JIESHAN CHEN

Address: Level 5/13 Garden St, Eveleigh NSW 2015, Australia. *Gender:* Female
Phone: (+61) 452 234 123 *Email*: Jieshan.Chen@data61.csiro.au *Website:* https://chenjshnn.github.io/

RESEARCH INTEREST

My work lies in the fields of software engineering, deep learning, and human-computer interaction. My research focus on guaranteeing and supporting responsible software development by design using AI/ML techniques. Specifically, my research includes examining and mitigating accessibility and ethical issues in apps and enhancing the productivity during software development using responsible AI techniques. Total Citation: 837.

EDUCATION

Australian National University ***August 2018 – December 2022***

Ph.D. in Computer Science

Thesis: Improving the Efficiency of Mobile User Interface Development through Semantic and Data-Driven Analyses

Supervisors: Zhenchang Xing and Chunyang Chen

Sun Yat-Sen University ***August 2014 – June 2018***

Bachelor in Statistics, School of Mathematics **Honors Graduate**

Overall GPA: **3.8**/4.0 (89/100)

RESEARCH EXPERIENCE

CSIRO's Data61, Australia ***January 2022– Present***

Research Scientist – Software Engineering for AI (SE4AI) Team

- *Lead of sub-team UI intelligence in SE4AI Team (3 research scientists, 1 senior engineer, 1 engineer, 1 Postdoc, 3 PhD students)*
- *Lead Immersive AI cluster initiatives at Data61*

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 (finished two papers, one accepted at CHI'22 [C.4, O.2])

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 in 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 of Sun Yat-Sen University ***June 2018***

PEER-REVIEWED CONFERENCE PUBLICATIONS – Research/Technical Track

[C. 9] **GPTVoiceTasker: Advancing Multi-step Mobile Task Efficiency Through Dynamic Interface Exploration and Learning**

Minh Duc Vu, Han Wang, Jieshan Chen, Zhuang Li, Shengdong Zhao, Zhenchang Xing, Chunyang Chen

Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2024)

Core Ranking **A***, To appear

[C. 8] **Where is it? Tracing the Vulnerability-relevant Files from Vulnerability Reports**
Jiamou Sun, Jieshan Chen, Zhenchang Xing, Qinghua Lu, Xiwei Xu, Liming Zhu
Proceedings of the ACM/IEEE International Conference on Software Engineering (ICSE 2024)
Core Ranking **A***

[C. 7] **Is It a Trap? A Large-scale Empirical Study And Comprehensive Assessment of Online Automated Privacy Policy Generators for Mobile Apps**
Shidong Pan, Dawen Zhang, Mark Staples, Zhenchang Xing, Jieshan Chen, Xiwei Xu, and Thong Hoang
Proceedings of the USENIX Security Symposium (USENIX 2024)
Core Ranking **A***

[C. 6] **Unveiling the Tricks: Automated Detection of Dark Patterns in Mobile Applications**
Jieshan Chen, Jiamou Sun, Sidong Feng, Zhenchang Xing, Qinghua Lu, Xiwei Xu, Chunyang Chen
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2023)
Core Ranking **A***, Acceptance Rate 25% (121/483)

[C. 5] **Let's Chat to Find the APIs: Connecting Human, LLM and Knowledge Graph through AI Chain**
Qing Huang, Zhenyu Wan, Zhenchang Xing, Changjing Wang, Jieshan Chen, Xiwei Xu, Qinghua Lu
Proceedings of the IEEE/ACM International Conference on Automated Software Engineering (ASE 2023)
Core Ranking **A***, Acceptance Rate 20.3% (134/661)

[C. 4] **Towards Complete Icon Labeling in Mobile Applications**
Jieshan Chen, Amanda Swearngin, Jason Wu, Titus Barik, Jeffrey Nichols and Xiaoyi Zhang.
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2022)
Core Ranking **A*,** Cite 16, **Acceptance Rate 12.5%** (324/2,597)

[C. 3] **Object Detection for Graphical User Interface: Old Fashioned or Deep Learning or a Combination?**
Jieshan Chen, Mulong Xie, Zhenchang Xing, Chunyang Chen, Xiwei Xu, Liming Zhu and Guoqiang Li.
Proceedings of the ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2020)
Core Ranking **A***, Cite **117**, Acceptance Rate 28% (101/360)

[C. 2] **Unblind Your Apps: Predicting Natural-Language Labels for Mobile GUI Components by Deep Learning**.
Jieshan Chen, Chunyang Chen, Zhenchang Xing, Xiwei Xu, Liming Zhu, Guoqiang Li, and Jinshui Wang.
Proceedings of the ACM/IEEE International Conference on Software Engineering (ICSE 2020)
Core Ranking **A***, Cite **111**, Acceptance Rate 20.9% (129/617)
ACM SIGSOFT Distinguished Paper Award

[C. 1] **Ensemble Application of Convolutional and Recurrent Neural Networks for Multi-label Text Categorization.**
Guibin Chen, Deheng Ye, Zhenchang Xing, Jieshan Chen, and Erik Cambria.
Proceedings of the IEEE International Joint Conference on Neural Networks (IJCNN 2017)
Core Ranking A, Cite **290**

