, and Chris Harrison. 2016. Advancing Hand Gesture Recognition with High Resolution Electrical Impedance Tomography. In Proceedings of the 29th Annual Symposium on User Interface Software and Technology (UIST'16). ACM, New York, NY, USA, 843-850.
- [C.5] Junhan Zhou, **Yang Zhang**, Gierad Laput, and Chris Harrison. 2016. AuraSense: Enabling Expressive Around-Smartwatch Interactions with Electric Field Sensing. In Proceedings of the 29th Annual Symposium on User Interface Software and Technology (UIST'16). ACM, New York, NY, USA, 81-86.
- [C.4] **Yang Zhang**, Junhan Zhou, Gierad Laput, and Chris Harrison. 2016. SkinTrack: Using the Body as an Electrical Waveguide for Continuous Finger Tracking on the Skin. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). ACM, New York, NY, USA, 1491-1503, **Honorable Mention Award**.
- 2015 [C.3] **Yang Zhang** and Chris Harrison. 2015. Tomo: Wearable, Low-Cost Electrical Impedance Tomography for Hand Gesture Recognition. In Proceedings of the 28th Annual ACM Symposium on User Interface Software and Technology (UIST'15). ACM, New York, NY, USA, 167-173.
- [C.2] **Yang Zhang** and Chris Harrison. 2015. Quantifying the Targeting Performance Benefit of Electrostatic Haptic Feedback on Touchscreens. In Proceedings of the 2015 International Conference on Interactive Tabletops & Surfaces (ITS '15). ACM, New York, NY, USA, 43-46, **Best Short Paper Award**.
- 2013 [C.1] Danli Wang, Yunfeng Qi, **Yang Zhang**, and Tingting Wang. 2013. TanPro-kit: a tangible programming tool for children. In Proceedings of the 12th International Conference on Interaction Design and Children (IDC '13). ACM, New York, NY, USA, 344-347.

ARXIVS, POSTERS and DEMOS

- 2024 [P.10] Interaction-Power Stations: Turning Environments into Ubiquitous Power Stations for Charging Wearables. 2024. Watch Your Mouth: Silent Speech Recognition with Depth Sensing. In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI'24).
- 2022 [P.9] SkinProfiler: Low-Cost 3D Scanner for Skin Health Monitoring with Mobile Devices. 2022 ACM International Conference on Mobile Systems, Applications, and Services (MobiSys '22, Portland, OR).
- 2021 [P.8] Nod-to-Auth: Fluent AR/VR Authentication with User Head-Neck Modeling. 2021 CHI Conference on Human Factors in Computing Systems (CHI '21, Yokohama, Japan).

- [P.7] CubeSense: Wireless, Battery-Free Interactivity through Low-Cost Corner Reflector Mechanisms. 2021 CHI Conference on Human Factors in Computing Systems (CHI '21, Yokohama, Japan).
- [P.6] Low-Cost Millimeter-Wave Interactive Sensing through Origami Reflectors. 2021 Workshop on Computer Human Interaction in IoT Applications (CHIIoT '21, Delft, The Netherlands).
- 2019 [D.5] Sozu: Self-Powered Radio Tags for Building-Scale Activity Sensing. 32nd Annual ACM Symposium on User Interface Software and Technology (UIST'19, New Orleans, LA).
- 2017 [D.4] Electrick: Low-Cost Touch Sensing Using Electric Field Tomography. 2017 CHI Conference on Human Factors in Computing Systems (CHI '17, Denver, CO).
- [D.3] Synthetic Sensors: Towards General-Purpose Sensing. 2017 CHI Conference on Human Factors in Computing Systems (CHI '17, Denver, CO).
- [D.2] Deus EM Machina: On-Touch Contextual Functionality for Smart IoT Appliances. 2017 CHI Conference on Human Factors in Computing Systems (CHI '17, Denver, CO).
- 2015 [D.1] Tomo: Wearable, Low-Cost Electrical Impedance Tomography for Hand Gesture Recognition. 28th Annual ACM Symposium on User Interface Software and Technology (UIST'15, Charlotte, NC).
- 2012 [P.2] E-Block: A Tangible Programming Tool for Children. 25th Annual ACM Symposium on User Interface Software and Technology (UIST'12, Cambridge, MA).
- [P.1] TempoString: A Tangible Tool for Children's Music Creation. 13th Annual ACM Conference on Ubiquitous Computing (UbiComp '15, Pittsburgh, PA).

PATENTS

- [P.9] Systems and methods of non-contact force sensing, *WO2024030827A3*.
- [P.8] Virtual Sensor System, *WO2018200541A1*.
- [P.7] System and Method for Robust Touch Detection for On-Skin Augmented Reality/Virtual Reality Interfaces, *US20210109593A1*.
- [P.6] Touch-sensing system, *US10942596B2*.
- [P.5] System for Wearable, Low-Cost Electrical Impedance Tomography for Non-Invasive Gesture Recognition, *US20180360379A1*.
- [P.4] Touch-sensing system including a touch-sensitive paper, *US20210373707A1*.
- [P.3] Room-scale interactive and context-aware sensing, *US10353526B1*.
- [P.2] Infrared-based gesture sensing and detection systems, and apparatuses, software, and methods relating to same, *US10608632B2*.
- [P.1] Virtual sensor system, *US10436615B2*.

