WEIWEI JIANG

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I am a researcher in computer science. My research interests focus on the area of ubiquitous computing and human-computer interaction, including wireless sensing, wireless communications, machine learning, and digital fabrication. My works are published in top venues including ACM IMWUT/Ubicomp, ACM CHI, and ACM ToG.

EDUCATION

University of Melbourne **World QS (2024) Ranking 16**
Degree of Doctor of Philosophy *October 2019 - March 2023*
School of Computing and Information Systems *Supervisor: Vassilis Kostakos*

Japan Advanced Institute of Science and Technology **National Research Institute**
Degree of Master of Science *October 2014 - September 2016*
School of Information Science *Supervisor: Tad Matsumoto*

Huazhong University of Science and Technology **985&211, Double First-Class A+**
Degree of Bachelor of Engineering *September 2010 - June 2014*
Department of Computer Science and Engineering *Supervisor: Chen Yu*

SKILLS

Spoken Languages
Chinese (native), English (fluent, TOEFL iBT 105), Japanese (fluent, JLPT N2).

Programming Languages
Python (mostly used), C/C++, MATLAB, Java.

Frameworks & Development Tools
Machine learning (sklearn, Tensorflow and PyTorch), OpenCV, statistical data analysis (Pandas), Linux, Unity 3D, parallel computing, Android, Django.

Hardware Prototyping
Digital fabrications (laser cut, 3D print and PCB milling), embedded/IoT system development, PCB design, laboratory test & characterization (digital, analog and RF circuits).

RESEARCH EXPERIENCE

AIoT Lab, Nanjing University of Information Science & Technology *Nov. 2023 - present*
Assistant Professor (tenure-tracked) *Nanjing, China*
· Working on developing novel information embedding and extraction methods for 3D prints.

AIoT Lab, Anhui Normal University *March 2023 - October 2023*
Project Professor *Wuhu, China*
· Worked on developing novel information embedding and extraction methods for 3D prints.

Human-Computer Interaction Group, University of Melbourne *October 2019 - March 2023*
Graduate Researcher *Melbourne, Australia*
· Worked on ubiquitous material sensing methods for enabling new applications including food computing, health management, and information embedding and extraction.

LINKE, University of Science and Technology of China *May 2019 - August 2019*
Visiting Researcher *Hefei, China*
· Prototyped a Wi-Fi backscattering development platform for sensor and video streaming.

Kawahara Lab, The University of Tokyo *January 2017 - March 2019*
Project Researcher *Tokyo, Japan*

· Worked on machine learning solutions for low-cost electromagnetic sensing methods.

Interaction Design Lab, University of Melbourne *May 2018 - August 2018*
Visiting Researcher *Melbourne, Australia*

· Identified everyday drinks using near-infrared spectroscopy with ∼99% accuracy.

Japan Advanced Institute of Science and Technology *July 2014 - September 2016*
Industry-Academy-Government Collaboration Researcher *Nomi, Japan*

· Designed a wireless communication system that improved up to 50% performance for vehicle networking.

Center for Ubiquitous Computing, University of Oulu *September 2013 - May 2014*
Bachelor Project Researcher *Oulu, Finland*

· Developed a novel covert wireless communication method for smartphones with 44 bps.
· Developed a full-stack novel dynamic wireless sensor network with multiple drones.

Wuhan National Laboratory for Optoelectronics *July 2013 - August 2013*
Research Assistant *Wuhan, China*

· Assisted in deploying an OpenStack system for community-level cloud-storage service for up to 100 users.

RESEARCH GRANTS

Australia-Germany Joint Research Cooperation Scheme *January 2022 - December 2023*
University of Melbourne (co-investigator) 24,800 AUD

Preserving HCI Research Artefacts *December 2021*
University of Melbourne (chief investigator) 3,000 AUD

General Program *January 2020 - December 2024*
National Natural Science Foundation of China (co-investigator) 560,000 CNY

TEACHING

Designing Novel Interactions *2021, 2022*
Guest Lecturer *University of Melbourne*

· Taught an introduction course on 3D modeling for printing for ∼50 master students in computer science.

Mobile Computing Systems Programming *2020, 2021*
Tutor *University of Melbourne*

· Taught tutorials on Android development for more than 100 master students in computer science.
· Mentored ∼20 Android projects for the subject.

