

Xuhai “Orson” Xu

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RESEARCH FOCUS

Drawing from human-computer interaction, applied AI/ML, and health informatics, I develop **deployable behavior and health prediction algorithms** to monitor various health and well-being conditions using everyday sensor data and health records. Leveraging these models, I further design and deploy **human-centered intelligent intervention techniques** that help users achieve personal health and well-being goals and support health experts in making decisions.

EMPLOYMENT

2025 - Present	Columbia University - Tenure-Track Assistant Professor <i>Department of Biomedical Informatics</i> <i>Department of Computer Science (Affiliated)</i> <i>Data Science Institute (Affiliated)</i>	
2024 – Present	Google LLC - Visiting Faculty Researcher <i>Google Research</i>	
2023 – 2024	Massachusetts Institute of Technology - Postdoctoral Associate <i>Department of Electrical Engineering and Computer Science</i>	<i>Advisors: Marzyeh Ghassemi</i>

EDUCATION

2018 – 2023	University of Washington <i>Ph.D., Information School</i> Thesis: “Computational Support for Longitudinal Well-Being” <i>Distinguished Dissertation Award & Innovation and Technology Award</i>	<i>Advisors: Anind K. Dey & Jennifer Mankoff</i>
2014 – 2018	Tsinghua University <i>B.E. in Industrial Engineering (Major) & Computer Science (Minor)</i>	

AWARDS AND HONORS

Research Awards

2025	Distinguished Paper Award (ACM IMWUT/UbiComp, top 1%)
2024	Innovation and Technology Award (Western Association of Graduate Schools, top 0.1%) Best Paper Award (ACM CHI, top 1%)
2023	Distinguished Paper Award (ACM IMWUT/UbiComp, top 1%) Distinguished Dissertation Award (University of Washington, top 0.5%) Best Paper Honorable Mention Award (ACM CHI, top 5%) Best Paper Nominee Award (IEEE VR, top 5%) Best Artifact Award (ACM W4A, top 1)
2022	Best Paper Honorable Mention Award (ACM CHI, top 5%) Best Paper Award (TPCI, top 3) Best Artifact Award (ACM ASSETS, top 3)
2020	Best Paper Honorable Mention Award (ACM CHI, top 5%)
2018	Best Paper Honorable Mention Award (ACM CHI, top 5%)

Scholarship & Other Honors

2024	NIH mHealth Training Institute Scholar Emerging Rockstar (IEEE Pervasive Computing)
2023	Future Faculty Scholar (Cornell University)
2022	Gaetano Borriello Outstanding Student Award Winner (ACM UbiComp)
2018	Outstanding Undergraduate Awards (Tsinghua, top 0.5%) Annual Person of Dept. of Industrial Engineering (Tsinghua, top 1%) XieXin Scholarship (Tsinghua, top 1%)
2017	Outstanding Winner of 35th Challenge Cup (Leader, Tsinghua, top 2%) GaoTong Scholarship (Tsinghua, top 1%)
2016	DongshiDongfang Scholarship (Tsinghua, top 1%) Changhong Scholarship (Tsinghua, top 2%)

FUNDING AND GRANTS

2026	Equa (\$50,000 – Industry Gift Funding) Principle Investigator
2025	Columbia (\$100,000 – Research Stabilization Award) Principle Investigator
2025	Google (\$50,000 – Industry Gift Funding) Principle Investigator
2019	Samsung Research America GRO Agreement (\$150,000 – Personalized Behavior Modeling) Main Personnel; Contributed to the grant writing, with the PhD advisor as PI.

PROFESSIONAL EXPERIENCE

2022	Meta Reality Lab – Research Intern Developed an explainable AI Framework in AR [P.31]	Redmond, WA <i>Collabs:</i> H. Benko, A. Yu
2021	Apple – Research Intern Developed a gesture customization framework [P.23]	Cupertino, CA <i>Collabs:</i> G. Laput, S. Hudson
2020	Samsung Research America – Research Intern Developed a pipeline for lung health detection by cough [P.18]	Mountain View, CA <i>Collabs:</i> J. Kuang, A. Gao
2019	Microsoft Research – Research Intern Deployed an large-scale explainable doc rec experiments [P.7]	Redmond, WA <i>Collabs:</i> S. Dumais, A. Awadallah

SELECTED PUBLICATIONS

Conference & Journal Publications

- 2026 [\[P.69\]](#) Ruishi Zou*, Shiyu Xu*, Margaret E Morris, Jihan Ryu, Timothy D. Becker, Nicholas Allen, Anne Marie Albano, Randy Auerbach, Dan Adler, Varun Mishra, Lace M. Padilla, Dakuo Wang, Ryan Sultan, **Xuhai Xu**. *Equally contributed
MIND: Empowering Mental Health Clinicians with Multimodal Data Insights through a Narrative Dashboard
CHI 2026 – ACM CHI Conference on Human Factors in Computing Systems
- [\[P.68\]](#) Mengyuan Wu, Zhihan Jiang, Yuang Fan, Richard Feng, Sahiti Dharmavaram, Mathew Polowitz, Shawn Fallon, Bashima Islam, Lizbeth Benson, Irene Tung, David Creswell, **Xuhai Xu**
MindfulAgents: Personalizing Mindfulness Meditation via an Expert-Aligned Multi-Agent System

- [P.67] Yancheng Cao, Yishu Ji, Yue Fu, Sahiti Dharmavaram, Meghan Turchioe, Natalie Benda, Lena Mamykina, Yuling Sun, Xuhai Xu.

