JIESHAN CHEN

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RESEARCH INTERESTS

Software Engineering, Human-Computer Interaction, Human-Centred Engineering, Software Usability, UI Engineering, Mobile Application.

EDUCATION

Australian National University

August 2018 – December 2022

Ph.D. in Computer Science

Dissertation: Improving the Efficiency of Mobile User Interface Development through Semantic and Data-Driven Analyses Supervisor: Zhenchang Xing

Sun Yat-Sen University

August 2014 – June 2018

Bachelor in Statistics, School of Mathematics

Honors Graduate Award (Top 10%)

Overall GPA: 3.8/4.0 (89/100)

WORKING EXPERIENCE

CSIRO's Data61, Australia

January 2022 - Present

Lead of UI Intelligence research team (since Feb 2024), Research Scientist

Apple Inc., USA (Remotely from Australia due to Covid)

March 2021-September 2021

AI/ML Research Intern - Machine Learning + UI Understanding Team

- Project Topic: Enhancing the accessibility for screen readers and mobile users [C.4, P.1]
- Built a large-scale icon dataset (327 k samples) and developed an icon classification algorithm covering both common and long-tail icons, **integrated** into iOS Screen Recognition, and published a paper.

HONORS & AWARDS

CSIRO SCS Biannual Awards – Early Career in Science Award	June 2024
CSIRO SCS Biannual Awards - Women in Science Career Award	June 2023
ACM SIGSOFT Distinguished Paper Award at ICSE 2020	July 2020
Google PhD Fellowship Nomination	2020
ANU HDR Fee Remission Merit Scholarship	2018-2022
ANU Ph.D. Scholarship (International) Full-Time	2018-2021
Honors Graduate Award at Sun Yat-Sen University	June 2018

FUNDINGS

ACM SIGSOFT funding for Summer / Winter School

2025

TUM-IAS Dieter Schwarz Fellowship

2024-2027

PUBLICATIONS

CONFERENCE PUBLICATIONS - Research/Technical Track

- [C.12] Zewei Shi, Ruoxi Sun, Jieshan Chen, Jiamou Sun, Jason Xue, Yansong Gao, Feng Liu, Xingliang Yuan. 50 Shades of Deceptive Patterns: A Unified Taxonomy, Multimodal Detection, and Security Implications. Proceedings of the ACM Web Conference (WWW2025), Core Ranking A*, Acceptance rate: 19.8% (409/2062).
- [C.11] Ziqi Ding, Gelei Deng, Yi Liu, Junchen Ding, Jieshan Chen, Yulei Sui, Yuekang Li. IllusionCAPTCHA: A CAPTCHA based on visual illusion. Proceedings of the ACM Web Conference (WWW2025). Core Ranking A*, Acceptance rate: 19.8% (409/2062).
- [C.10] Mingyue Yuan, Jieshan Chen, Zhenchang Xing, Aaron Quigley, Yuyu Luo, Gelareh Mohammadi, Qinghua Lu, Liming Zhu. DesignRepair: Dual-Stream Design Guideline-Aware Frontend Repair with Large Language Models. Proceedings of the ACM/IEEE International Conference on Software Engineering (ICSE2025). Core Ranking A*, Acceptance Rate: 21.3% (245/1150).
- [C.9] Minh Duc Vu, Han Wang, Zhuang Li, Jieshan Chen, Shengdong Zhao, Zhenchang Xing, Chunyang Chen. GPTVoiceTasker: Advancing Multistep Mobile Task Efficiency Through Dynamic Interface Exploration and Learning. Proceedings of the ACM Symposium on User Interface Software and Technology (UIST2024). Core Ranking A*, Acceptance Rate 24% (146/608).
- [C.8] Jiamou Sun, Jieshan Chen, Zhenchang Xing, Qinghua Lu, Xiwei Xu, Liming Zhu. Where is it? Tracing the Vulnerability-Relevant Files from