Fundamentals of Interaction Design *2020*
Tutor *University of Melbourne*

· Mentored ∼50 undergraduate students for designing user interfaces.

AWARDS AND SCHOLARSHIPS

Melbourne Research Scholarship *October 2019 - April 2023*
University of Melbourne 110,000 AUD

Doctoral Student Special Incentives Program *April 2018 - March 2019*
The University of Tokyo 1,440,000 JPY

English Session Encouragement Award *March 2018*
IEICE Technical Committee on Information Communication Management (Honorable award)

Doctoral Student Research Support Program *July 2017 - December 2017*
The University of Tokyo 300,000 JPY

Outstanding Graduate (Master) *September 2016*
Japan Advanced Institute of Science and Technology (Honorable award for Top 3 graduates)

Scholarship for Master's Program *October 2015 - September 2016*
Japan Advanced Institute of Science and Technology 267,900 JPY

TEIJIN Scholarship *April 2015 - September 2016*
TEIJIN LIMITED 900,000 JPY

Monbukagakusho Honors Scholarship *September 2014 - March 2015*
Japan Student Services Organization 390,000 JPY

Outstanding Graduate (Bachelor) *June 2016*
Huazhong University of Science and Technology (Honorable award)

Excellent Bachelor Thesis (2nd place out of ∼500 theses) *June 2016*
Huazhong University of Science and Technology & Hubei Province Government (Honorable award)

National Endeavor Fellowship (for Top 3% students) *September 2013 - June 2014*
Chinese Government 5,000 CNY

People's Scholarship in China (for Top 10% students) *September 2012 - July 2013*
Huazhong University of Science and Technology 1,200 CNY

Finalist in Lanqiao Cup National Software Competition *May 2013*
Sponsored by IBM & Intel 3rd prize out of finalists from more than 1000 universities in China

SERVICES AND VOLUNTEERING

Organizing
ACM CHI 2024 (associate chair), Augmented Humans 2024 (associate chair), ACM Ubicomp 2023 Poster & Demos (committee member), ACM MobileHCI 2023 LBW (associate chair), IEEE AIoTSys 2023 (tutorial chair & associate chair).

Reviewing
ACM IMWUT (2018, 2019, 2020, 2021, 2022, 2023), ACM MobileHCI (2020, 2021, 2022, 2023), ACM CHI (2020, 2021, 2022, 2023), IEEE IoTJ (2023), IEEE VR (2023), ACM DIS (2021), ACM JETC (2018), IEEE/ACM Transactions on Networking (2020), IEEE Systems Journal (2018), OzCHI (2021) etc.

Volunteering
HUST Volunteer Service (61 hours), ACM Ubicomp 2018 Student Volunteer (10 hours)

OUTREACHING

Joint Research Project *November 2023*
Academic visiting *Hefei, China*
· Visited LINKE Group at the University of Science and Technology of China (USTC, Top 10 in China).

Joint Research Project *June 2022*
Academic visiting *Munich, Germany*
· Visited Media Informatics and Human-Computer Interaction Groups in LMU Munich (Top 1 in Germany).

HCI Summer School *June 2022*
Attending student *Lodz, Poland*
· Attended HCI research-related courses, talks, and events (organized by ACM SIGCHI).

Research Seminar *June 2022*
Public talk *Copenhagen, Denmark*
· Presented "Transforming Sensing Devices into Tools Using Digital Fabrication" at Human-Centred Computing section, University of Copenhagen (Top 1 in Denmark).

Melbourne Design Week *March 2022*
Public demo *Melbourne, Australia*
· Demonstrated my prototype of a smart pillbox using miniaturized near-infrared spectroscopy.
· Demonstrated a VR haptics system using an indoor drone with origami (joint-project).

Research Seminar *September 2021*
Public talk *Online*
· Presented "Research Methods in Computer Science" for graduate students.

HCI Seminar *September 2020*
Public talk *Online*
· Presented my preliminary work on miniaturized near-infrared spectroscopy.

ERATO Kawahara Project Forum *September 2018*
Public forum *Tokyo, Japan*
· Presented my project on wirelessly powered ring devices.
· Volunteered as the organizer team member.