More than Decision Support: Exploring Patients’ Longitudinal Usage of Large Language Models in Real-World Healthcare Settings

- [P.66] Ying Lei*, Yancheng Cao*, Will Ke Wang, Yuanzhe Dong, Changchang Yin, Weidan Cao, Ping Zhang, Jingzhe Yang, Bingsheng Yao, Yifan Peng, Chunhua Weng, Randy Auerbach, Lena Mamykina, Dakuo Wang, Yuntao Wang, Xuhai Xu. *Equally contributed

WatchGuardian: Enabling User-Defined Personalized Just-in-Time Intervention on Smartwatch

- [P.65] Ryuhaerang Choi, Seohyeon Yoo, Xuhai Xu, Sung-Ju Lee

Recovery is Relational: Everyday Support Needs in Eating Disorder Recovery with Patients and Their Supporters

- [P.64] Yongxiang Cai, Zhenghao Li, Taiting Lu, Yanjun Zhu, Yi-Shan Wu, Qingsen Zhang, Xuhai Xu, Zhanpeng Jin, Mahanth Gowda, Yincheng Jin

Toward Equitable ASL Edu: Egocentric Stereo Sensing with LLM Feedback for Error-Aware Learning

- 2025 [P.63] Hitesh Goel, Yoobin Park, Jin Liou, Darwin A Guevarra, Peggy Callahan, Jolene Smith, Bingsheng Yao, Dakuo Wang, Xin Liu, Daniel McDuff, Noemie Elhadad, Emiliana Simon-Thomas, Elissa Epel, Xuhai Xu

Promoting Prosociality via Micro-acts of Joy: A Large-Scale Well-Being Intervention Study

- [P.62] Chen Cao, Yu Wu, Xiao Zoe Fang, Zhenwen Liang, Lena Mamykina, Laura Sbaffi, Xuhai Xu

MedAI-SciTS: Enhancing Interdisciplinary Collaboration between AI Researchers and Medical Experts

- [P.61] Longjie Guo, Yue Fu, Xiran Lin, Xuhai Xu, Yung-Ju Chang, Alexis Hiniker

What Social Media Use Do People Regret? An Analysis of 34K Screenshots with Multimodal LLM

- [P.60] Will Ke Wang, Rui Yang, Chao Pang, Karthik Natarajan, Nan Liu, Daniel McDuff, David Slotwiner, Fei Wang, Xuhai Xu

Beyond the Clinic: A Large-Scale Evaluation of Augmenting EHR with Wearable Data for Diverse Health Prediction

- [P.59] Darwin A Guevarra, Yoobin Park, Xuhai Xu, Jin Liou, Jolene Smith, Peggy Callahan, Emiliana Simon-Thomas, Elissa S Epel

Scaling a Brief Digital Well-Being Intervention (the Big Joy Project) and Sociodemographic Moderators: Single-Group Pre-Post Study

- [P.58] Mohammad Nur Hossain Khan, David Creswell, Jordan Albert, Patrick O’Connell, Shawn Fallon, Mathew Polowitz, Xuhai Xu, Bashima Islam

Mindfulness meditation and respiration: Accelerometer-based respiration rate and mindfulness progress estimation to enhance app engagement and mindfulness skills

- [P.57] Jiachen Li, Xiwen Li, Justin Steinberg, Akshat Choubey, Bingsheng Yao, Xuhai Xu, Dakuo Wang, Elizabeth Mynatt, Varun Mishra

Vital Insight: Assisting Experts’ Context-Driven Sensemaking of Multi-modal Personal Tracking Data