- Vulnerability Reports. Proceedings of the ACM/IEEE International Conference on Software Engineering (ICSE2024). Core Ranking A*, Acceptance Rate 22.3% (234/1051).
- [C.7] Shidong Pan, Dawen Zhang, Mark Staples, Zhenchang Xing, Jieshan Chen, Xiwei Xu, and Thong Hoang. Is It a Trap? A Large-scale Empirical Study and Comprehensive Assessment of Online Automated Privacy Policy Generators for Mobile Apps. Proceedings of the USENIX Security Symposium (USENIX2024). Core Ranking A*.
- [C.6] Jieshan Chen, Jiamou Sun, Sidong Feng, Zhenchang Xing, Qinghua Lu, Xiwei Xu, Chunyang Chen. Unveiling the Tricks: Automated Detection of Dark Patterns in Mobile Applications. Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2023). Core Ranking A*, Acceptance Rate 25% (121/483).
- [C.5] Qing Huang, Zhenyu Wan, Zhenchang Xing, Changjing Wang, Jieshan Chen, Xiwei Xu, Qinghua Lu. Let's Chat to Find the APIs: Connecting Human, LLM and Knowledge Graph through AI Chain. Proceedings of the IEEE/ACM International Conference on Automated Software Engineering (ASE2023). Core Ranking A*, Acceptance Rate 20.3% (134/661).
- [C.4] Jieshan Chen, Amanda Swearngin, Jason Wu, Titus Barik, Jeffrey Nichols and Xiaoyi Zhang. Towards Complete Icon Labeling in Mobile Applications. Proceedings of the ACM Conference on Human Factors in Computing Systems (CH12022). Core Ranking A*, Acceptance Rate 12.5% (324/2,597). Available on iOS.
- [C.3] Jieshan Chen, Mulong Xie, Zhenchang Xing, Chunyang Chen, Xiwei Xu, Liming Zhu and Guoqiang Li. Object Detection for Graphical User Interface: Old Fashioned or Deep Learning or a Combination? Proceedings of the ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE2020). Core Ranking A*, Acceptance Rate 28% (101/360). Used by Alibaba
- [C.2] Jieshan Chen, Chunyang Chen, Zhenchang Xing, Xiwei Xu, Liming Zhu, Guoqiang Li, and Jinshui Wang. Unblind Your Apps: Predicting Natural-Language Labels for Mobile GUI Components by Deep Learning. Proceedings of the ACM/IEEE International Conference on Software Engineering (ICSE2020). Core Ranking A*, Cite 157, Acceptance Rate 20.9% (129/617). ACM SIGSOFT Distinguished Paper Award
- [C.1] Guibin Chen, Deheng Ye, Zhenchang Xing, Jieshan Chen, and Erik Cambria. Ensemble Application of Convolutional and Recurrent Neural Networks for Multi-label Text Categorization. Proceedings of the IEEE International Joint Conference on Neural Networks (IJCNN2017). Core Ranking A.

JOURNAL PUBLICATIONS

- [J.5] Mingyue Yuan, Jieshan Chen, Yongquan Hu, Sidong Feng, Mulong Xie, Gelareh Mohammadi, Zhenchang Xing, Aaron Quigley. Towards Human-AI Synergy in UI Design: Supporting Iterative Generation with LLMs. ACM Transactions on Computer-Human Interaction (TOCH12025). Just accepted.
- [J.4] Qing Huang, Yanbang Sun, Zhenchang Xing, Yuanlong Cao, Jieshan Chen, Xiwei Xu, Huan Jin, Jiaxing Lu. Let's Discover More API Relations: A Large Language Model-based AI Chain for Unsupervised API Relation Inference. ACM Transactions on Software Engineering and Methodology (TOSEM2024).
- [J.3] Qing Huang, Zhiwen Luo, Zhenchang Xing, Jinshan Zeng, Jieshan Chen, Xiwei Xu, Yong Chen. Revealing the Unseen: AI Chain on LLMs for Predicting Implicit Data Flows to Generate Data Flow Graphs in Dynamically-Typed Code. ACM Transactions on Software Engineering and Methodology (TOSEM2024).
- [J.2] Yu Cheng, Jieshan Chen, Qing Huang, Zhenchang Xing, Xiwei Xu, Qinghua Lu. Prompt Sapper: An LLM-Empowered Production Tool for Building AI Chains. ACM Transactions on Software Engineering and Methodology (TOSEM2024).
- [J.1] Jieshan Chen, Chunyang Chen, Zhenchang Xing, Xin Xia, Liming Zhu, John Grundy, and Jinshui Wang. Wireframe-based UI Design Search through Image Autoencoder. ACM Transactions on Software Engineering and Methodology (TOSEM2020).

OTHER PUBLICATIONS - Short Paper/Tool Demo/Workshop

- [O.3] Sidong Feng, Mingyue Yuan, Jieshan Chen, Zhenchang Xing, Chunyang Chen. Designing with Language: Wireframing UI Design Intent with Generative Large Language Models. ACM CHI Conference on Human Factors in Computing Systems (CHI'24) UI Workshop, 2024.
- [O.2] Zewei Shi, Ruoxi Sun, Jieshan Chen, Jiamou Sun, Minhui Xue. The Invisible Game on the Internet: A Case Study of Decoding Deceptive Patterns. The Web Conference 2024 (WWW2024) - Short Papers Track, 2024.
- [O.1] Mulong Xie, Sidong Feng, Zhenchang Xing, Jieshan Chen, Chunyang Chen. UIED: A Hybrid Tool for GUI Element Detection. Proceedings of the ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering – Companion (ESEC/FSE 2020 - Tool Demo), 2020.

