

Shuai Ma

PHD CANDIDATE · HUMAN COMPUTER INTERACTION

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“Build responsible and effective Transparency between human and AI.”

Research Interest

I am a PhD candidate in HCI Lab at Hong Kong University of Science and Technology (HKUST) supervised by Prof. Xiaojuan Ma.

My research interest lies in Human-AI Interaction. I am especially interested in promoting **transparent communication** between humans and AI and investigating the trust issues (e.g., **trust calibration**) when users interact with a black-box AI. I design computational models and run empirical studies to understand users' mental models when collaborating with AI (e.g., in **AI-assisted decision-making**, machine teaching). And I develop novel interfaces to support human-compatible human-AI collaboration through advanced techniques, such as **human-centered explainable AI**.

Education

Hong Kong University of Science and Technology (HKUST)

PH.D. IN COMPUTER SCIENCE AND ENGINEERING

Hong Kong SAR

Sep. 2020 - June. 2024 (expected)

- HCI Lab, CSE Department. Supervisor: Xiaojuan Ma.
- HKUST Redbird PhD Scholarship recipient, Huawei PhD Fellowship recipient

University of Chinese Academy of Science (UCAS)

M.SC. IN COMPUTER SCIENCE AND TECHNOLOGY

China

Sep. 2017 - July. 2020

- HCI Lab, Institute of Software, Chinese Academy of Science. Supervisor: Feng Tian.
- National Graduate Scholarship recipient
- Thesis: “User Personalized Modeling Method and Application Based on Mixed-initiative Interaction”

Harbin Institute of Technology (HIT)

B.S. IN COMPUTER SCIENCE AND ENGINEERING

China

Sep. 2013 - July. 2017

- School of Computer Science.
- National Undergraduate Scholarship recipient
- Thesis: “A Mobile-Based Neurological Function Evaluation System for the Elderly”

Industry Experience

Huawei 2012 Lab/HMI Lab

RESEARCH INTERN, WITH DR. DAYUAN HUANG, DR. ZHENYI HE

Shenzhen, China

June. 2022 - Dec. 2022

- Human-Car Interaction: Human-in-the-loop Driving Route Recommendation for Insensitive Parking Fee Payment.
- XAI in Autonomous Vehicle: Designing Conversational In-Car Explanations for Unexpected Auto-Driving Events.

Netease Youdao NLP Group

NLP INTERN

Beijing, China

Jan. 2018 - Mar. 2018

- A Language Translation Model from Classical Chinese to Modern Chinese.

LOHAS Tech (A startup company) Machine Learning Group

MACHINE LEARNING INTERN

Beijing, China

Oct. 2017 - Dec. 2017

- Healthcare in People's Daily Lives: Wave Form Recognition Model in Electrocardiogram (ECG) Signal.

Beijing Key Lab of Human-Computer Interaction at the Institute of Software, Chinese Academy of Sciences (ISCAS)

STUDENT RESEARCHER

Beijing, China

Sep. 2016 - June. 2017

- Old Adults' Neurological Functions Evaluation Model and Early-Intervention Design.

Publications

Manuscripts and Pre-prints

- 2022** M.1 **Shuai Ma**, Xiaojuan Ma. **Towards Human-centered Design of Explainable Artificial Intelligence (XAI): A Survey of Empirical Studies.** (Working paper)

Peer-reviewed Conference and Journal Publications

- 2022** J.1 **Shuai Ma**, Mingfei Sun, Xiaojuan Ma. **Modeling Adaptive Expression of Robot Learning Engagement and Exploring its Effects on Human Teachers**. In *ACM Transactions on Computer-Human Interaction*. (**TOCHI 2022**).
- C.1 **Shuai Ma**, Taichang Zhou, Fei Nie, Xiaojuan Ma. **Glancee: An Adaptable System for Instructors to Grasp Student Learning Status in Synchronous Online Classes**. In *The ACM CHI Conference on Human Factors in Computing Systems*. (**CHI 2022**).
- 2021** C.2 Liuping Wang, Dakuo Wang, Feng Tian, Zhenhui Peng, Xiangmin Fan, Zhan Zhang, **Shuai Ma**, Mo Yu, Xiaojuan Ma, Hongan Wang. **CASS: Towards Building a Social-Support Chatbot for Online Health Community**. In *The 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing*. (**CSCW 2021**).
- 2019** C.3 **Shuai Ma**, Zijun Wei, Feng Tian, Xiangmin Fan, Jianming Zhang, Xiaohui Shen, Zhe Lin, Jin Huang, Radomir Mech, Dimitris Samaras, and Hongan Wang. **SmartEye: Assisting Instant Photo Taking via Integrating User Preference with Deep View Proposal Network**. In *The ACM CHI Conference on Human Factors in Computing Systems*. (**CHI 2019**). 🏆 Honorable Mention Award

