Bihui Jin

Software Engineer · Computer Science Researcher
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Research Interests

Software Engineering (SE), **Artificial Intelligence (AI)**, and **LLM4SE**
My research interests span LLM for SE, developing new techniques for training, testing, and evolving ML systems, software engineering (SE), and empirical studies.

Education

2024–Present **Ph.D., University of Waterloo**, *Computer Science*.
Advisor: Prof. Pengyu Nie

2022–2023 **M.A.Sc., Queen's University**, *Computer Engineering*.
Advisor: Prof. Ying (Jenny) Zou
Thesis: Empirical Studies on Energy Consumption Issues Based on Stack Overflow and Google Chrome Extensions

2017–2022 **B.A.Sc, Queen's University**, *Computer Engineering*.
Capstone: Deep Learning Vision Based Robotic Grasping

Publications

[5] **Jin, B.**, Li, H., Nie, P., and Zou, Y. (2026). Energy-Efficient Software Development: A Multidimensional Empirical Analysis of Stack Overflow. In Proceedings of the 48th International Conference on Software Engineering (ICSE '26).

[4] **Jin, B.**, Wang, J., and Nie, P. (2025). Learning to Edit Interactive Machine Learning Notebooks. In Proceedings of the 33rd ACM International Conference on the Foundations of Software Engineering (FSE-IVR '25), pp. 681-685.

[3] Jiang, K., **Jin, B.**, and Nie, P. (2025). CoUpJava: A Dataset of Code Upgrade Histories in Open-Source Java Repositories. In 2025 IEEE/ACM 22nd Working Conference on Mining Software Repositories (MSR-DataTool '25), pp. 441-445.

[2] **Jin, B.**, Li, H., and Zou, Y. (2025). Impact of Extensions on Browser Performance: An Empirical Study on Google Chrome. Empirical Software Engineering (EMSE), vol. 30, no. 103.

[1] **Jin, B.** (2023). Empirical Studies on Energy Consumption Issues Based on Stack Overflow and Google Chrome Extensions. M.A.Sc. thesis. Queen's University.

Scholarships and Awards

- Ph.D.: **Sharon & David Johnston Award** ($5,000 CAD) **2025**
- Ph.D.: **Grad Student Research Dissemination Award** ($500 CAD) **2025**
- Ph.D.: **Grad Student Conference Funding** ($1,000 CAD) **2025**
- M.A.Sc: **Graduate Research Fellowship** ($26,000) **2023**
- B.A.Sc: **First Class Honors Graduate** **2022**
- B.A.Sc: **Charles Allan Thompson Summer Research Award** ($10,500 CAD) **2021**

- B.A.Sc: **QUIP International Tuition Award** ($7,564 CAD) **2019 - 2020**
- B.A.Sc: **M.R. Parrish and M.A.(Henry) Parrish and Family Award** ($3,665 CAD) **2019**
- B.A.Sc: **Dean's Scholar** **2018 - 2019**
- B.A.Sc: **Excellence Scholarship** ($2,000 CAD) **2017**

Research Community Service

MSR 2026 **Program Committee**, *International Conference on Mining Software Repositories*.

CASCON 2025 **Program Committee**, *International Conference on Collaborative Advances in Software and Computing*.

Sub-Reviews

ICSE, FSE, ISSTA, ASE, ACL.

Mentoring Experience

Shirley Xiao **Undergrad Research Assistant**, *Early Undergraduate Research Experience Program 2025*, led by US Computing Research Association.

Ian Chen **Undergrad Research Assistant**, *Early Undergraduate Research Experience Program 2025*, led by US Computing Research Association.

Jiayue Wang **Undergrad Research Assistant**, *URA 2024*, UWaterloo, Co-authored [3].
Grad school: CMU

Kaihang Jiang **Undergrad Research Assistant**, *URA 2024*, UWaterloo, Co-authored [4].
First Employment: CentML

Presentations

Apr 2026 **Energy-Efficient Software Development: A Multidimensional Empirical Analysis of Stack Overflow [5]**, at ICSE 2026, Rio de Janeiro, Brazil.

