Xiaofei Zhou

xzhou50@ur.rochester.edu || http://zhouxf.com/

Research Interest

Human-Computer Interaction   Artificial Intelligence Education for K-12   Educational Game Design
Computer-Supported Collaborative Learning

Skills

Research & Design: Instructional Design, Structured Interview, Contextual Inquiry, Think-Aloud, Cognitive Task Analysis, Affinity Diagram, Experience Model, Storyboard, Prototyping, Usability Evaluation, Eye-tracking, Wizard-of-Oz, Experiment Design, Quantitative & Qualitative Data Analysis
Programming: HTML5, CSS3, JavaScript, Java, Python, Matlab, R, SQL, Arduino, C, Processing
Tools: Sketch, InVision, SketchUp, Photoshop, Final Cut Pro, Plant Simulation, SPSS, Minitab

Education

University of Rochester (UR)   2019-2024 (Expected)
Ph.D. student, Computer Science
Advisors: Dr. Zhen Bai

Carnegie Mellon University (CMU)   2018-2019
Human-Computer Interaction Institute, School of Computer Science
MS in Educational Technology and Applied Learning Sciences
Advisors: Dr. Geoff Kaufman, Dr. Ken Keodinger

Tsinghua University (THU)   2014-2018
B.Eng., Industrial Engineering with Specialization in Human Factors

Publication

Peer-Reviewed Conference and Journal Papers

P2   Xingchen Zhou, Pei-Luen Patrick Rau, Chi-Lan Yang, and **Xiaofei Zhou**. "Cognitive Behavioral Therapy-Based Short-Term Abstinence Intervention for Problematic Social Media Use: Improved Well-Being and Underlying Mechanisms." Psychiatric Quarterly (2020): 1-19.

P1   Xiaoyu Wan, **Xiaofei Zhou**, Zaiqiao Ye, Chase K. Mortensen, and Zhen Bai. "SmileyCluster: supporting accessible machine learning in K-12 scientific discovery." In Proceedings of the Interaction Design and Children Conference, pp. 23-35. 2020. (**IDC 2020**)

Workshop, Symposia, Poster, and Extended Abstracts

A2   Xiaoyu Wan, **Xiaofei Zhou**, Zhen Bai. Demystifying SmileyCluster: Accessible Machine Learning for K-12 Students (**GHC'2020** Poster Session)

A1   **Xiaofei Zhou**, Jingwan Tang, Sufian Mushtaq, Xiaoyu Wan, Zhen Bai. Empowering Teachers to Integrate Machine Learning into K-12 Scientific Discovery. International Workshop on Education In Artificial Intelligence K-12 (**EduAI'2020 Workshop Paper**)

Work in Progress or in Submission

W4   **Xiaofei Zhou**, Jingwan Tang, Saad Ahmad, Michael Daley, Zhen Bai. "Now, I Want to Teach it for Real!": Introducing Machine Learning as a Scientific Discovery Tool for K-12 Teachers.

W3   **Xiaofei Zhou**, Jessica Van Brummelen, Phoebe Lin. Designing AI Learning Experiences for K-12: Emerging Works, Future Opportunities and a Design Framework.

W2   Jingwan Tang, **Xiaofei Zhou**, Xiaoyu Wan, Zhen Bai. ML4STEM Professional Development Program: Bridging the Gap between Machine Learning and K-12 STEM Teaching (Submitted to **iJAIED** International Journal of Artificial Intelligence in Education)

W1   Kexin Yang, **Xiaofei Zhou**, Lulian Radu. XR-Ed Framework: Designing Instruction-driven and Learner-centered Extended Reality Systems for Education.

Talks and Presentations

T2   **Empowering Teachers to Integrate Machine Learning into K-12 Scientific Discovery,** International Workshop on Education in Artificial Intelligence K-12 (EDUAI-20), held in conjunction with the International Conference on Artificial Intelligence in Education (AIED-20)   07/2020

T1   **SmileyCluster: supporting accessible machine learning in K-12 scientific discovery,** Interaction Design and Children Conference (IDC-20)   06/2020

Honors and Awards

NSF I-Corps, GoTracker for Project-Based Learning@CMU   2019

Merit Scholarship, CMU ($9000)   2018

Special Award of 36th Challenge Cup, THU   2018

Science and Technology Innovation Award, Department of Industrial Engineering, THU   2018

Outstanding Volunteer for IxDC, International Conference of User Experience Design   2016

Tsinghua University Social Practice Gold Award, THU   2015

Professional Experiences

ASSETS 2019 *Graphic Design Chair*   Oct 2018-2019
  -   Designed ASSETS 2019 conference logo, website, and social media logo.

OWLII *Product & UX Designer*   Mar-July 2018
  -   Conducted user research, designed interaction, and prototyped with Sketch and Photoshop for Xiatiao Camera.
  -   Designed and conducted user testing.
  -   Iterated design for the 2nd version.

