Jie "JW" Wu Ph.D.

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Education

George Washington University — Washington, D.C.
Ph.D. in Systems Engineering — May 2023
- Advisor: Prof. Thomas Mazzuchi and Prof. Shahram Sarkani
- GPA: 3.93/4.0

Shanghai Jiao Tong University — Shanghai, China
M.S. in Computer Science — Mar 2015
- Advisor: Prof. Liqing Zhang

Shanghai Jiao Tong University — Shanghai, China
B.S. in Computer Science (ACM honored class) — May 2012
- Advisor: Prof. Liqing Zhang and Prof. Yong Yu

Employment History

Postdoctoral Fellow **University of British Columbia**, B.C., Canada — *Dec 2023 – Present*
Advisor: Prof. Fatemeh Fard, Dept. of Computer Science

Software Engineer **Snap Inc.** (Snapchat), Seattle, WA — *Feb 2017 – Jul 2023*
Teams: Friend Recommendation, Core Growth ML, User & Friend Infrastructure

Software Engineer **Microsoft Corporation**, Redmond, WA — *Oct 2015 – Feb 2017*
Team: OneNote Canvas & Ink

Software Engineer **ArcSite**, Shanghai, China — *Mar 2015 – Oct 2015*
Part of the startup team of five software engineers

Research Intern **Google Research**, Shanghai, China — *Jun 2014 – Oct 2014*
Mentor: Dr. Hui Fang
Project: Deep Learning for Image Enhancement

Research Intern **Microsoft Research Asia**, Beijing, China — *Jul 2013 – May 2014*
Team: Multimedia Search & Mining Group
Mentor: Dr. Changhu Wang
Project: Smart Ink

Research Assistant **Shanghai Jiao Tong University**, Shanghai, China — *Jan 2012 – Jul 2013*
Undergraduate & M.S. Research Study
Advisor: Prof. Liqing Zhang, Dept. of Computer Science & Engineering

Research Intern **Microsoft Research Asia**, Beijing, China — *Jul 2011 – Dec 2012*
Team: Web Search & Data Mining Group
Mentor: Prof.Ji-Rong Wen
Project: Web Search Ranking for Numeric Queries

Research Summary

My research lies at the intersection of Software Engineering and AI. My research interest is **systems thinking for trustworthy AIware** (i.e., AI-powered software). Guided by the ideological systems thinking mindset and the realistic industrial context, my work aims to improve the trustworthiness and safety of AIware in the era of Large Language Models (LLMs).

Keywords: AI for Software Engineering (AI4SE), Software Engineering for AI (SE4AI), Foundational Models (FM), Data Science, Systems Science and Engineering.