Posters, Extended Abstracts, Workshop Papers

- 2019** W.1 Qian Zhu, **Shuai Ma**. **What Did I Miss? Assisting User adaptive Missed Content Reviewing in MOOC Learning**. In *The Adjunct Publication of the 32nd Annual ACM Symposium on User Interface Software and Technology*. (**UIST 2019 Adjunct**).
- W.2 Qian Zhu, **Shuai Ma**, Cuixia Ma. **Pre-screen: Assisting Material Screening in Early-stage of Video Editing**. In *The Adjunct Publication of the 32nd Annual ACM Symposium on User Interface Software and Technology*. (**UIST 2019 Adjunct**).
- W.3 Yunzhi Li, Liuping Wang, **Shuai Ma**, Xiangmin Fan, Zijun Wang, Junfeng Jiao, and Dakuo Wang. **Human-AI Interaction in Healthcare: Three Case Studies About How Patient(s) And Doctors Interact with AI in a Multi-Tiers Healthcare Network**. In *The ACM CHI Conference on Human Factors in Computing Systems (Workshop Paper)*. (**CHI 2019 Workshop**).
- 2018** W.4 Jing Gao, Feng Tian, Junjun Fan, Dakuo Wang, Xiangmin Fan, Yicheng Zhu, **Shuai Ma**, Jin Huang, and Hongan Wang. **Implicit Detection of Motor Impairment in Parkinson's Disease from Everyday Smartphone Interactions**. In *The ACM CHI Conference on Human Factors in Computing Systems (Late Breaking Work)*. (**CHI LBW 2018**).
- W.5 Liuping Wang, Xiangmin Fan, Feng Tian, Lingjia Deng, **Shuai Ma**, Jin Huang, and Hongan Wang. **mirrorU: Scaffolding Emotional Reflection via In-Situ Assessment and Interactive Feedback**. In *The ACM CHI Conference on Human Factors in Computing Systems (Late Breaking Work)*. (**CHI LBW 2018**).

Patent

- 2019** PT.1 Feng Tian, Jin Huang, Lixin Zhou, Yicheng Zhu, **Shuai Ma**, Hongan Wang. **A Gait Recognition Method and System for Target User in Daily Environment**. Filed: 2019-01-10. Patent No. CN 2019100216329.

Selected Honors and Awards

- 2022** CHI 2022 Student Volunteer Award
Special Recognition for Outstanding Reviews
- 2020** HKUST Redbird PhD Scholarship (40,000 HKD)
Huawei PhD Fellowship (270,000 HKD/year)
- 2019** President Scholarship in Chinese Academy of Sciences (only 1%)
Honorable Mention Award at ACM CHI 2019
Excellent Paper Award at the Annual Academic Conference of ISCAS
- 2018** National Scholarship for Graduate (only 1%)
First-Class Scholarship in UCAS
- 2017** Excellence Award for Science Creation Program of Chinese Academy of Sciences
Special Scholarship for Undergraduates & Top 10 students of HIT (only 0.1%)
Excellent Graduates (first-class honor) in Harbin Institute of Technology
- Before 2016** National Scholarship for Undergraduate (only 1%)
First-Class Scholarship in HIT (2014, 2015, 2016)

Competitions

- 2021** Natural Language Processing with Disaster Tweets **Rank: top 1%**
- 2018** Huawei Cup Free Software Programming Competition 🏆 *Winner*
 The 6th Emotion Recognition in the Wild Challenge (EmotiW 2018, held by ACM ICMI 2018). Audio-video Emotion Recognition
Rank: top 10%
 WAD Video Segmentation Challenge (held by IEEE/CVF CVPR 2018). Semantic Segmentation and Recognition of Road Vehicles
Rank: 4th /141 teams
- 2016** The 5th National Marine Vehicle Design and Manufacturing Competition 🏆 *Winner*
 The 18th National Robot Championship (as team leader) 🏆 *Winner*

Teaching Experience

Teaching Assistant

- 2021** COMP 1021 Introduction to Computer Science (Hong Kong University of Science and Technology)
2020 COMP 1021 Introduction to Computer Science (Hong Kong University of Science and Technology)

Guest Lecture

- 2019** Introduction to Natural User Interfaces (Beijing Zhongguancun No.1 Primary School)
2018 Introduction to Natural User Interfaces (Beijing Science and Innovation Open Day)

Mentoring Experience

Advisees

- 2022** Elin (Undergraduate student from KTH, Sweden, *co-advisor: Xiaojuan Ma*)
 Ying Lei (Undergraduate student from East China Normal University, *co-advisor: Xiaojuan Ma*)
2021 Fei Nie (Undergraduate student from HKUST, *co-advisor: Xiaojuan Ma*), currently master student at CMU HCII
 Taichang Zhou (Undergraduate student from HKUST, *co-advisor: Xiaojuan Ma*)

Professional Service

Program Committees

- 2023** ACM CHI LBW

Paper Reviewing

- 2019-2023** ACM CHI 2019-2023, UIST 2022, CHI LBW 2022, WWW 2021, TOCHI, CCF TPCI
 🏆 *Special recognition for outstanding review ACM CHI*

Community Service

- 2022** Student Volunteer, for ACM CHI 2022
 🏆 *Student Volunteer Award*
- 2019** Web Master, for CHI 2019 Workshop - *HCI in China: Research Agenda, Education Curriculum, Industry Partnership, and Communities Building*
 Student Volunteer, for CHI 2019 *China Night*
 Volunteer, for teaching HCI courses at CCF Rural Education in Lvliang, Shanxi, China

Skills

- Programming** Language: Python, HTML, Javascript, C#, Java
 Toolkit: Pytorch, Tensorflow, Scikit-learn, Numpy, Matplotlib, Flask, Apache, MySQL
- User Research** User Study Design (between/within) with Mixed methods (Quantitative and Qualitative method), Participatory Design, Survey, Interview, Formative Study, etc.
- Data Analysis** Statistical Analysis (both parameter and non-parameter tests), Qualitative Coding, Thematic Analysis
- AI Practice** Experience with popular Natural Language Processing models (including LLMs), Computer Vision models, and Reinforcement Learning algorithms.
- Others** Robot Operation System (ROS), Unity, Web development, Microsoft Powerpoint, Excel, Adobe Illustrator