- [P.56] Ziyi Xuan, Yiwen Wu, **Xuhai Xu**, Vinod Nambodiri, Mooi Choo Chuah, Yu Yang
Design and Evaluation of Generative Agent-based Platform for Human-Assistant Interaction Research: A Tale of 10 User Studies
IMWUT 2025 – *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*
- [P.55] Yifan Peng, Bradley A Malin, Justin F Rousseau, Yanshang Wang, Zihan Xu, **Xuhai Xu**, Chunhua Weng, Jiang Bian
From GPT to DeepSeek: Significant gaps remain in realizing AI in healthcare
JBIM 2025 – *Journal of Biomedical Informatics*
- [P.54] Yuwei Zhang, Kumar Ayush, Siyuan Qiao, A Ali Heydari, Girish Narayanswamy, Maxwell A Xu, Ahmed A Metwally, Shawn Xu, Jake Garrison, **Xuhai Xu**, Tim Althoff, Yun Liu, Pushmeet Kohli, Jiening Zhan, Mark Malhotra, Shwetak Patel, Cecilia Mascolo, Xin Liu, Daniel McDuff, Yuzhe Yang
SensorLM: Learning the Language of Wearable Sensors
NeurIPS 2025 – *39th Neural Information Processing Systems*
- [P.53] Ken Gu, Zhihan Zhang, Kate Lin, Yuwei Zhang, Akshay Paruchuri, Hong Yu, Mehran Kazemi, Kumar Ayush, A Ali Heydari, Maxwell A Xu, Girish Narayanswamy, Yun Liu, Ming-Zher Poh, Yuzhe Yang, Mark Malhotra, Shwetak Patel, Hamid Palangi, **Xuhai Xu**, Daniel McDuff, Tim Althoff, Xin Liu
RADAR: Benchmarking Language Models on Imperfect Tabular Data
NeurIPS 2025 – *39th Neural Information Processing Systems Track on Datasets & Benchmarks*
- [P.52] Girish Narayanswamy, Xin Liu, Kumar Ayush, Yuzhe Yang, **Xuhai Xu**, Shun Liao, Jake Garrison, Shyam Tailor, Jake Sunshine, Yun Liu, Tim Althoff, Shrikanth Narayanan, Pushmeet Kohli, Jiening Zhan, Mark Malhotra, Shwetak Patel, Samy Abdel-Ghaffar, Daniel McDuff
Scaling Wearable Foundation Models
ICLR 2025 – *The International Conference on Learning Representations*
- [P.51] Vidya Srinivas, **Xuhai Xu**, Xin Liu, Kumar Ayush, Isaac Galatzer-Levy, Shwetak Patel, Daniel McDuff, Tim Althoff
Substance over Style: Evaluating Proactive Conversational Coaching Agents
ACL 2025 – *The Annual Meeting of the Association for Computational Linguistics*
- [P.50] Qixuan Jin, Haoran Zhang, Lukasz Szczerbinski, Jiacheng Zhu, Walter Gerych, **Xuhai Xu**, Kai Wang, Sarah Hsu, Ravi Mandla, Aaron J Deutsch, Alisa Manning, Josep M Mercader, Thomas Hartvigsen, Miriam S Udler, Marzyeh Ghassemi
Opportunistic screening of type 2 diabetes with deep metric learning using electronic health records
Sci. Rep. – *Nature Scientific Reports*
- [P.49] Song Wang, Yishu Wei, Haotian Ma, Max Lovitt, Kelly Deng, Yuan Meng, Zihan Xu, Jingze Zhang, Yunyu Xiao, Ying Ding, Xuhai Xu, Joydeep Ghosh, Yifan Peng
A multi-stage LLM framework for extracting suicide-related social determinants of health
Commun. Med. – *Nature Communications Medicine*
- [P.48] Bridget Dwyer, Matthew Flathers, Akane Sano, Allison Dempsey, Andrea Cipriani, Asim H Gazi, Bryce Hill, Carla Gorban, Carolyn I Rodriguez, Charles Stromeyer IV, Darlene King, Eden Rozenblit, Gillian Strudwick, Jake Linardon, Jiaee Cheong, Joseph Firth, Julian Herpertz, Julian Schwarz, Khai Truong, Margaret Emerson, Martin P Paulus, Michelle Patriquin, Yining Hua, Soumya Choudhary, Steven Siddals, Laura Ospina Pinillos, Jason Bantjes, Steven Scheuller, **Xuhai Xu**, Ken Duckworth, Daniel H Gillison, Michael Wood, John Torous
Mindbench.ai: an actionable platform to evaluate the profile and performance of large language models in a mental healthcare context
DPN – *Nature NPP-Digital Psychiatry and Neuroscience*

- 2024 [P.47] Adiba Orzikulova, Han Xiao, Zhipeng Li, Yukang Yan, Yuntao Wang, Yuanchun Shi, Marzyeh Ghassemi, Sung-Ju Lee, Anind K. Dey, **Xuhai Xu**
Time2Stop: Adaptive and Explainable Human-AI Loop for Smartphone Overuse Intervention
CHI 2024 – *ACM CHI Conference on Human Factors in Computing Systems*
- [P.46] Ruolan Wu, Chun Yu, Xiaole Pan, Yujia Liu, Ningning Zhang, Yue Fu, Yuhan Wang, Zhi Zheng, Li Chen, Qiaolei Jiang, **Xuhai Xu**, Yuanchun Shi
MindShift: Leveraging LLMs for Mental-States-Based Problematic Smartphone Use Intervention
CHI 2024 – *ACM CHI Conference on Human Factors in Computing Systems*
- ★ [P.45] **Xuhai Xu**, Bingshen Yao, Yuanzhe Dong, Saadia Gabriel, Hong Yu, James Hendler, Marzyeh Ghassemi, Anind K. Dey, Dakuo Wang
Mental-LLM: Leveraging Large Language Models for Mental Health Prediction via Online Text Data
IMWUT 2024 – *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*
[Editors' Pick for Notable Papers]
- 🏆 [P.44] Ziqi Yang*, **Xuhai Xu***, Bingsheng Yao, Shao Zhang, Ethan Rogers, Stephen Intille, Nawar Shara, Dakuo Wang. *Equally contributed
Talk2Care: Facilitating Asynchronous Patient-Provider Communication with Large-Language-Model
IMWUT 2024 – *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*
[Best Paper Award], [Editors' Pick for Notable Papers]
- 🏆 [P.43] Yue Fu, Sami Foell, **Xuhai Xu**, Alexis Hiniker
From Text to Self: Users' Perception of AIMC Tools on Interpersonal Communication and Self
CHI 2024 – *ACM CHI Conference on Human Factors in Computing Systems*
[Best Paper Award], [Editors' Pick for Notable Papers]
- [P.42] Zachary Enghardt, Chengqian Ma, Margaret Morris, Chun-Cheng Chang, **Xuhai Xu**, Lianhui Qin, Daniel McDuff, Xin Liu, Shwetak Patel, Vikram Iyer
From Classification to Clinical Insights: Towards Analyzing and Reasoning About Mobile and Behavioral Health Data With Large Language Models
IMWUT 2024 – *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*
- [P.41] Subigya Nepal, Arvind Pillai, William Campbell, Talie Massachi, Michael V Heinz, Ashmita Kunwar, Eunsol Soul Choi, **Xuhai Xu**, Joanna Kuc, Jeremy F Huckins, Jason Holden, Sarah M Preum, Colin Depp, Nicholas Jacobson, Mary P Czerwinski, Eric Granholm, Andrew T Campbell
MindScape Study: Integrating LLM and Behavioral Sensing for Personalized AI-Driven Journaling Experiences
IMWUT 2024 – *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*
- [P.40] Daniel A Adler, Yuewen Yang, Thalia Viranda, **Xuhai Xu**, David C Mohr, Anna R Van Meter, Julia C Tartaglia, Nicholas C Jacobson, Fei Wang, Deborah Estrin, Tanzeem Choudhury
Beyond Detection: Towards Actionable Sensing Research in Clinical Mental Healthcare
IMWUT 2024 – *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*
- [P.39] Yubin Kim, Chanwoo Park, Hyewon Jeong, Yik Siu Chan, **Xuhai Xu**, Daniel McDuff, Hyeonhoon Lee, Marzyeh Ghassemi, Cynthia Breazeal, Hae Won Park
MDagents: An adaptive collaboration of llms for medical decision-making
NeurIPS 2024 – *38th Neural Information Processing Systems*
- [P.38] Zeyu Wang, Yuanchun Shi, Yuntao Wang, Yc Yao, Kun Yan, Yuhan Wang, Lei Ji, **Xuhai Xu**, Chun Yu
G-VOILA: Gaze-Facilitated Information Querying in Daily Scenarios
IMWUT 2024 – *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*
- [P.37] Tao Lu, Hongxiao Zheng, Tianying Zhang, **Xuhai Xu**, Anhong Guo
InteractOut: Leveraging Interaction Proxies as Input Manipulation Strategies for Reducing Smartphone Overuse