Publications

Software Engineering (SE) Venues

1. **Jie JW Wu**, Manav Chaudhary, Fatemeh Hendijani Fard. Clarifycoder: Instructing Code Large Language Models to Ask Clarifying Questions. *(In Preparation)*.
2. Sathvik Joel, **Jie JW Wu**, Fatemeh Hendijani Fard. Survey on Code Generation for Low-Resource and Domain-Specific Programming Languages. *ACM Computing Surveys (ACM CSUR)*, 2024 *(Under Review)*.
3. Meghdad Dehghan*, Mohammadreza Saeidi*, Rohit Dandamudi*, **Jie JW Wu**, Fatemeh Hendijani Fard, Gema Rodríguez-Pérez. Defects4Ruby: Benchmarking and Analyzing Bug Detection and Repair for Ruby Using Language Models. *Proceedings of the 33rd International Conference on Program Comprehension (ICPC), RENE Track*, 2025 *(Under Review)*.
4. **Jie JW Wu**, Fatemeh Hendijani Fard. Benchmarking the Communication Competence of Code Generation for LLMs and LLM Agents. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 2024 (Accept with Minor Revision).
5. Meghdad Dehghan, **Jie JW Wu**, Fatemeh Hendijani Fard, Ali Ouni. MergeRepair: An Exploratory Study on Merging Task-Specific Adapters in Code LLMs for Automated Program Repair. *Registered Report in International Conference on Software Maintenance and Evolution (ICSME)*, 2024. [a]
6. Mohamad Khajezade, **Jie JW Wu**, Fatemeh Hendijani Fard, Gema Rodríguez-Pérez, Mohamed Sami Shehata. Investigating the Efficacy of Large Language Models for Code Clone Detection. *International Conference on Program Comprehension (ICPC), Early Research Achievements (ERA)*, 2024.
7. **Jie JW Wu**. AutoOffAB: Toward Automated Offline A/B Testing for Data-Driven Requirement Engineering. *Foundations of Software Engineering (FSE), Ideas, Visions and Reflections Track*, 2024.
8. **Jie JW Wu**. An Exploratory Study of V-Model in Building ML-Enabled Software: A Systems Engineering Perspective. *3rd International Conference on AI Engineering – Software Engineering for AI (CAIN)*, 2024 (**Distinguished Paper Award Candidate**).
9. **Jie JW Wu**. Large Language Models Should Ask Clarifying Questions to Increase Confidence in Generated Code. *The 7th Annual Symposium on Machine Programming (MAPS '23 Workshop)*, 2023.
10. **Jie JW Wu**, Thomas A. Mazzuchi, Shahram Sarkani. A Multi-Objective Evolutionary Approach Towards Automated Online Controlled Experiments. *Journal of Systems & Software*, 2023.
11. **Jie JW Wu**, Thomas A. Mazzuchi, Shahram Sarkani. Comparison of Multi-Criteria Decision-Making Methods for Online Controlled Experiments in a Launch Decision-Making Framework. *Information and Software Technology*, 2023.

Before PhD

12. **Jie Wu**, Changhu Wang, Liqing Zhang, Yong Rui. Offline Sketch Parsing via Shapeness Estimation. *IJCAI 2015*. (long paper, acceptance rate: 28.6%).
13. **Jie Wu**, Changhu Wang, Liqing Zhang, Yong Rui. Sketch Recognition with Natural Correction and Editing. *AAAI 2014*. (long paper, acceptance rate: 28.0%).
14. **Jie Wu**, Changhu Wang, Liqing Zhang, Yong Rui. SmartVisio: Interactive Sketch Recognition with Natural Correction and Editing. *ACM MM 2014* (Demo. Demonstrated at **Microsoft TechFest 2015**).
15. **Jie Wu** and Liqing Zhang. Gestalt Saliency: Salient Region Detection Based on Gestalt Principles. *ICIP 2013*. (B.S. Thesis, **Top 1% Excellent Undergraduate Thesis Award at SJTU**).
16. **Jie Wu**, Yi Liu, Ji-Rong Wen. Numeric Query Ranking Approach. *WWW 2013* (poster).

[a] This Registered Report (RR) is an accepted methodology for a journal paper in Empirical Software Engineering (EMSE), providing continual acceptance based on predefined evaluation criteria.

Patents and Grants

Patents

1. Jonathan Brody, Donald Giovannini, Edward Koai, **Jie Wu**, Lin Zhong. "Additive Friend Suggestion for Account Security". United States Patent No. US 11,171,972 B1 (Granted).
2. Carine Ramses Iskander, **Jie Wu**, Ian William Mikutel, Sarah Elizabeth Sykes, David Glen Garber. "Intuitive Selection of a Digital Stroke Grouping". United States Patent No. US 9,940,513 B2 (Granted).

Grant Writing

3. Main contributor of the $517,500 CAD Mitac grant proposal (Accepted), titled "Smaller Language Models for Proprietary Data Analysis", from Prof. Fatemeh Fard's group at UBC. May 2024.
4. Collaborator and main contributor of the Resource Allocation Competition (RAC) Application, with Prof. Fatemeh Fard (PI) at UBC. Oct 2024.

Work Authorization

U.S. Residency: U.S. Permanent Resident (Green Card holder).

