

CHAOFAN WANG

Email: chaofanuni@gmail.com

Website: chaofanw.net

EDUCATION

Ph.D. in Human-Computer Interaction

The University of Melbourne

February 2019 - July 2023

Melbourne, Australia

- Thesis Title: Automated Monitoring of Hand Hygiene Quality
- Supervisors: Prof. Vassilis Kostakos and Assoc. Prof. Jorge Goncalves

Master of Information Technology

The University of Melbourne

February 2017 - December 2018

Melbourne, Australia

- Graduated with Distinction and Dean's Honours List

Bachelor of Computer Science

Hangzhou Dianzi University

September 2012 - June 2016

Hangzhou, China

SKILLS

Research Interests

Human-Computer Interaction, Ubiquitous Computing, Medical Informatics

Program Languages

Python, Java, C & C++, SQL

Technical Skills

Wearable Sensing (IMU, sEMG), Environmental Sensing (RGB camera, thermal camera, depth camera), Signal & Image Processing, Android Development

Analysis Skills

Statistical Analysis, Machine Learning & Deep Learning, Data Visualization

Languages

Chinese (native), English (fluent)

WORK EXPERIENCE

Delft University of Technology

Postdoc in Human-Centred AI

September 2022 - Present

Delft, Netherlands

- Contributed to developing a conversational assistant for manufacturing training (COALA: COgnitive Assisted agile manufacturing for a LAbor force supported by trustworthy Artificial Intelligence) under the European Union Horizon-2020 Programme;
- Conducted research on sensing on the shop floor and large language model-enhanced information perception;
- Collaborated with cross-functional teams of researchers and industry partners to initiate and execute new projects.

Delft University of Technology

Academic Tutor

September 2022 - Present

Delft, Netherlands

- Delivered tutorials to 130 students for machine learning (IOB4-T3, ID5515);
- Redesigned teaching materials used in the tutorials (IOB4-T3, ID5515).

Murdoch Children's Research Institute (MCRI)

Research Associate Intern

February 2020 - August 2022

Melbourne, Australia

- Designed and executed the field study of Using Wearable Sensor to Detect Episodes of Hand Hygiene.

The University of Melbourne

Academic Tutor

July 2019 - June 2022

Melbourne, Australia

- Delivered tutorials to 60 students for web application development (COMP10003);
- Delivered tutorials to 350 students for Android application development (COMP90018);
- Redesigned teaching materials used in the tutorials (COMP90018).

PROJECTS

- Using Large Language Model to Facilitate Information Perception** November 2022 - Present
- Conducted an in-depth evaluation of large language models' ability to summarize mobile notifications across multiple types of summarization techniques;
 - Analyzed users' preferences and feedback regarding notification summarization techniques and their combinations.
- Using Computer Vision to Measure Quality of Hand Hygiene** October 2019 - June 2023
- Utilized environmental sensors (thermal and RGB cameras) to detect hand surface coverage following hand hygiene with antiseptic products;
 - Leveraged computer vision algorithms to objectively assess hand hygiene quality in medical settings;
 - Provided actionable recommendations for optimizing hand hygiene techniques based on findings from the study.
- Using Wearable Sensor to Detect Episodes of Hand Hygiene** February 2019 - August 2022
- Developed machine learning algorithms utilizing wearable sensors (IMU and sEMG) to detect hand hygiene events;
 - Evaluated the potential for monitoring the frequency and effectiveness of hand hygiene practices in medical environments.
- Using Environment Data to Predict Emergency Admissions** February 2019 - November 2019
- Created machine learning algorithms to predict emergency department admissions using a combination of environment data, calendar variables, and historical admission records to optimize personnel flow.

AWARDS AND SCHOLARSHIPS

- PhD Write Up Award** 2022
The University of Melbourne
- Research Training Program Scholarship** 2019 - 2022
The University of Melbourne
- Dean's Honours List** 2018
The University of Melbourne
- Commonwealth Supported Place** 2018 - 2019
The University of Melbourne

SUPERVISION

Master Thesis

- Martin Kvalsund, NTNU (co-supervised with Michail Giannakos, Evangelos Niforatos);
- Henrik Giil Liisberg, NTNU (co-supervised with Michail Giannakos, Evangelos Niforatos).