EDITORIAL SERVICES

- UIST'26 Papers and Notes, *Program Committee Associate Chair (AC)*.
- CHI '26 Building Devices: Hardware, Materials, and Fabrication, *Subcommittee Chair (SC)*.
- CHI '25 Building Devices: Hardware, Materials, and Fabrication, *Subcommittee Chair (SC)*.
- UIST'24 Papers and Notes, *Program Committee Associate Chair (AC)*.
- IMWUT '24 Papers, *Associate Editor (AE)*.
- CHI '24 Building Devices: Hardware, Materials, and Fabrication, *Program Committee Associate Chair (AC)*.
- IMWUT '23 Papers, *Associate Editor (AE)*.
- CHI '23 Building Devices: Hardware, Materials, and Fabrication, *Program Committee Associate Chair (AC)*.
- UIST '22 Papers and Notes, *Program Committee Associate Chair (AC)*.
- CHI '22 Building Devices: Hardware, Materials, and Fabrication, *Program Committee Associate Chair (AC)*.
- UIST '21 Papers and Notes, *Program Committee Associate Chair (AC)*.
- CHI '21 Late Breaking Work, *Program Committee Associate Chair (AC)*.
- CHI '20 Interaction Techniques, Devices and Modalities, *Program Committee Associate Chair (AC)*.

- MobileHCI '19 Late Breaking Results, *Program Committee Associate Chair (AC)*.
 CHI '18 Late Breaking Work, *Program Committee Associate Chair (AC)*.

OTHER PROFESSIONAL ACTIVITIES

- NSF '24 CISE HCC, *Panelist*.
 NSF '23 CISE HCC, *Panelist*.
 IMWUT '22 "Platforms", *Session Chair*.
 MobileHCI '22 Online Conference Delivery Chair, *Organizing Committee*.
 UIST '21 Demo Session, *Jury Member*.
 UIST '21 "Steering, Pointing, and Recovery", *Session Chair*.
 CHI '19 "Novel Tracking Method", *Session Chair*.
 CHI '18 "Human Senses", *Session Chair*.

PAPER REVIEWING

- CHI '16, '17, '18, '19, '20, '21, '22, '23, '24, '25, '26.
 UIST '16, '17, '18, '19, '20, '21, '22, '23, '24, '25, '26.
 IMWUT '19, '20, '21, '22, '23, '24, '25, '26.
 ISS '18, '19, '20.
 TEI '18, '19.
 MobileHCI '19.

SELECTED TALKS AND PRESENTATIONS

- 2023 **JPMC**, *Harness the Power from User Interactions*.
 2022 **Accenture**, *Practical Sensing and Actuation for Ambient Intelligence*.
 2021 **Snap**, *Sensing and Interactivity beyond Mobile Screens*.
 2020 **Google**, *Knowledge is Power: Sensing the Physical World Around Devices*.
Facebook Reality Labs, *Knowledge is Power: Sensing the Physical World Around Devices*.
 2019 **University of Chicago**, *Wide-Area Sensors for Sparse Ubiquitous Sensing*.
Columbia University, *Wide-Area Sensors for Sparse Ubiquitous Sensing*.
Georgia Tech, Ubicomp Lab, *Extend Interactions beyond Computing Devices*.
Facebook Reality Labs, *Enrich the Expressivity of AR/VR Interactions*.
University of Washington, *DUB Talk: Wide-Area Sensors for Sparse Ubiquitous Sensing*.
University of California, San Diego, *Wide-Area Sensors for Sparse Ubiquitous Sensing*.
University of California, Los Angeles, *Wide-Area Sensors for Sparse Ubiquitous Sensing*.
Stanford University, *Wide-Area Sensors for Sparse Ubiquitous Sensing*.
 2018 **Microsoft Research**, *Enhancing Tablet Interactions with Screen Capacitive Images and Peripheral Electric Field Sensing*.
Microsoft Applied Science Group, *Enhancing Tablet Interactions with Screen Capacitive Images and Peripheral Electric Field Sensing*.
Tsinghua University, *Touch Sensing on Everyday Objects*.
 2017 **Qualcomm**, *Towards General-Purpose Sensing with Synthetic Sensors*.
Disney Research Pittsburgh, *Smart Walls for Room-Scale Interactions and Activity Sensing*.

SELECTED PRESS COVERAGE

- NSF News**, 'Fitbit for the face' can turn any face mask into smart monitoring device.
Forbes, 'Smart Face Masks'— Researchers Have Created A Way To Digitize Masks.

Daily Bruin, Researchers collaborate in development of smart mask for health care workers.

Wevolver, Smart Face Mask Platform in Response to COVID-19 Pandemic.

Hackaday, With a big enough laser, the world is your sensor.

New Atlas, Wireality offers a novel way to let you "feel" complex objects in VR.

Engadget, This VR system tethers your hands to your shoulders to improve haptics.