Teaching Experience

Instructional Skills Workshop (ISW) Certification, completion of a 24-hour Instructional Skills Workshop (ISW), which is recognized globally in higher education as a comprehensive program for enhancing teaching effectiveness, University of British Columbia, Fall 2024

Instructor, COSC 320 "Analysis of Algorithm", undergrad course for a class of 80 students, University of British Columbia, Fall 2024

Head Teacher, ACM Honored Class of 2016, Shanghai Jiao Tong University, Fall 2012 – Spring 2013

Teaching Assistant, "Practice on Programming and Coding Ability (PPCA)", undergrad course for honored CS students, Shanghai Jiao Tong University, Fall 2011

Academic Services

Facilitator and Mentor, Digital Research Infrastructure (DRI) Sensitization Workshop, UBC, Okanagan Campus

Reviewer, Journal of Systems and Software

Program Committee Member, ICSE 2026

Program Committee Member, RAIE 2025

Program Committee Member, CAIN 2025

Program Committee Member, SANER 2025, Tool and Demo Track

Program Committee Member, ASE 2024, Artifact Evaluation Track

Program Committee Member, FSE 2024, Posters Track

Mentoring

Dabira Omotoso (2024–Present), UBC Undergrad Student. Working on Undergrad Honors Thesis. *Role: Co-supervisor*

Meghdad Dehghan (2024–Present), UBC Master (M.Sc.) Student. *Role: Advisor*

Ahmad Saleem Mirza (2024–Present), UBC Undergrad Student. *Role: Advisor*

Sathvik Joel (2024), Master (M.Sc.) Student at Indian Institute of Technology, Madras. Intern from Mitacs Program, UBC. *Role: Advisor*

Manav Chaudhary (2024), Master Student at IIIT Hyderabad. Intern from Mitacs Program, UBC. *Role: Advisor*

Abhinav Thota (2023), UBC Undergrad. Published Undergrad Honors Thesis. *Role: Advisor*

Md Jumar Alam (2023), UBC Master (M.Sc.) Student. Published MSc Thesis. *Role: Advisor*

Selected Talks

Training Session at DRI sensitization workshop, University of British Columbia Okanagan, BC, Canada. Optimizing Large Language Model Workflows on ARC: A Practical Guide to Data Management, Inference, and Fine-tuning, 2024

Talk at MAPS '23 Workshop, co-located with FSE in San Francisco, CA. Large Language Models Should Ask Clarifying Questions to Increase Confidence in Generated Code, 2023

Talk at Learning Session, Friending team at Snap Inc., Seattle, WA. Introduction to Looker Dashboard and Data Analysis in Core Growth Team, 2022.

Talk at Learning Session, Friending team at Snap Inc., Seattle, WA. Introduction to Service Logging and Data Analysis at Friending Team, Core Growth Team, 2021.

Awards and Honors

- **Travel Grant Award**, FSE 2024 (USD $1k) Jul 2024
- CAIN paper to appear in the **IEEE Software Practitioner's Digest** column May 2024
- **Distinguished Paper Award Candidate**, CAIN 2024 Apr 2024
- **Travel Grant Award**, ICSE 2024 (USD $1.2k) Apr 2024
- **Travel Grant Award**, FSE 2023 (USD $1.7k) Apr 2024
- **"Engineer of the Month"** (two-time winner), Friending Team at Snap Inc. for contributions in Candidate Generation, Data, and Privacy of the Friending system Jan 2022
- **3rd place**, Infrastructure Cost Camp, Snap Inc. (USD $800k/year cost saving) Jun 2020
- **Letter from CEO**, Snap Inc. in recognition of the new friend suggestion model Jun 2019
- **National Scholarship**, (Highest-level) Oct 2014
- **Excellent Master Academic Scholarship** (1st class), SJTU Nov 2013
- **Intel Fellowship** Sep 2013
- **Top 1% Excellent Undergraduate Thesis**, SJTU (38 out of 4000 theses) Jun 2012
- **Microsoft Fellowship for Undergraduates** (30 recipients in China) Aug 2011
- **First Class Prize**, National Olympiad in Informatics in Provinces (NOIP) Oct 2007