CHI 2024 – ACM CHI Conference on Human Factors in Computing Systems

- [P.36] Shaoyue Wen, Songming Ping, Jialin Wang, Hai-Ning Liang, **Xuhai Xu**, Yukang Yan
AdaptiveVoice: Cognitively Adaptive Voice Interface for Driving Assistance

CHI 2024 – ACM CHI Conference on Human Factors in Computing Systems

- [P.35] Shao Zhang, Jianing Yu, **Xuhai Xu**, Changchang Yin, Yuxuan Lu, Bingsheng Yao, Melanie Tory, Lace M. Padilla, Jeffrey Caterino, Ping Zhang, Dakuo Wang
Rethinking Human-AI Collaboration in Complex Medical Decision Making: A Case Study in Sepsis Diagnosis

CHI 2024 – ACM CHI Conference on Human Factors in Computing Systems

- [P.34] Xun Qian, Tianyi Wang, **Xuhai Xu**, Tanya R. Jonker, Kashyap Todi
Fast-Forward Reality: Authoring Error-Free Context-Aware Policies with Real-Time Unit Tests in Extended Reality

CHI 2024 – ACM CHI Conference on Human Factors in Computing Systems

- [P.33] Yubin Kim, **Xuhai Xu**, Daniel McDuff, Cynthia Breazeal, Hae Won Park
Health-LLM: Large language models for health prediction via wearable sensor data

CHIL 2024 – The Conference on Health, Inference, and Learning

- 2023 🏆 [P.32] **Xuhai Xu**, Xin Liu, Han Zhang, Weichen Wang, Subgiya Nepal, Yasaman Sefidgar, Woosuk Seo, Kevin S. Kuehn, Jeremy Huckins, Margaret E. Morris, Paula S. Nurius, Eve A. Riskin, Shwetak Patel, Tim Althoff, Andrew Campbell, Anind K. Dey, Jennifer Mankoff

GLOBEM: Cross-Dataset Generalization of Longitudinal Human Behavior Modeling

IMWUT 2023 – Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies

[Distinguished Paper Award]

- 🦋 [P.31] **Xuhai Xu**, Mengjie Yu, Tanya R. Jonker, Kashyap Todi, Feiyu Lu, Xun Qian, João Marcelo Evangelista Belo, Tianyi Wang, Michelle Li, Aran Mun, Te-Yen Wu, Junxiao Shen, Ting Zhang, Narine Kokhlikyan, Fulton Wang, Paul Sorenson, Sophie Kahyun Kim, Hrvoje Benko

XAIR: A Framework of Explainable AI in Augmented Reality

CHI 2023 – ACM CHI Conference on Human Factors in Computing Systems

[Best Paper Honorable Mention Award]

- [P.30] Yuntao Wang, Zirui Cheng, Xin Yi, Yan Kong, Xueyang Wang, **Xuhai Xu**, Yukang Yan, Chun Yu, Shwetak Patel, Yuanchun Shi

Modeling the Trade-off of Privacy Preservation and Activity Recognition on Low-Resolution Images

CHI 2023 – ACM CHI Conference on Human Factors in Computing Systems

- [P.29] Yuan Yao, Li Huang, Yi He, Zhijun Ma, **Xuhai Xu**, Haipeng Mi
Reviewing and Reflecting Smart Home Research from the Human-Centered Perspective

CHI 2023 – ACM CHI Conference on Human Factors in Computing Systems

- [P.28] David Creswell, Michael J. Tumminia, Stephen Price, Yasaman Sefidgar, Sheldon Cohen, Yiyi Ren, Jennifer Brown, Anind K. Dey, Janine M. Dutcher, Daniella Villalba, Jennifer Mankoff, **Xuhai Xu**, Kasey Creswell, Afsaneh Doryab, Stephen Mattingly, Aaron Striegel, David Hachen, Gonzalo Martinez, Marsha C. Lovett

