

Xuhai (Orson) Xu

orsonxuhaixu.com | xuhaixu@cs.washington.edu

EDUCATION

UNIVERSITY OF WASHINGTON

Ph.D. student, Information School

2018 - PRESENT

Advisors: Anind K. Dey & Jennifer Mankoff

TSINGHUA UNIVERSITY

B.E. in Industrial Engineering & Computer Science (Minor)

2014 - 2018

GPA: 95/100, Rank: 1/63

PUBLICATION

- **Xuhai Xu**, Chun Yu, Anind Dey, Jennifer Mankoff. 2019. Clench Interaction: Novel Biting Input Techniques. To be appeared in *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19)*, May 4–9, 2019, Glasgow, Scotland UK. ACM, New York, NY, USA.
- Misha Sra*, **Xuhai Xu***, and Pattie Maes. 2018. BreathVR: Leveraging Breathing as a Directly Controlled Interface for Virtual Reality Games. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. ACM, New York, NY, USA. (**Best Paper Honorable Mentioned Award**) *Equally contributed.
- My Zhong, Chun Yu, Qian Wang, **Xuhai Xu**, Yuanchun Shi. 2018. ForceBoard: Subtle Text Entry Leveraging Pressure. *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. ACM, New York, NY, USA.
- **Xuhai Xu**, Alexandru Dancu, Pattie Maes, and Suranga Nanayakkara. 2018. Hand Range Interface: Information Always at Hand with A Body-centric Mid-air Input Surface. In *Proceedings of the 20th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI '18)*. ACM, New York, NY, USA.
- Misha Sra, **Xuhai Xu**, Aske Mottelson, and Pattie Maes. 2018. VMotion: Designing a Seamless Walking Experience in VR. In *Proceedings of the 2018 Designing Interactive Systems Conference (DIS '18)*. ACM, New York, NY, USA.
- Misha Sra, **Xuhai Xu**, Pattie Maes. 2017. GalVR: a novel collaboration interface using GVS. In *Proceedings of the 23rd ACM Symposium on Virtual Reality Software and Technology (VRST '17)*. ACM, New York, NY, USA.
- **Xuhai Xu**, Chun Yu, Yuanchun Shi, Recognizing Unintentional Touch on Interactive Tabletop (submitted to *ACM Transactions on Computer-Human Interaction*, TOCHI)
- **Xuhai Xu**, Qie Nan, Pei-Luen Patrick Rau. Leveraging Multimodal Features of TV series as A Novel Analysis Method for Cross-Cultural Studies (submitted to the 2019 ACM International Conference on Interactive Experience For Television and Online Video)

RESEARCH EXPERIENCE

UW, MAKE4ALL | PROF. ANIND DEY & PROF. JENNIFER MANKOFF

SEPT 2018 - PRESENT

RESEARCH ASSISTANT

SEATTLE, WA

- Working on behavior routine extraction of students life using discriminative/generative hybrid models.
- Preparing a quarter-long study that collects hundreds of students' phone usage data, smart band data, and Ecological Momentary Assessment (EMA) data.

MIT, MEDIA LAB, FLUID INTERFACES | PROF. PATTIE MAES

JUN 2017 - DEC 2017

VISITING STUDENT

BOSTON, MA

- Designed four breathing actions, developed real-time recognition algorithm, built two VR games and conducted an evaluation study to implement a novel breathing interaction technique in VR game.
- Designed and implemented a hand-centric virtual interface in both VR and AR. Conducted a user study to generate the interface's usability heatmaps.
- Implemented and evaluated a design methodology and four visibility control techniques for redirected walking in VR based on unintentional blindness.
- Modified an electronic circuit to execute galvanic vestibular stimulation to control users' walking direction. Built a game experience for usability evaluation.

- Proposed and built a real time deep learning models for neural-signal- and EMG-based voice activity detection and words recognition. 3D-printed wearable masks for neural and EMG signal collection.

CMU, ARTICULAB | PROF. JUSTINE CASSELL

JUN 2016 - SEPT 2016, JAN 2017 - MAR 2017

VISITING STUDENT

PITTSBURGH, PA

- Designed and implemented the listening behavior generation module through multimodal input for a virtual agent SARA, which was demoed in SIGDIAL 2017 and World Economic Forum 2017.
- Statistically verified the human-computer rapport model via Structure Equation Model.

TSINGHUA, HCI GROUP | PROF. YUANCHUN SHI

FEB 2016 - SEPT 2018

RESEARCH ASSISTANT

BEIJING, CHINA

- Built the gaze direction (in 3D smart space) tracking system. Collected data to identify human gaze-hand behaviors on multi-touch tabletops. Built a real-time gaze-touch intention classifier and filtered unintentional touches on large-screen tabletops.
- Developed a wristband using IR structural light to recognize hand gestures via deep learning models. Led a team of grads to win the Outstanding Prize of Tsinghua's highest tech competition "Challenge Cup".
- Proposed, designed, implemented and evaluated a novel input technique's design space: using clenching as a actively controlled physiological signal.
- Helped develop and evaluate a pressure-based 1D text-entry technique on mobile phones.

TSINGHUA, INSTITUTE OF HUMAN FACTORS | PROF. PEI-LUEN RAU

SEPT 2017 - JUNE 2018

RESEARCH ASSISTANT

BEIJING, CHINA

- Proposed a method for cross-cultural studies via mining facial and linguistic features in multimedia TV series across different countries. Trained classifiers to reveal the meaningful features that identify the culture.

PROFESSIONAL EXPERIENCE

JD.COM INC.

MAY 2018 - JULY 2018

RESEARCH INTERN

BEIJING, CHINA

Proposed and developed a new type of interface prototype for augmenting users' input and output process.

MOBVOI INC.

JAN 2016 - MAR 2016

RESEARCH INTERN

BEIJING, CHINA

Mined voice data and used RNN to improve the voice-trigger module.

TSINGHUA UNIVERSITY

SEPT 2015 - JAN 2016

TEACHING ASSISTANT

BEIJING, CHINA

Q&A and maintained the course's online community of: Fundamentals of Programming in C++

AWARDS & HONORS

- Best Paper Honorable Mentioned Award, (CHI 2018, top 5%) 2018
- Outstanding Undergraduate Awards, Tsinghua University 2018
- Annual Person, Dept. of Industrial Engineering 2018
- GaoTong, Changhong, XieXin, DongshiDongfang Scholarship, Tsinghua University 2015 - 2017
- Outstanding Winner of 35th Challenge Cup, Tsinghua University (Group Leader) 2017

SKILLS

PROGRAM LANGUAGE C/C++ • PYTHON • C# •
JAVA • R • MATLAB • JS/PHP • SQL

TOOLS Unity • Arduino • OpenBCI • Solidworks •
EAGLE • MySQL • Photon • Adobe PS/PR/AE/AU •
L^AT_EX