COMMUNITY SERVICE

- Reviewer (Journal)** PACM IMWUT, IJHCI, Journal of Medical Internet Research, JMIR mHealth and uHealth, JMIR Medical Informatics, BMJ Innovations, American Journal of Infection Control, Public Health in Practice, etc.
- Reviewer (Conference)** CHI, MobiCom, MobileHCI, NordiCHI, OzCHI, AJCAI, AIOISys, etc.
- Program Committee** IoT 2022 (session chair), SmartWear'23 (PC member)

RESEARCH PUBLICATIONS

1. Weiwei Jiang, **Chaofan Wang**, Zhanna Sarsenbayeva, Andrew Irlitti, Jing Wei, Jarrod Knibbe, Tilman Dinger, Jorge Goncalves, and Vassilis Kostakos. Infoprint: Embedding interactive information in 3d prints using low-cost readily-available printers and materials. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, 7(3), sep 2023 (JCR - Q2, Impact factor: 4.0)

2. Samuel Kernan Freire, Mina Foosherian, **Chaofan Wang**, and Evangelos Niforatos. Harnessing large language models for cognitive assistants in factories. In *Proceedings of the 5th International Conference on Conversational User Interfaces*, pages 1–6, 2023
3. **Chaofan Wang**, Weiwei Jiang, Kangning Yang, Zhanna Sarsenbayeva, Benjamin Tag, Tilman Dingler, Jorge Goncalves, and Vassilis Kostakos. Using thermal imaging to measure hand hygiene quality. *Journal of Hospital Infection*, 2023 (JCR - Q1, Impact factor: 6.9)
4. Samuel Kernan Freire, **Chaofan Wang**, Santiago Ruiz-Arenas, and Evangelos Niforatos. Tacit knowledge elicitation for shop-floor workers with an intelligent assistant. In *Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems*, CHI EA '23, New York, NY, USA, 2023. Association for Computing Machinery (CHI EA)
5. Samuel Kernan Freire, Evangelos Niforatos, **Chaofan Wang**, Santiago Ruiz-Arenas, Mina Foosherian, Stefan Wellsandt, and Alessandro Bozzon. Lessons learned from designing and evaluating claica: A continuously learning ai cognitive assistant. In *Proceedings of the 28th International Conference on Intelligent User Interfaces*, IUI '23, page 553–568, New York, NY, USA, 2023. Association for Computing Machinery (CORE - A)
6. Kangning Yang, Benjamin Tag, **Chaofan Wang**, Yue Gu, Zhanna Sarsenbayeva, Tilman Dingler, Greg Wadley, and Jorge Goncalves. Survey on emotion sensing using mobile devices. *IEEE Transactions on Affective Computing*, (01):1–20, Nov 2022 (JCR - Q1, Impact factor: 11.2)
7. Wei Jing, Weiwei Jiang, **Chaofan Wang**, Difeng Yu, Jorge Goncalves, Tilman Dingler, and Vassilis Kostakos. Understanding how to administer voice surveys through smart speakers. *Proc. ACM Hum.-Comput. Interact.*, 6(CSCW2), nov 2022 (CORE - A)
8. **Chaofan Wang**, Kangning Yang, Weiwei Jiang, Jing Wei, Zhanna Sarsenbayeva, Jorge Goncalves, and Vassilis Kostakos. Hand hygiene quality assessment using image-to-image translation. In Linwei Wang, Qi Dou, P. Thomas Fletcher, Stefanie Speidel, and Shuo Li, editors, *Medical Image Computing and Computer Assisted Intervention – MICCAI 2022*, pages 64–73, Cham, 2022. Springer Nature Switzerland (CORE - A)
9. Kangning Yang, Benjamin Tag, Yue Gu, **Chaofan Wang**, Tilman Dingler, Greg Wadley, and Jorge Goncalves. Mobile emotion recognition via multiple physiological signals using convolution-augmented transformer. In *Proceedings of the 2022 International Conference on Multimedia Retrieval*, ICMR '22, page 562–570, New York, NY, USA, 2022. Association for Computing Machinery (CORE - B)
10. **Chaofan Wang**, Weiwei Jiang, Kangning Yang, Zhanna Sarsenbayeva, Benjamin Tag, Tilman Dingler, Jorge Goncalves, and Vassilis Kostakos. A System for Computational Assessment of Hand Hygiene Techniques. *Journal of Medical Systems*, 46(6):36, May 2022 (JCR - Q1, Impact factor: 5.3)
11. Weiwei Jiang, Difeng Yu, **Chaofan Wang**, Zhanna Sarsenbayeva, Niels van Berkel, Jorge Goncalves, and Vassilis Kostakos. Near-infrared imaging for information embedding and extraction with layered structures. *ACM Trans. Graph.*, 42(1), August 2022 (JCR - Q1, Impact factor: 6.2)
12. **Chaofan Wang**, Weiwei Jiang, Kangning Yang, Difeng Yu, Joshua Newn, Zhanna Sarsenbayeva, Jorge Goncalves, and Vassilis Kostakos. Electronic Monitoring Systems for Hand Hygiene: Systematic Review of Technology. *Journal of Medical Internet Research*, 23(11):e27880, Nov 2021 (JCR - Q1, Impact factor: 7.4)
13. Kangning Yang, **Chaofan Wang**, Yue Gu, Zhanna Sarsenbayeva, Benjamin Tag, Tilman Dingler, Greg Wadley, and Jorge Goncalves. Behavioral and Physiological Signals-Based Deep Multimodal Approach for Mobile Emotion Recognition. *IEEE Transactions on Affective Computing*, (01):1–1, July 2021 (JCR - Q1, Impact factor: 11.2)
14. Weiwei Jiang, Zhanna Sarsenbayeva, Niels van Berkel, **Chaofan Wang**, Difeng Yu, Jing Wei, Jorge Goncalves, and Vassilis Kostakos. User Trust in Assisted Decision-Making Using Miniaturized Near-Infrared Spectroscopy. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, New York, NY, USA, 2021. Association for Computing Machinery (CORE - A*)