Nightly sleep duration predicts grade point average in the first year of college

PNAS – Proceedings of the National Academy of Sciences of the United States of America

- [P.27] Yincheng Jin, Shibo Zhang, Yang Gao, **Xuhai Xu**, Seokmin Choi, Zhengxiong Li, Henry J Adler, Zhanpeng Jin

SmartASL: “Point-of-Care” Comprehensive ASL Interpreter Using Wearables

IMWUT 2023 – Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies

- 🏆 [P.26] Ather Sharif, Aneesha Ramesh, Qianqian Yu, Trung-Anh H Nguyen, **Xuhai Xu**
UnlockedMaps: A Web-Based Map for Visualizing Real-Time Accessibility of Rail Transit Stations


- ✂ [P.25] Yukang Yan, Haohua Liu, Yingtian Shi, Jingying Wang, Ruici Guo, Zisu Li, Chun Yu, Xuhai Xu, Yuntao Wang, Yuanchun Shi
ConeSpeech: Exploring Directional Speech Interaction for Multi-Person Remote Communication in VR
TVCG – IEEE Transactions on Visualization and Computer Graphics
[Best Paper Nominee Award]
- 2022 [P.24] Xuhai Xu, Han Zhang, Yasaman Sefidgar, Yiyi Ren, Xin Liu, Woosuk Seo, Jennifer Brown, Kevin Kuehn, Mike Merrill, Paula Nurius, Shwetak Patel, Tim Althoff, Margaret E. Morris, Eve Riskin, Jennifer Mankoff, Anind K. Dey
GLOBEM Dataset: Multi-Year Datasets for Longitudinal Human Behavior Modeling Generalization
NeurIPS 2022 – 36th Neural Information Processing Systems Track on Datasets & Benchmarks
- ✂ [P.23] Xuhai Xu, Jun Gong, Carolina Brum, Lilian Liang, Bongsoo Suh, Kumar Gupta, Yash Agarwal, Laurence Lindsey, RunchangKang, Behrooz Shahsavari, Tu Nguyen, Heriberto Nieto, Scott E. Hudson, Charlie Maalouf, Seyed Mousavi, Gierad Laput
Enabling hand gesture customization on wrist-worn devices
CHI 2022 – ACM CHI Conference on Human Factors in Computing Systems
[Best Paper Honorable Mention Award]
- [P.22] Xuhai Xu, Tianyuan Zou, Xiao Han, Yanzhang Li, Ruolin Wang, Tianyi Yuan, Yuntao Wang, Yuanchun Shi, Jennifer Mankoff, Anind K. Dey
Typeout: Leveraging just-in-time self-affirmation for smartphone overuse reduction
CHI 2022 – ACM CHI Conference on Human Factors in Computing Systems
- [P.21] Yang Li, Dan Wu, Jie Zhang, Xuhai Xu, Yaxiong Xie, Tao Gu, Daqing Zhang
DiverSense: Maximizing Wi-Fi Sensing Range Leveraging Signal Diversity
IMWUT 2022 – Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies
- [P.20] Yincheng Jin, Yang Gao, Xuhai Xu, Seokmin Choi, Jiyang Li, Feng Liu, Zhengxiong Li, Zhanpeng Jin
EarCommand: “Hearing” Your Silent Speech Commands In Ear
IMWUT 2022 – Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies
- 2021 [P.19] Xuhai Xu, Prerna Chikersal, Janine M. Dutcher, Yasaman S. Sefidgar, Woosuk Seo, Michael J. Tumminia, Daniella K. Villalba, Sheldon Cohen, J. David Creswell, Kasey Creswell, Afsaneh Doryab, Paula S. Nurius, Eve A. Riskin, Anind K. Dey, Jennifer Mankoff
Leveraging Collaborative-Filtering for Personalized Behavior Modeling: A Case Study of Depression Detection among College Students
IMWUT 2021 – Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies
- [P.18] Xuhai Xu, Ebrahim Nemati, Korosh Vatanparvar, Viswam Nathan, Tousif Ahmed, MdMahbubur Rahman, Daniel McCaffrey, Jilong Kuang, Jun Alex Gao
Listen2Cough: Leveraging End-to-End Deep Learning Cough Detection Model to Enhance Lung Health Assessment Using Passively Sensed Audio
IMWUT 2021 – Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies
- [P.17] Xuhai Xu, Jiahao Li, Tianyu Yuan, Liang He, Xin Liu, Yuntao Wang, Yuanchun Shi, Jennifer Mankoff, Anind K. Dey
HulaMove: Using Commodity IMU for Waist Interaction
CHI 2021 – ACM CHI Conference on Human Factors in Computing Systems
- [P.16] Zihan Wu, Chun Yu, Xuhai Xu, Tong Wei, Tianyuan Zou, Ruolin Wang, Yuanchun Shi
LightWrite: Teach Handwriting to The Visually Impaired with Only A Smartphone
CHI 2021 – ACM CHI Conference on Human Factors in Computing Systems
- [P.15] Mingrui Zhang, Ruolin Wang, Xuhai Xu, Qisheng Li, Ather Sharif, Jacob Wobbrock

Voicemoji: Emoji Entry Using Voice for Visually Impaired People

CHI 2021 – *ACM CHI Conference on Human Factors in Computing Systems*

- [P.14] Chen Liang, Chun Yu, Xiaoying Wei, **Xuhai Xu**, Yuntao Wang, Yuanchun Shi
Auth+Track: Enabling Authentication Free Interaction on Smartphone by Continuous User Tracking
CHI 2021 – *ACM CHI Conference on Human Factors in Computing Systems*