Jun 2025 **Learning to Edit Interactive Machine Learning Notebooks [4]**, at FSE 2025, Trondheim, Norway.

Apr 2025 **CoUpJava: A Dataset of Code Upgrade Histories in OpenSource Java Repositories [3]**, at MSR 2025, Ottawa, Canada.

Oct 2022 **How Do Practitioners Perceive Energy Consumption? An Empirical Study of Stack Overflow**, *poster*, at SEMLA 2022, Montreal, Canada.

Extracurricular Activity

- **Vice President**, CS GSA University of Waterloo **2025-2026**
- **Grad Student Representative**, CS GSA University of Waterloo **2024-2025**
- **Volunteer**, Canada Cancer Society **2016**
- **Volunteer**, West Vancouver Community Centre **2016**
- **Volunteer**, BMO Marathon **2016**
- **Library afterschool TA**, Community Center **2014**
- **Volunteer**, Heart to Heart Charity **2013**

Industry Experience

Sept 2025 – Aug 2026 **PhD Candidate Researcher**.
Dragon Test, Seattle, USA

- Generate executable test plans from multi-modal requirements with LLM agents.

Jun 2020 – May 2021 **Business Intelligence Developer**.
Bell Canada, Toronto, Ontario

- Implemented Hiring, Demand Analysis, and Social Media Insights modules utilizing **React** and **C#** to manage over **22,000** agents, streamlining operations and enhancing decision-making dynamics.

May 2019 – Aug 2019 **Software Developer**.
China Merchants Bank, Dalian, China

- Conceptualized and crafted Anti-Money Laundering and Violation Point systems, harnessing **Vue**, **Java**, **MySQL**, **SpringBoot**, and MyBatis to ensure comprehensive oversight of high-risk accounts.

Teaching Assistant Experience

- **CS 646 – Software Design and Architecture** **Winter 2025 & 2026**
  University of Waterloo
  – Mentored six groups of students to learn the software design process, in which students design and implement a software application as a team.
- **CISC 338 – Computer Applications in Business: Databases** **Fall 2024 & 2025**
  University of Waterloo
  – Provided guidance to a total of 196 students on approaches of managing large collections of data, including methods used for the storage, selection, and presentation of data, as well as common database management systems.
- **CS 686 – Introduction to Artificial Intelligence** **Summer 2025**
  University of Waterloo
  – Provided an introduction to the field of artificial intelligence, including search algorithms, game playing, knowledge representation and reasoning, uncertainty and probabilistic reasoning, machine learning, neural networks, and reinforcement learning.
- **ELEC 377 – Operating Systems** **Fall 2022**
  Queen's University
  – Provided mentorship to a total of 195 students in the lab, equipping them with practical knowledge and hands-on experience in the areas of system calls, concurrent processes, synchronization and communication, as well as the resolution of deadlock scenarios.
- **ELEC 390 - Principles of Design & Development** **Winter 2022**
  Queen's University
  – Prepared 204 3rd-year engineering students for the comprehensive understanding and application of fundamental principles in the areas of project and product management, design, and development, thereby equipping them with the necessary skills and knowledge for successful engineering endeavors.

Open Source Contributions

2025 **EfficientDevelopment**, *a dataset of developers' concerns about efficient software on StackOverflow*, `https://github.com/Bihui-Jin/Suppmaterial-ICSE26-Energy-Efficient-Software-Development` (paper [5]).

2025 **MLNotebookEditing**, *a benchmark for editing ML pipeline code in Jupyter notebooks using LLMs*, `https://github.com/uw-swag/ipynb-edit` (paper [4]).

2025 **CoUpJava**, *a dataset of code upgrade histories in open-source Java repositories*, `https://github.com/uw-swag/CoUpJava` (paper [3]).

2025 **ExtensionPerformance**, *a replication package enabling systematic analysis of performance-impacting components within Google Chrome extensions*, `https://github.com/Bihui-Jin/suppmaterial-impact-of-extensions-on-browser-performance` (paper [2]).