PUBLICATIONS

First-authored

[1] **W. Jiang**, C. Wang, Z. Sarsenbayeva, A. Irlitti, J. Wei, J. Knibbe, T. Dingler, J. Goncalves, and V. Kostakos, "Infoprint: Embedding interactive information in 3d prints using low-cost readily-available printers and materials," *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, vol. 7, no. 3, 2023. DOI: 10.1145/3610933. [Online]. Available: https://doi.org/10.1145/3610933, [Journal/conference][Ranking: CORE A* | CCF A].

[2] **W. Jiang**, D. Yu, C. Wang, Z. Sarsenbayeva, N. van Berkel, J. Goncalves, and V. Kostakos, "Near-infrared imaging for information embedding and extraction with layered structures," *ACM Transactions on Graphics (TOG)*, 2022, (Just Accepted), ISSN: 0730-0301. DOI: 10.1145/3533426, [Journal][Impact factor: 12.03][Ranking: CORE A* | CCF A | JCR Q1].

[3] **W. Jiang**, Z. Sarsenbayeva, N. van Berkel, C. Wang, D. Yu, J. Wei, J. Goncalves, and V. 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: Association for Computing Machinery, 2021, pp. 1–16. DOI: https://doi.org/10.1145/3411764.3445710, [Conference][Ranking: CORE A* | CCF A].

[4] **W. Jiang**, G. Marini, N. van Berkel, Z. Sarsenbayeva, Z. Tan, C. Luo, X. He, T. Dingler, J. Goncalves, Y. Kawahara, and et al., "Probing sucrose contents in everyday drinks using miniaturized near-infrared spectroscopy scanners," *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, vol. 3, no. 4, 2019. DOI: 10.1145/3369834, [Journal/conference][Ranking: CORE A* | CCF A].

[5] **W. Jiang**, D. Yu, A. Irlitti, J. Goncalves, V. Kostakos, and X. He, "Knock the Reality: Virtual Interface Registration in Mixed Reality," in *2023 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, Shanghai, China, 2023, pp. 615–616. DOI: 10.1109/VRW58643.2023.00150, [Poster][Ranking: CORE A* | CCF A].

[6] D. Yu*, **W. Jiang*** (*co-first author), A. Irlitti, T. Dingler, E. Velloso, J. Goncalves, and V. Kostakos, "Haptics in vr using origami-augmented drones," in *2022 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)*, 2022, [Demo][Ranking: CORE A* | CCF B].

[7] **W. Jiang**, K. Yang, M. Windl, F. Chiossi, B. Tag, S. Mayer, and Z. Sarsenbayeva, "Current challenges of using wearable devices for online emotion sensing," in *The Future of Emotion in Human-Computer Interaction (workshop in CHI 2022)*, 2022, [Workshop][Ranking: CORE A* | CCF A].

[8] **W. Jiang**, G. Marini, N. van Berkel, Z. Sarsenbayeva, C. Luo, X. He, T. Dingler, Y. Kawahara, and V. Kostakos, "A mobile scanner for probing liquid samples in everyday settings," in *Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers (UbiComp '18 Adjunct)*, Singapore: ACM, 2018, pp. 1172–1177, ISBN: 978-1-4503-5966-5. DOI: 10.1145/3267305.3274764, [Workshop][Ranking: CORE A* | CCF A].

[9] **W. Jiang**, X. He, and T. Matsumoto, "Power allocation in an asymmetric wireless sensor network," *IEEE Communications Letters*, vol. 21, no. 2, pp. 378–381, 2017, ISSN: 1089-7798. DOI: 10.1109/LCOMM.2016.2624728, [Journal][Impact factor: 3.55][Ranking: JCR Q2].

[10] **W. Jiang**, X. He, S. Qian, M. Juntti, and T. Matsumoto, "Finite-snr diversity-multiplexing tradeoff for decode-and-forward relaying system allowing intra-link errors," in *2015 10th International Conference on Information, Communications and Signal Processing (ICICS)*, IEEE, 2015, pp. 1–5. DOI: 10.1109/ICICS.2015.7459909, [Conference][Invited paper].

[11] **W. Jiang**, D. Ferreira, J. Ylioja, J. Goncalves, and V. Kostakos, "Pulse: Low bitrate wireless magnetic communication for smartphones," in *Proceedings of the 2014 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp '14)*, Seattle, Washington: ACM, 2014, pp. 261–265, ISBN: 978-1-4503-2968-2. DOI: 10.1145/2632048.2632094, [Conference][Ranking: CORE A* | CCF A].

