

CHAOFAN WANG

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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, Information Perception, Medical Informatics

Program Languages

Python, Java, C & C++, SQL

Technical Skills

Wearable Sensing, Environmental Sensing, Signal and Image Processing, Android Development, Large Language Models-associated Software Development

Analysis Skills

Statistical Analysis, Machine Learning & Deep Learning, Data Visualization

Languages

Chinese (native), English (fluent)

WORK EXPERIENCE

Wenzhou University

Lecturer

November 2023 - Present

Wenzhou, China

Delft University of Technology

Guest Researcher

February 2024 - Present

Online

- Continue ongoing research on Using Large Language Model to Facilitate Information Perception.

Delft University of Technology

Postdoc in Human-Centred AI

September 2022 - November 2023

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 - November 2023

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.

- 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).

SELECTED 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, AIOtSys, etc.
Program Committee OzCHI 2019 (PC member), IoT 2022 (session chair), SmartWear'23 (PC member), CHI 2024 (associate chair), Augmented Human 2024 (PC member)

RESEARCH PUBLICATIONS

1. Weiwei Jiang, **Chaofan Wang**, Zhanna Sarsenbayeva, Andrew Irlitti, Jing Wei, Jarrod Knibbe, Tilman Dingler, 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, Ji-Youn Jung, **Chaofan Wang**, Evangelos Niforatos, and Alessandro Bozzon. How emoji and explanations influence adherence to ai recommendations. In *Proceedings of the 23rd ACM International Conference on Intelligent Virtual Agents*, pages 1–5, 2023 (CORE - B)
3. 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
4. **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)
5. 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)
6. 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)
7. 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)
8. 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)
9. **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)
10. 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)
11. **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)
12. 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)
13. **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)

14. 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)
15. 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*)
16. 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)
17. 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)
18. **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)
19. **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)
20. 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. Samuel Kernan Freire, **Chaofan Wang**, and Evangelos Niforatos. Chatbots in knowledge-intensive contexts: Comparing intent and llm-based systems. *arXiv preprint arXiv:2402.04955*, 2024
2. Samuel Kernan Freire, **Chaofan Wang**, Mina Foosherian, Stefan Wellsandt, Santiago Ruiz-Arenas, and Evangelos Niforatos. Knowledge sharing in manufacturing using large language models: User evaluation and model benchmarking. *arXiv preprint arXiv:2401.05200*, 2024
3. **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