- [P.13] Yuzhou Zhuang, Yuntao Wang, Yukang Yan, **Xuhai Xu**, Yuanchun Shi
ReflectTrack: Enabling 3D Acoustic Position Tracking Using Commodity Dual-Microphone Smartphones
UIST 2021 – *34th Annual ACM Symposium on User Interface Software and Technology*

-  [P.12] **Xuhai Xu**, Jennifer Mankoff, Anind K. Dey
Understanding Practices & Needs of Researchers in Human State Modeling by Passive Mobile Sensing
TPCI 2021 – *CCF Transactions on Pervasive Computing and Interaction*
[Best Paper Award]


- [P.11] Xin Liu, Ziheng Jiang, Josh Fromm, **Xuhai Xu**, Shwetak Patel, Daniel McDuff
MetaPhys: Few-Shot Adaptation for Non-Contact Physiological Measurement
CHIL 2021 – *The Conference on Health, Inference, and Learning*

- [P.10] Margaret E. Morris, Kevin S. Kuehn, Jennifer Brown, Paula S. Nurius, Han Zhang, Yasaman S. Sefidgar, **Xuhai Xu**, Eve A. Riskin, Anind K. Dey, Sunny Consolvo, Jennifer Mankoff
College from home during COVID-19: A mixed-methods study of heterogeneous experiences
PLOS ONE 2021 – *PLOS ONE, PLOS*

- 2020 [P.9] **Xuhai Xu**, Chun Yu, Yuntao Wang, Yuanchun Shi
Recognizing Unintentional Touch on Interactive Tabletop
IMWUT 2020 – *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*


- [P.8] **Xuhai Xu**, Haitian Shi, Xin Yi, Jiawen Liu, Yukang Yan, Yuanchun Shi, Alex Mariakakis, Jennifer Mankoff, Anind K. Dey
EarBuddy: Enabling On-Face Interaction via Wireless Earbuds
CHI 2020 – *ACM CHI Conference on Human Factors in Computing Systems*

- [P.7] **Xuhai Xu**, Farnaz Jahanbakhsh, Farheen Omar, Bogdan Popp, Robert Rounthwaite, Ahmed Hassan Awadallah, Susan T. Dumais
Understanding User Behavior For Document Recommendation
WWW 2020 – *The Web Conference*

-  [P.6] Yukang Yan, Chun Yu, Wengrui Zheng, Ruining Tang, **Xuhai Xu**, Yuanchun Shi
FrownOnError: Interrupting Responses from Smart Speakers by Facial Expressions
CHI 2020 – *ACM CHI Conference on Human Factors in Computing Systems*
[Best Paper Honorable Mention Award]


- 2019 [P.5] **Xuhai Xu**, Prerna Chikersal, Afsaneh Doryab, Daniella K. Villalba, Janine M. Dutcher, Michael J. Tumminia, Tim Althoff, Sheldon Cohen, Kasey Creswell, J. David Creswell, Jennifer Mankoff, Anind K. Dey
Leveraging Routine Behavior and Contextually-Filtered Features for Depression Detection among College Students
IMWUT 2019 – *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*

- [P.4] **Xuhai Xu**, Chun Yu, Anind K. Dey, Jennifer Mankoff
Clench Interaction: Novel Biting Input Techniques
CHI 2019 – *ACM CHI Conference on Human Factors in Computing Systems*

- 2018  [P.3] Misha Sra*, **Xuhai Xu***, Pattie Maes. *Equally contributed
BreathVR: Leveraging Breathing as a Directly Controlled Interface for Virtual Reality Games
CHI 2018 – *ACM CHI Conference on Human Factors in Computing Systems*
[Best Paper Honorable Mention Award]

- [P.2] **Xuhai Xu**, Alexandru Dancu, Pattie Maes, Suranga Nanayakkara
Hand Range Interface: Information Always at Hand with A Body-centric Mid-air Input Surface
MobileHCI 2018 – 20th International Conference on HCI with Mobile Devices and Services
- [P.1] Mingyuan Zhong, Chun Yu, Qian Wang, **Xuhai Xu**, Yuanchun Shi
ForceBoard: Subtle Text Entry Leveraging Pressure
CHI 2018 – ACM CHI Conference on Human Factors in Computing Systems

Posters & Extended Abstract & Workshop Papers

- 2024 [W.5] Subigya Nepal, Arvind Pillai, William Campbell, Talie Massachi, Eunsol Soul Choi, **Xuhai Xu**, Joanna Kuc, Jeremy Huckins, Jason Holden, Colin Depp, Nicholas Jacobson, Mary Czerwinski, Eric Granholm, Andrew Campbell
Contextual AI Journaling: Integrating LLM and Time Series Behavioral Sensing Technology to Promote Self-Reflection and Well-Being Using the MindScape App
CHI 2024 (LBW) – ACM CHI Conference on Human Factors in Computing Systems
- 2022 [W.4] **Xuhai Xu**
Towards Future Health and Well-Being: Bridging Behavior Modeling and Intervention
UIST 2022 (DC) – 35th Annual ACM Symposium on User Interface Software and Technology
-  [W.3] Ather Sharif, Aneesha Ramesh, Trung-Anh Nguyen, Luna Chen, Kent Richard Zeng, Lanqing Hou, **Xuhai Xu**
UnlockedMaps: Visualizing Real-Time Accessibility of Urban Rail Transit Using a Web-Based Map
ASSETS 2022 (Poster) – 24th International ACM SIGACCESS Conference on Computers and Accessibility
[Best Artifact Award]
- [W.2] Tengxiang Zhang, Xin Zeng, Yinshuai Zhang, Xin Jiang, **Xuhai Xu**, Anind K. Dey, Yiqiang Chen
BoldMove: Enabling IoT Device Control on Ubiquitous Touch Interfaces by Semantic Mapping
CHI 2022 (LBW) – 2022 CHI Conference on Human Factors in Computing Systems
- 2020 [W.1] Liang He, Ruolin Wang, **Xuhai Xu**
PneuFetch: Supporting Blind & Visually Impaired People to Fetch Nearby Object via Light Haptic Cues
CHI 2020 (LBW) – 2020 CHI Conference on Human Factors in Computing Systems