Learning Design Projects

Go-Tracker: Facilitate More Effective Project-Based Learning   Sept-Dec 2018
Advisor: Marti Louw, Human-Computer Interaction Institute, CMU
- Interviewed 8 experts and stakeholders.
- Collaborated with a local high school in Pittsburgh and observed classrooms in context.
- Created storyboards and conducted speed dating with stakeholders.
- Designed wireframes, visual interfaces and interaction.
- Tested system with 5 high school stakeholders, analyzed data and iterated design.

Intelligent Tutoring System for Information Visualization   Sept 2018-Sept 2019
Advisor: Dr. Ken Keodinger, Human-Computer Interaction Institute, CMU
- Conducted cognitive task analysis (CTA) with 11 experts and novices.
- Designed a new instructional model for information visualization based on data from CTA.
- Conducted learner testing with 30 participants and verified the effectiveness of the instructional model.

Academic Writing Assistance for Non-Native English Speaker   Oct 2017-Sept 2018
Advisor: Dr. Chun Yu, Department of Computer Science and Technology, THU
Special Award of 36th Challenge Cup, Tsinghua University.
- Improved user experience by designing and developing esoda.org, an online platform for academic English writing assistance with 3000+ average daily visits.
- Redesigned with learning principles for its further development and better learning outcome

Experiential Game for Children's Security Education   Feb 2017
- Interviewed target users and created personas, user scenarios and storyboards.
- Tested prototype and interviewed 12 children and their parents.
- Designed and iterated the game mechanism and UI prototype.

Research Experiences

AI4K12: Accessible Machine Learning for K-12 Scientific Discovery   Sept 2019-Present
Advisor: Dr. Zhen Bai, Computer Science, University of Rochester
- Designed and created the online technology-enhanced learning environment SmileyDiscovery to support ML-empowered scientific discovery learning for K-12 students.
- Designed and conducted a 2-week co-design research with 18 K-12 teachers.
- Analyzed the data collected from the co-design workshop and submitted a research paper to CHI'2021.

Character Creation Assistance Tool   Sept 2018-Present
Advisor: Dr. Geoff Kaufman, Human-Computer Interaction Institute, Carnegie Mellon University
- Created storyboards and conducted speed dating for interactive systems and experiment design.
- Analyzed interaction between 10 creators and 3 readers for prior research.
- Recruited participants for the formal experiment and data collection.

A Machine Learning-Based KES for Interaction Design   Sept 2017-June 2018
Advisor: Dr. Patrick Rau, Department of Industrial Engineering, THU
- Trained neural net models for Kansei classification by transfer learning from BVLC with Matlab, accuracy=84.7%.

- Conducted neuron analysis to analyze the rules of kawaii perception for Japanese females and found that Chinese females and Japanese females perceived kawaii differently.
- Built an auxiliary system for cross-cultural product design then designed and conducted validation experiments.

Sensing Curiosity in Play and Responding   Jun-Oct 2017
Advisor: Dr. Justine Cassell, Human-Computer Interaction Institute, CMU
- Created a 17-iteration UI in Java for the Wizard-of-Oz study then conducted the heuristic evaluation and summative usability testing.
- Compiled more than 7000 logs of data from previous gameplay and extracted the typical features of children's game behaviors and strategies in order to build the children's curiosity behavior model.

Exploratory Research: Overuse and Abstinence of Social Media   Apr-Sept 2017
Advisor: Dr. Patrick Rau, Department of Industrial Engineering, THU
- Conducted literature research on social media overuse, abstinence, and impact.
- Designed and conducted a 3-week social media abstinence experiment with 33 participants.
- Analyzed qualitative and quantitative data from 490 logs of diary study, interviews, and subjective scales, then demonstrated the effectiveness of short-term abstinence to improve productivity, life satisfaction and autonomy, especially for social media addicts.

Teaching and Volunteer

University of Rochester   2019-Present
Teaching Assistant
- CSC161 Introduction to Programming   Spring 2020
- CSC211 Introduction to HCI   Fall 2020

Tsinghua University and Local K-12 Schools in Beijing   May 2016-Jul 2018
Teaching Volunteer
- Recorded 4 audiobooks for blind children in a special education school.
- Taught Creative Writing for the First Grade students in the Haidian District School of Migrant Laborers 'Children.
- Participated in a pen pal program for children in isolated areas.

Department of Industrial Engineering, Tsinghua University   Sept 2015-Dec 2016
Chief editor

Research Mentoring

Kaixin Li   Aug 2020-Present
Undergraduate student at Digital Media Studies, Brain & Cognitive Sciences, University of Rochester

Abdul Moid Munawar   Mar 2020-Present
Undergraduate student at Department of Computer Science, University of Rochester

Saad Ahmad   Jan 2020-Present
Undergraduate student at Department of Computer Science, University of Rochester

Sufian Mushtaq   Jan 2020-Sept 2020
Undergraduate student at Department of Computer Science, University of Rochester