PEER-REVIEWED JOURNAL PUBLICATIONS

[J. 4] **Let's Discover More API Relations: A Large Language Model-based AI Chain for Unsupervised API Relation Inference**
Qing Huang, Yanbang Sun, Zhenchang Xing, Yuanlong Cao, Jieshan Chen, Xiwei Xu, Huan Jin, Jiaxing Lu
ACM Transactions on Software Engineering and Methodology (TOSEM2024), To appear

[J. 3] **Revealing the Unseen: AI Chain on LLMs for Predicting Implicit Data Flows to Generate Data Flow Graphs in Dynamically-Typed Code**
Qing Huang, Zhiwen Luo, Zhenchang Xing, Jinshan Zeng, Jieshan Chen, Xiwei Xu, Yong Chen
ACM Transactions on Software Engineering and Methodology (TOSEM2024), To appear

[J. 2] **Prompt Sapper: A LLM-Empowered Production Tool for Building AI Chains**
Yu Cheng, Jieshan Chen*, Qing Huang, Zhenchang Xing, Xiwei Xu, Qinghua Lu
ACM Transactions on Software Engineering and Methodology (TOSEM2024), Cite 7

[J. 1] **Wireframe-based UI Design Search through Image Autoencoder.**
Jieshan Chen, Chunyang Chen, Zhenchang Xing, Xin Xia, Liming Zhu, John Grundy, and Jinshui Wang.
ACM Transactions on Software Engineering and Methodology Volume 29 Issue 3 Article No.: 19 pp 1–31 (TOSEM 2020)
Core Ranking **A***, Impact Factor: 2.674, Cite 78

OTHER PUBLICATIONS

[O. 5] **The Invisible Game on the Internet: A Case Study of Decoding Deceptive Patterns**
Zewei Shi, Ruoxi Sun, Jieshan Chen, Jiamou Sun, Minhui Xue
The Web Conference 2024 (WWW2024) - Short Papers Track
Core Ranking **A***

[O. 4] **Designing with Language: Wireframing UI Design Intent with Generative Large Language Models**
Sidong Feng, Mingyue Yuan, Jieshan Chen, Zhenchang Xing, Chunyang Chen
arXiv preprint arXiv:2312.07755

[O. 3] **Towards Real Smart Apps: Investigating Human-AI Interactions in Smartphone On-Device AI Apps**
Jason Ching Yuen Siu, Jieshan Chen*, Yujin Huang, Zhenchang Xing, Chunyang Chen
arXiv preprint arXiv:2307.00756

[O. 2] **Extracting Replayable Interactions from Videos of Mobile App Usage**
Jieshan Chen, Amanda Swearngin, Jason Wu, Titus Barik, Jeffrey Nichols and Xiaoyi Zhang.
arXiv preprint arXiv:2207.04165

[O. 1] **UIED: A Hybrid Tool for GUI Element Detection**
Mulong Xie, Sidong Feng, Zhenchang Xing, Jieshan Chen, Chunyang Chen
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)
Cite 57

* means corresponding authors

IMPACTFUL TOOL AND WORK

UIED (User Interface Element Detection) http://www.uied.online/

- Total Citation:174, GitHub Stars: 336, Fork: 98
- Integrated into an industrial testing tool, VTest, for daily testing of a dozen popular industrial apps, such as Taobao in Alibaba, a highly popular ecommerce app in China, with about one billion monthly active users, Alipay, a highly popular payment app with over one billion users and Software Green Alliance to provide testing services for top smartphone vendors and app vendors in China.

Enhancing the accessibility for screen readers and mobile users

- Published two papers on this topic, one of them is awards SIGSOFT Distinguished Paper Award (C.2)

- Incorporated to iOS'14 as a new feature named "screen recognition" which significantly improves the accessibility of previously inaccessible apps from operating system level.

MENTORSHIP

PhD Student

- (2024 – Present, CSIRO's Data61 & UniMelb) Zewei Shi
- (2024 – Present, CSIRO's Data61 & ANU) Zeyu Zhang
- (2023 – Present, CSIRO's Data61 & UNSW) Mingyue Yuan

Visiting PhD Student

- (2024 – Present, Tianjin University) Sai Zhang
- (Upcoming, NTNU) Andre Storhaug

Research Engineer

- (2023 – Present, CSIRO's Data61) Dustin Minh Duc Vu

Master/Bachelor students – final year project

- (2023 Jiangxi Normal University) Yu Cheng [J.2]
- (2023 UNSW) Wenbo Zou
- (2023 Monash) Ziqi Zhao
- (2022 Monash) Jason Ching Yuen Siu [O.3]
- (2020-2021 ANU) Xincheng Xu, Yukang Liu
- (2019-2020 ANU) Zhaowen Xu, Kexin Zhang, Mulong Xie [C.3, O.1]
- (2018-2019 ANU) Kai Xi

Research Courses

- (2023 Monash – FIT 4701) Alex Zhou, Sam Howard, Nobert Bayer, Yicheng Peng, Prithviram Prabhuram, Chen Liu

SERVICE

Chair

- ACM Conference on Computer and Communications Security (CCS'24 – LAMPS Workshop)

Program Committee

- International Conference on Software Engineering (ICSE'25)
- ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA'24)
- IEEE/ACM International Conference on Automated Software Engineering (ASE'23, ASE'24, ASE'25 - Artifact Evaluation)
- 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 Symposium on User Interface Software and Technology (UIST'22, UIST'24)

- ACM CHI Conference on Human Factors in Computing Systems (CHI’22, CHI’23, CHI’24)
- 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)
- Information and Software Technology (IST Journal’21)