TechCrunch, This robot uses lasers to 'listen' to its environment.

Hackaday, Vibrosight hears when you are sleeping. It knows when you're awake.

Fast Company, Turn Your Wall Into A Touch Screen For \$20.

NBC News, New smart wall lets you control your home with swipes, taps.

Engadget, Touch-sensitive wall might let you control home devices in the future.

Digital Trends, This conductive paint transforms regular walls into giant touchpads.

The Verge, You may soon be able to control your home with a smart wall.

Architect Magazine, Transforming Walls into Smart Surfaces.

Science Magazine, Watch researchers turn a wall into Alexa's eyes and ears.

MIT Technology Review, A Cheap, Simple Way to Make Anything a Touch Pad.

New Scientist, Spray-on touch controls give an interactive twist to any surface.

The Wall Street Journal, How to Turn Anything into a Touchpad.

The Verge, Electrick lets you spray touch controls onto any object or surface.

Engadget, Get ready to 'spray' touch controls onto any surface.

CNET, Almost anything can become a touchpad with some spray paint.

Popular Science, What a Jell-O brain tells us about the future of human-machine interaction.

Gizmodo, Scientists Figure Out How to Turn Anything Into a Touchscreen Using Conductive Spray Paint.

TechCrunch, New technique turns anything into a touch sensor.

Pittsburgh Post-Gazette, Touch-sensing technology born of CMU researchers grabs companies' interest.

Discover Magazine, Turn Anything into a Touchscreen With 'Electrick'.

Digital Trends, Carnegie Mellon Have Developed a Spray Paint for Turning Any Surface into a Touchpad.

Newsweek, Conductive spray paint can turn any surface into a touchscreen.

New Atlantis, Spray-on technology turns Jell-O into a touch control.

Bloomberg, This Spray Can Make Your Wall a Touchpad.

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TechCrunch, How a tap could tame the smart home.

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The Verge, New tech turns your skin into a touchscreen for your smartwatch.

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90.5 WESA, CMU's SkinTrack Technology Turns Your Forearm Into Smartwatch Trackpad.

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CNN, This Watch Turns Your Arm into a Touchscreen.

Digital Trends, SkinTrack Turns Your Whole forearm into a Smartwatch Interface.

Gizmodo, This Smartwatch Detects Gestures By Watching the Muscles Inside Your Arm Move.

Digital Trends, Researchers at Carnegie Mellon have developed a wristband that can sense hand gestures.

Hackaday, *Impedance Tomography is the new X-ray Machine.*
New Scientist, *No-touch smartwatch scans the skin to see the world around you.*

PHD STUDENTS

William Huang, *PhD student.*

Personalized spatial intelligence

Xue Wang, *PhD student.*

Privacy-conscious wearable sensing

Xiaoying Yang, *PhD student.*

Interaction-powered IoT

Siyu Pei, *PhD student.*

Embodied interaction techniques for digital-physical systems

UNDERGRADUATE AND MASTERS STUDENTS

William Huang, *UCLA Undergraduate, 2022-.*

Data synthesis techniques for AI sensing (one paper accepted by CHI 2024)

Muhan Zhang, *UCLA Undergraduate, 2022-.*

Interaction harvesting motor drivers (one paper accepted by CHI 2024)

Jacob Sayono, *UCLA Undergraduate, 2022-.*

Self-sustaining smart homes (two papers accepted by IMWUT 2022 and CHI 2024)

Alexander Chen, *UCLA Undergraduate, 2021-.*

Controller-free interactions for AR/VR (two papers accepted by CHI 2022 and ASSETS 2023)

Zihan Yan, *Undergraduate, 2021-2022.*

AI-enabled wearable sensing (one paper accepted by CHI 2022)

Khushbu Pahwa, *UCLA Master student, 2021-2022.*

Privacy-sensitive acoustic sensing mechanisms

Mina Sha, *UCLA Undergraduate, 2022.*

Virtual Tour Techniques in Accessibility Assessment for People with Limited Mobility (one paper accepted by W4A 2023)

Jess Xu, *UCLA Undergraduate, 2022.*

Self-sustaining smart homes (two papers accepted by IMWUT 2022 and CHI 2024)

Trevor Cai, *UCLA Undergraduate, 2022.*

Toolkit for Electro vibration

Anderson Truong, *UCLA Undergraduate, 2022.*

Smart wearable cameras

Zhiying "Steven" Li, *UCLA Master student, 2021-2022.*

Mobile health for ubiquitous skin disease monitoring and detection (one poster accepted by MobiSys 2022)

Tejas Viswanath, *UCLA Master student, 2021-2022.*

Advancing photometric stereo algorithms

Jaewook Lee, *Undergraduate, 2021-2022.*

Expressive AR/VR interactions (one paper accepted by CHI 2022)

Xiaoying Yang, *Undergraduate, 2020-2021.*

Millimeter-wave backscatters for interactivity (one paper accepted by CHI 2021)

Xue Wang, *Master student, 2020-2021.*

Biometric-based AR/VR authentication (one paper accepted by CHI 2021)