Co-authored

[12] D. Yan, P. Yang, F. Shang, **W. Jiang**, and X.-Y. Li, "Wi-painter: Fine-grained material identification and image delineation using cots wifi devices," *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, vol. 7, no. 4, 2024. DOI: 10.1145/3633809. [Online]. Available: https://doi.org/10.1145/3633809, [Journal/conference][Ranking: CORE A* | CCF A].

[13] Z. Yang, X. He, G. Lin, **W. Jiang**, Y. Zhu, J. Sun, Y. Xu, and P. Yang, "Nuwa: Off-state tolerant backscattering system with uncontrolled excitation traffics," *Journal of Cloud Computing*, vol. 12, no. 1, p. 157, 2023. DOI: 10.1186/s13677-023-00508-5. [Online]. Available: https://doi.org/10.1186/s13677-023-00508-5, [Journal/conference][Ranking: JCR Q4].

[14] C. Wang, **W. Jiang**, K. Yang, Z. Sarsenbayeva, B. Tag, T. Dingler, J. Goncalves, and V. Kostakos, "Use of thermal imaging to measure the quality of hand hygiene," *Journal of Hospital Infection*, vol. 139, pp. 113–120, 2023, ISSN: 0195-6701. DOI: https://doi.org/10.1016/j.jhin.2023.05.016. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S0195670123001718, [Journal][Impact factor: 6.90][Ranking: JCR-Q1].

[15] J. Wei, **W. Jiang**, C. Wang, D. Yu, J. Goncalves, T. Dingler, and V. Kostakos, "Understanding How to Administer Voice Surveys through Smart Speakers," *Proc. ACM Hum.-Comput. Interact.*, vol. 6, no. CSCW2, 2022. DOI: 10.1145/3555606. [Online]. Available: https://doi.org/10.1145/3555606, [Journal/conference][Impact factor: 4.57][Ranking: CORE A* | CCF A].

[16] G. Lin, Y. Zhou, **W. Jiang**, X. He, X. Zhou, G. He, and P. Yang, "Lf-swipt: Outage analysis for swipt relaying networks using lossy forwarding with qos guaranteed," *IEEE Internet of Things Journal*, pp. 1–11, 2022. DOI: 10.1109/JIOT.2022.3161980, [Journal][Impact factor: 9.94][Ranking: JCR Q1].

[17] C. Wang, **W. Jiang**, K. Yang, Z. Sarsenbayeva, B. Tag, T. Dingler, J. Goncalves, and V. Kostakos, "A system for computational assessment of hand hygiene techniques," *Journal of Medical Systems*, vol. 46, no. 6, p. 36, 2022. DOI: 10.1007/s10916-022-01817-z, [Journal][Impact factor: 4.92][Ranking: JCR Q1].

[18] C. Wang, **W. Jiang**, K. Yang, D. Yu, J. Newn, Z. Sarsenbayeva, J. Goncalves, and V. Kostakos, "Electronic monitoring systems for hand hygiene: Systematic review of technology," *Journal of Medical Internet Research (JMIR)*, vol. 23, no. 11, e27880, 2021, ISSN: 1438-8871. DOI: 10.2196/27880, [Journal][Impact factor: 7.09][Ranking: JCR Q1].

[19] D. Yu, **W. Jiang**, C. Wang, T. Dingler, E. Velloso, and J. Goncalves, "Shadowdancxr: Body gesture digitization for low-cost extended reality (xr) headsets," in *Companion Proceedings of the 2020 Conference on Interactive Surfaces and Spaces (ISS)*, 2020, pp. 79–80. DOI: 10.1145/3380867.3426222, [Demo][Ranking: CORE A].

[20] X. He, **W. Jiang**, M. Cheng, X. Zhou, P. Yang, and B. M. Kurkoski, "Guardrider: Reliable wifi backscatter using reed-solomon codes with qos guarantee," in *2020 IEEE/ACM 28th International Symposium on Quality of Service (IWQoS)*, 2020. DOI: 10.1109/IWQoS49365.2020.9213057, [Conference][Best paper runner-up][Ranking: CORE B | CCF B].