ACADEMIC SERVICE

Editor, Chair, Committee

2026	Associate Editor ACM IMWUT 2026 Associate Editor ACM HEALTH 2026 Associate Chair ACM CHI 2026 Organizing Committee ACM UbiComp 2026 – Poster Chair
2025	Associate Editor ACM IMWUT 2025 Associate Editor ACM HEALTH 2025 Associate Chair ACM CHI 2025 Proceeding Chair CHIL 2025
2024	Associate Chair ACM CHI 2024 Program Committee ACM WSDM 2024 Program Committee ACM TheWebConf 2024 Program Committee ACM FAccT 2024 Organizer ACM UbiComp 2024 – Mental Health Workshop (co-lead)
2023	Organizer ACM UbiComp 2023 – Mental Health Workshop (co-lead) Judge ACM UbiComp 2023 – Student Challenge Junior Chair AHLI ML4H 2023 – Research Roundtable Program Committee ACM WSDM 2023 Program Committee ACM TheWebConf 2023
2022	Organizing Committee ACM UbiComp 2022 – Workshop Chair Program Committee ACM WSDM 2022 Program Committee ACM TheWebConf 2022
2021	Guest Editor ACM XRDS 2021 Fall Issue: Is Computing Toxic? Organizing Committee ACM UbiComp 2021 – Web Chair Program Committee ACM TheWebConf 2021
2020	Associate Chair ACM CHI 2020 Late Breaking Work Program Committee ACM TheWebConf 2020 Program Committee ACM IUI 2020 – Posters and Demos
2019	Program Committee ACM TheWebConf 2019 – Health on the Web Program Committee ACM UbiComp 2019 – Workshop AppLens

Reviewer

HCI	ACM CHI; ACM UIST; ACM CSCW; Nature Human Behavior; ACM IUI; ACM FAccT; LJHCI; ACM MobileHCI; ACM DIS; IEEE ISMAR; ACM VRST; Behaviour & Information Technology; Computers in Human Behavior 🏆 <i>Outstanding Reviewer Recognition</i> – ACM CHI 2022, 2024; ACM UIST 2022, 2023
UbiComp	ACM IMWUT; IEEE THMS; IEEE Pervasive Computing; Pervasive and Mobile Computing;
Health	Science; Nature Medicine; npj Digital Medicine; JMIR; JAMIA; JBHI; ACM HEALTH; AHLI ML4H; AHLI CHIL; MLHC;
AI / ML	NeurIPS; ACM TheWebConf; ACM WSDM; ACM TKDD; AAAI; ACM TIST; Journal of Artificial Intelligence Research

INVITED TALK

2025	University of Cambridge Columbia University, Department of Psychiatry University of Tokyo Columbia University, School of Nursing Weill Cornell Medicine Ohio State University
2024	Google Amazon Northwestern University Oura Ring Columbia University University of California San Diego University of Southern California University of Minnesota Purdue University University of Virginia University of North Carolina at Chapel Hill University of Texas at Austin Northeastern University University of Notre Dame Virginia Tech Imperial College of London National University of Singapore
2023	Harvard University UMich-Ann Arbor University of California Berkeley Massachusetts Institute of Technology Carnegie Mellon University University of Illinois Urbana-Champaign Brown University Georgia Tech University of Washington – eScience Institute Google Stanford University
2022	Hong Kong University of Science and Technology Cornell Tech Georgia Tech University of Chicago University at Buffalo Duke University

2021	Northwestern University Tsinghua University – Academy of Arts & Design Peking University Chinese Academy of Sciences Beihang University Northwestern Polytechnical University University of Washington – Design, Use, Build Human, Technology, Future Forum
2020	Tsinghua University – Dept of Computer Science & Technology Zhejiang University Fudan University Zhejiang University of Technology

TEACHING EXPERIENCE

Instructor

2023	INFO 340 – Client-Side Web Development , University of Washington Undergraduate-level course, 70 students
2020 – 2022	GIX Summer – Statistics in HCI , University of Washington Undergraduate-level course, 30 students

Teaching Assistant

2021	INFO 371: Advanced Methods in Data Science , University of Washington Undergraduate-level course, 50 students (Instructor: Jevin West)
2020	IMT 574: Machine Learning and Econometrics , University of Washington Graduate-level course, 30 students (Instructor: Chirag Shah)
2017	CS 274: Fundamentals of Programming in C++ , Tsinghua University Undergraduate-level course, 200 students (Instructor: Li Zhen)

Guest Lecturer

2024	Intelligent Behavior Intervention In 6.S977 Ethical Machine Learning in Human Deployments, MIT
2023	Bottom-up and Top-down Research Methods in Ubiquitous Computing In INFO 300: Research Methods, University of Washington
2023	Computational Longitudinal Well-being In CSE 7170: Human-Centered Artificial Intelligence Systems, Northeastern University
2022	Computational Mental Health In CSE 99: Biometric Computing Research Seminar, University at Buffalo
2021	Regularization in Machine Learning In INFO 371: Advanced Methods in Data Science, University of Washington