15. Difeng Yu, Weiwei Jiang, **Chaofan Wang**, Tilman Dingler, Eduardo Velloso, and Jorge Goncalves. ShadowDancXR: Body Gesture Digitization for Low-Cost Extended Reality (XR) Headsets. In *Companion Proceedings of the 2020 Conference on Interactive Surfaces and Spaces*, page 79–80, New York, NY, USA, 2020. Association for Computing Machinery (ISS EA)
16. Kangning Yang, **Chaofan Wang**, Zhanna Sarsenbayeva, Benjamin Tag, Tilman Dingler, Greg Wadley, and Jorge Goncalves. Benchmarking commercial emotion detection systems using realistic distortions of facial image datasets. *The Visual Computer*, pages 1–20, 2020 (JCR - Q2, Impact factor: 3.5)
17. **Chaofan Wang**, Zhanna Sarsenbayeva, Xiuge Chen, Tilman Dingler, Jorge Goncalves, and Vassilis Kostakos. Accurate Measurement of Handwash Quality Using Sensor Armbands: Instrument Validation Study. *JMIR Mhealth Uhealth*, 8(3):e17001, Mar 2020 (JCR - Q1, Impact factor: 5.0)
18. **Chaofan Wang**, Zhanna Sarsenbayeva, Chu Luo, Jorge Goncalves, and Vassilis Kostakos. Improving Wearable Sensor Data Quality Using Context Markers. In *International Joint Conference on Pervasive and Ubiquitous Computing, UbiComp Adjunct*, 2019 (UbiComp EA)
19. Qiushi Zhou, Joshua Newn, Benjamin Tag, Hao-Ping Lee, **Chaofan Wang**, and Eduardo Velloso. Ubiquitous Smart Eyewear Interactions using Implicit Sensing and Unobtrusive Information Output. In *International Joint Conference on Pervasive and Ubiquitous Computing, UbiComp Adjunct*, 2019 (UbiComp EA)

Preprints

1. **Chaofan Wang**, Samuel Kernan Freire, Mo Zhang, Jing Wei, Jorge Goncalves, Vassilis Kostakos, Zhanna Sarsenbayeva, Christina Schneegass, Alessandro Bozzon, and Evangelos Niforatos. Safeguarding crowdsourcing surveys from chatgpt with prompt injection. *arXiv preprint arXiv:2306.08833*, 2023