[21] X. Chen, H. Li, M. Cheng, **W. Jiang**, and X. He, "Outage probability analysis of power splitting swipt relay networks in nakagami-m fading channel," in *2020 6th International Conference on Big Data Computing and Communications (BIGCOM)*, IEEE, 2020, pp. 161–167. DOI: 10.1109/BigCom51056.2020.00030, [Conference].

[22] Z. Sarsenbayeva, G. Marini, N. van Berkel, C. Luo, **W. Jiang**, K. Yang, G. Wadley, T. Dingler, V. Kostakos, and J. Goncalves, "Does smartphone use drive our emotions or vice versa? a causal analysis," in *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, ser. CHI '20, Honolulu, HI, USA: Association for Computing Machinery, 2020, pp. 1–15, ISBN: 9781450367080. DOI: 10.1145/3313831.3376163, [Conference][Ranking: CORE A* | CCF A].

[23] C. Mc Caffrey, T. Umedachi, **W. Jiang**, T. Sasatani, Y. Narusue, R. Niiyama, and Y. Kawahara, "Continuum robotic caterpillar with wirelessly powered shape memory alloy actuators," *Soft Robotics*, 2020. DOI: 10.1089/soro.2019.0090, [Journal][Impact factor: 7.78][Ranking: JCR Q1].

[24] Z. Tan, R. Beuran, S. Hasegawa, **W. Jiang**, M. Zhao, and Y. Tan, "Adaptive security awareness training using linked open data datasets," *Education and Information Technologies*, 2020. DOI: 10.1007/s10639-020-10155-x, [Journal][Impact factor: 3.67][Ranking: JCR Q1 (SSCI)].

[25] Z. Sarsenbayeva, N. van Berkel, D. Hettiachchi, **W. Jiang**, T. Dingler, E. Velloso, V. Kostakos, and J. Goncalves, "Measuring the effects of stress on mobile interaction," *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, vol. 3, no. 1, 24:1–24:18, 2019, ISSN: 2474-9567. DOI: 10.1145/3314411, [Journal/conference][Ranking: CORE A* | CCF A].

[26] Z. Sarsenbayeva, N. van Berkel, **W. Jiang**, D. Hettiachchi, V. Kostakos, and J. Goncalves, "Effect of ambient light on mobile interaction," in *IFIP Conference on Human-Computer Interaction (INTERACT)*, Springer, 2019, pp. 465–475. DOI: 10.1007/978-3-030-29387-1_26, [Conference][Ranking: CORE B | CCF C].

[27] Z. Chang, H. Kim, K. Kato, K. Saito, T. D. Ta, **W. Jiang**, K. Narumi, Y. Miyamoto, and Y. Kawahara, "Kirigami keyboard: Inkjet printable paper interface with kirigami structure presenting kinesthetic feedback," in *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems*, ser. CHI EA '19, Glasgow, Scotland Uk: Association for Computing Machinery, 2019, ISBN: 9781450359719. DOI: 10.1145/3290607.3312757, [LBW][Ranking: CORE A* | CCF A].

[28] O. Matthews, Z. Sarsenbayeva, **W. Jiang**, J. Newn, E. Velloso, S. Clinch, and J. Goncalves, "Inferring the mood of a community from their walking speed: A preliminary study," in *Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers (UbiComp '18 Adjunct)*, Singapore: ACM, 2018, pp. 1144–1149, ISBN: 978-1-4503-5966-5. DOI: 10.1145/3267305.3274759, [Workshop][Ranking: CORE A* | CCF A].

[29] G. Cheng, H. Sun, X. He, **W. Jiang**, X. Zhou, M. Cheng, and P. Yang, "Outage probability analysis of decode-and-forward relaying systems with energy harvesting," in *2018 4th International Conference on Big Data Computing and Communications (BIGCOM)*, Chicago, 2018, pp. 28–33. DOI: 10.1109/BIGCOM.2018.00011, [Conference].

[30] S. Qian, J. He, X. He, **W. Jiang**, M. Juntti, and T. Matsumoto, "Line-of-sight component impact analyses for lossy forward relaying over fading channels having different statistical properties," in *13th IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS)*, IEEE, 2016. [Online]. Available: https://dspace.jaist.ac.jp/dspace/handle/10119/14286, [Conference].