PREPRINT & UNDER REVIEW

- [P.8] Jingwen Zhou, Jieshan Chen, Qinghua Lu, Dehai Zhao, Liming Zhu. SHIELDA: Structured Handling of Exceptions in LLM-Driven Agentic Workflows. Under Review (TOSEM), 2025.
- [P.7] Sai Zhang, Zhenchang Xing, *Jieshan Chen*, Dehai Zhao, Zizhong Zhu, Xiaowang Zhang, Zhiyong Feng, Xiaohong Li. *Think Like an Engineer: A Neuro-Symbolic Collaboration Agent for Generative Software Requirements Elicitation and Self-Review.* Under Review (TOSEM), **2025**.
- [P.6] Jingwen Zhou, Qinghua Lu, Jieshan Chen, Liming Zhu, Xiwei Xu, Zhenchang Xing, Stefan Harrer. A Taxonomy of Architecture Options for Foundation Model-Based Agents: Analysis and Decision Model. Under Review (TOSEM), 2025.
- [P.5] Jieshan Chen, Zhen Wang, Jiamou Sun, Wenbo Zou, Zhenchang Xing, Qinghua Lu, Qing Huang, Xiwei Xu. From Exploration to Revelation: Detecting Dark Patterns in Mobile Apps. Under Review (TOSEM), 2025.
- [P.4] Minh Duc Vu, Jieshan Chen, Zhenchang Xing, Qinghua Lu, Xiwei Xu, Qian Fu. FactFlow: Automatic Fact Sheet Generation and Customization from Tabular Dataset via AI Chain Design & Implementation. arXiv:2502.17909, 2024.
- [P.2] Jason Ching Yuen Siu, Jieshan Chen*, Yujin Huang, Zhenchang Xing, Chunyang Chen. Towards Real Smart Apps: Investigating Human-AI Interactions in Smartphone On-Device AI Apps. arXiv preprint arXiv:2307.00756, 2023.
- [P.1] Jieshan Chen, Amanda Swearngin, Jason Wu, Titus Barik, Jeffrey Nichols and Xiaoyi Zhang. Extracting Replayable Interactions from Videos of Mobile App Usage. arXiv preprint arXiv:2207.04165, 2022.

TEACHING EXPERIENCE

2025-2026 TUM Winter, Lecturer, Seminar on User Research Methods in Software Engineering. 2024 TUM CITHN3003, Lecturer, Guest Lecture on Software Usability and Accessibility.

SERVICE

Chair

- The 4th International Workshop on Responsible AI Engineering (RAIE@ICSE2026, Organization Co-Chair)
- ACM Workshop on Large AI Systems and Models with Privacy and Safety Analysis (LAMPS@CCS2024)

Program Committee

- IEEE/ACM International Conference on Software Engineering (ICSE'25, ICSE'26)
- IEEE/ACM International Conference on Automated Software Engineering (ASE'23, ASE'24 Artifact Evaluation, ASE'25)
- ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA'24)
- IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER'24 ERA Track)
- ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2023-SRC Track)
- ACM international joint conference on pervasive and ubiquitous computing (UbiComp/ISWC'23 Posters and Demos)
- International Conference on Software and System Processes (ICSSP'23)
- IEEE International Symposium on Software Reliability Engineering (ISSRE'22- Industry Track)
- ACM CHI Conference on Human Factors in Computing Systems (CHI'22-Computational UI Workshop)
- The Mining Software Repositories (MSR'22-Shadow PC, MSE'23-Junior PC)

Reviewer

- ACM Transaction on Computer-Human Interaction (TOCHI)
- IEEE Transactions on Software Engineering and Methodology (TOSEM)
- ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)
- ACM Symposium on User Interface Software and Technology (UIST'22, UIST'24, UIST'25)
- ACM CHI Conference on Human Factors in Computing Systems (CHI'22, CHI'23, CHI'24, CHI'25, CHI'26)
- ACM SIGCHI Conference on Computer-Supported Cooperative Work & Social Computing (CSCW '24)
- IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR'23)
- The Mining Software Repositories (MSR'22, MSR'23)
- ACM international joint conference on pervasive and ubiquitous computing (UbiComp'22)
- International Journal of Human-Computer Interaction (IJHCI'22)
- IEEE International Symposium on Software Reliability Engineering (ISSRE'22)
- IEEE Transactions on Software Engineering (TSE'22, TSE '23)