MENTORING EXPERIENCE

Graduate Student

2025 – Present	Will Ke Wang – Columbia Postdoc, Duke PhD <i>Supervising Will to lead multiple projects on AI for wearable and EHR.</i>
2024 – Present	Yubin Kim – MIT Media Lab PhD <i>Collaborating with Yubin on multiple LLM for health projects. [P.33] [P.39]</i>
2024 – 2025	Chen Cao – University of Sheffield PhD <i>Supervising Chen on team science project for AI and health professionals. [P.62]</i>
2022 – 2024	Adiba Orzikulova – junior KAIST CS PhD <i>Supervised Adiba to lead a just-in-time adaptive intervention project for phone overuse. [P.47]</i>
2021 – 2024	Han Xiao – University of Calgary CS Master's <i>Supervised Han on two intervention projects for smartphone overuse. [P.22] [P.47]</i>
2023 – 2024	Ziqi Yang – UMich iSchool Master's <i>Supervised Ziqi on an LLM project for older patient-provider communication. [P.44]</i>
2020 – 2022	Yanzhang Li – UW GIX Master's (currently at Tencent) <i>Supervised Yanzhang on a phone-use intervention project. [P.22]</i>
2020 – 2021	Victor Chen – Stanford University CS Master's <i>Supervised Victor on a project about mouth-gesture design.</i>
2019 – 2020	Haitian Shi – Tsinghua Automobile Master's (Currently Founder of GraphOrigin) <i>Supervised Haitian on an earbud interaction technique. [P.8]</i>
2019 – 2020	David Dai – UW GIX Master's (currently at Airbnb) <i>Supervised David on a longitudinal passive sensing data collection project.</i>

Undergraduate Student

2024 – 2025	Hitesh Goel – International Institute of Information Technology (currently at Apple) <i>Supervised Hitesh on global intervention data analysis. [P.63]</i>
2023 – 2024	Reina Wang – MIT CS & Math <i>Supervised Reina on projects about human-AI interaction for health.</i>
2019 – 2023	Jiahao Li – University of Washington CS & Statistics (Currently at Uber) <i>Supervised Jiahao on real-time interactive sensing systems. [P.17]</i>
2021 – 2023	Randy Zhang – University of Washington CS <i>Supervised Randy on a systematic survey project on passive mobile sensing.</i>
2022 – 2023	Yitong Li – University of Washington CS & Statistics <i>Supervised Yitong on a systematic survey project on passive mobile sensing.</i>
2020 – 2022	Tianyuan Zou – Tsinghua University CS (currently CS PhD at Tsinghua) <i>Supervised Tianyuan on a phone-use intervention project. [P.22]</i>
2020 – 2022	Tianyi Yuan – Tsinghua University Industrial Engineering (currently IE PhD at Tsinghua) <i>Supervised Tianyi on a phone-use intervention project. [P.22]</i>
2021 – 2022	Renad Sehat – University of Washington Global Health <i>Supervised Renad on participant onboarding for a data collection project.</i>

2021 – 2022	Yashasvi Joginapally – University of Washington Informatics <i>Supervised Yashasvi on data checking for a longitudinal data collection project.</i>
2021 – 2022	Matthew Hung – University of Washington Electric Engineering <i>Supervised Matthew on data mining for a longitudinal data collection project.</i>
2021 – 2022	Michelin Lin – University of Washington Bioengineering <i>Supervised Michelin on data quality checking a passive sensing data collection project.</i>
2020 – 2021	Wenjun Chen – University of Washington CS (currently at Meta) <i>Supervised Wenjun on an education data-mining project.</i>
2019 – 2020	Jacqueline Li – University of Washington Informatics (currently at Google) <i>Supervised Jacqueline on app development for a passive sensing data collection project.</i>
2022	Medha Kulkarni – Indiana University Purdue University Gabriela Vega – Peruvian University of Applied Sciences Hiwot Tadesse – Benedict College Dong Wang – Colgate University <i>Led a 3-month workshop for students from underrepresented minority groups on a leg sensing project.</i>

SELECTED PRESS

2025	Small, Easy Acts of Joy Mean Big Gains in Happiness Scientific American
2024	AI pop-ups can help you stop doomscrolling on your phone New Scientist
2024	Xuhai Xu focused on developing an artificial intelligence intervention system UW Graduate School
2024	Researchers Test Generative AI’s Utility for Accessibility Communication of ACM & UW News
2023	A new framework to design explainable AI for AR applications TechXplore – Featured Press
2023	The less college students sleep, the worse their grades, study finds The Washington Post
2023	Ph.D. Student Works to Unlock Devices’ Insights UW iSchool News
2022	Riding public transit can be a gamble for people with disabilities Philadelphia Inquirer
2022	UnlockedMaps provides real-time accessibility info for urban rail transit in 6 metro areas UW News
2021	They are not far apart on the map – Helping China Henan province’s people after torrential rains China Daily
2021	From ‘distress’ to ‘unscathed’ — mental health of UW students during spring 2020. UW News
2021	Dancing with Myself: HulaMove makes your digital devices submit to your every command through the power of your dance moves. Hackster.io News

2021 | [System using smartphone or computer cameras to measure pulse, respiration rate could help future personalized telehealth](#)
ACM Technews & UW News