

Jinqiu (Alice) Yang

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Highlights of Achievements and Qualifications

- Publications in top venues: 3 ICSE, 2 FSE, 2 ASE, 1 TSE, and 1 EMSE.
- Secured external grants (NSERC Discovery, NSERC ECR supplement award, and Mitacs Accelerate) and industry collaborations (Google, IBM and Ericsson).
- Proven student mentorship record (papers with my mentees [C05, C07, C10-C15, R02]).
- Extensive external service, i.e., program committee and organizing committee at flagship conference (e.g., ICSE 2019, ASE 2020 and 2021, FSE 2021), and regular referee for top journals (e.g., TSE, TOSEM, EMSE and JSS).
- A recipient of ACM Distinguished Paper Award at MSR 2018.
- Research outcome is adopted in practice (i.e., published patents and publications with IBM and Google) [C2, C4, C6, R3, P1, P2].

Research Interests

Computer Systems and Software Engineering.

I am particularly interested in automated program repair, bug detection and improving software reliability in general. Recently I am developing novel techniques to improve the reliability of AI-based systems.

Academic Work Experience

2018.09–
present **Assistant Professor**, Concordia University.

Education

- 2013–2018 **PhD**, University of Waterloo, Supervisor: Dr. Lin Tan, “Towards Practical Automated Program Repair by Leveraging Human Knowledge”.
- 2011–2013 **Master of Science**, University of Waterloo, Supervisor: Dr. Lin Tan, “SWordNet: Inferring Semantically Related Words from Software Context”.
- 2007–2011 **Bachelor of Engineering**, Nanjing University, China, Software Engineering.

Peer-Reviewed Publications (In Computer Science, refereed conference are the most active venues opposed to refereed journals.)

Students under my supervision are marked with *. Student collaborators are marked with **.

Journal Publications

- TSE-2021 [J02] **Revisiting Test Impact Analysis in Continuous Testing From the Perspective of Code Dependencies**, *Zi Peng**, *Tse-Hsun Chen*, *Jinqiu Yang*, The IEEE Transaction on Software Engineering, 2021, 20 pages, Available online as early access.
- EMSE-2014 [J01] **SWordNet: Inferring semantically related words from software context**, *Jinqiu Yang*, *Lin Tan*, Empirical Software Engineering, 2014, Volumn 19, 1856-1886, 31 pages.
[Cited 49 times]

Conference Publications

- ICSE-2021 [C17] **Studying Test Annotation Maintenance in the Wild**, *Dong Jae Kim***, *Nikolaos Tsantalis*, *Tse-Hsun (Peter) Chen*, *Jinqiu Yang.*, To appear in the proceedings of the 43rd International Conference on Software Engineering.
- ICSME-2020 [C16] **A First Look at the Deprecation of RESTful APIs: An Empirical Study**, *Jerin Yasmin***, *Yuan Tian* and *Jinqiu Yang*, In the proceedings of the 36th IEEE International Conference on Software Maintenance and Evolution 2020, pp. 151-161, 11 pages.
- ICSME-2020 [C15] **Exploring Bluetooth Communication Protocols in Internet-of-Things Software Development**, *Tri Minh Triet Pham** and *Jinqiu Yang*, In the proceedings of the 36th IEEE International Conference on Software Maintenance and Evolution - Late Breaking Ideas, pp. 792-793, 2 pages.
- FSE-2020 [C14] **A First Look at the Integration of Machine Learning Models and Code in Autonomous Driving Systems - A Case Study on Apollo**, *Zi Peng**, *Jinqiu Yang*, *Tse-Hsun Chen*, *Lei Ma*, In the proceedings of the ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering 2020, pp. 1240-1250, 12 pages.
- ICPC-2020 [C13] **The Secret Life of Commented-Out Source Code**, *Tri Minh Triet Pham**, *Jinqiu Yang*, To appear in the proceedings of the 28th IEEE/ACM International Conference on Program Comprehension (ICPC), 2020, pp. 308-318, 11 pages.
- IBF-2020 [C12] **Exploring the Differences between Plausible and Correct Patches at Fine-Grained Level**, *Bo Yang**, *Jinqiu Yang*, In the Proceedings of the Second International Conference on Intelligent Bug Fixing, co-located with SANER 2020, pp. 1-8, 8 pages.
- ASE-2019 [C11] **A Study on Oracle Approximations in Deep Learning Libraries**, *Mahdi Nejadgholi**, *Jinqiu Yang*, In the Proceedings of the 34th IEEE/ACM International Conference on Automated Software Engineering, 2019, pp. 785-796, 12 pages.
[Cited 6 times]
- ICSE-2019 [C10] **Towards Better Utilizing Static Application Security Testing**, *Jinqiu Yang*, *Lin Tan*, *John Peyton*, *Kristofer A Duer*, In the Proceedings of the 41st International Conference on Software Engineering - Industry Track, pp. 51-60, 10 pages.
[Cited 7 times]

- ICSE-2019 **DLFinder: Characterizing and Detecting Duplicate Logging Code Smells**, *Zhenhao Li***, *Tse-Hsun (Peter) Chen*, *Jinqiu Yang*, *Weiyi Shang*, In the Proceedings of the 41st International Conference on Software Engineering, pp. 152-163, 12 pages.
[C09] [Cited **15** times]
- MSR-2018 **Towards Extracting Web API Specifications from Documentation**, *Jinqiu Yang*,
[C08] *Erik Wittern*, *Annie T.T. Ying*, *Julian Dolby*, *Lin Tan*, In the Proceedings of the International Conference on Mining Software Repositories, 2018, pp. 454-464, 11 pages.
[Cited **16** times] **Won ACM Distinguished Paper Award**
- FSE-2017 **Better Test Cases for Better Automated Program Repair**, *Jinqiu Yang*, *Alexey*
[C07] *Zhikhartsev**, *Yuefei Liu**, *Lin Tan*, In the Proceedings of the Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering, 2017, pp. 831-841, 11 pages.
[Cited **72** times]
- MSR-2016 **An Empirical Study on the Practice of Maintaining Object-Relational Mapping**
[C06] **Code in Java Systems**, *Tse-Hsun Chen*, *Weiyi Shang*, *Jinqiu Yang*, *Ahmed E. Hassan*, *Michael W. Godfrey*, *Mohamed Nasser* and *Parminder Flora*, In the Proceedings of International Conference on Mining Software Repositories, 2016, pp. 165-176, 11 pages.
[Cited **15** times]
- ASE-2013 **AutoComment: Mining Question and Answer Sites for Automatic Comment**
[C04] **Generation**, *Edmund Wong**, *Jinqiu Yang*, and *Lin Tan*, In the Proceedings of International Conference on Automated Software Engineering, 2013, pp. 562-567, 6 pages.
[Cited **161** times]
- ICST-2013 **R2Fix: Automatically generating bug fixes from bug reports**, *Chen Liu*, *Jinqiu*
[C03] *Yang*, *Lin Tan*, and *Munawar Hafiz*, In the Proceedings of International Conference on Software Testing, Verification and Validation, 2013, pp. 282-291, 11 pages.
[Cited **90** times]
- ICSE-2013 **Generating Precise Dependencies For Large Software**, *Pei Wang*, *Jinqiu Yang*, *Lin*
(MTD) [C02] *Tan*, *Robert Kroeger*, *David Morgenthaler*, In the Proceedings of the 4th International Workshop on Managing Technical Debt in conjunction with the International Conference on Software Engineering, 2013, pp. 47-50, 4 pages.
[Cited **24** times]
- MSR-2012 **Inferring Semantically Related Words from Software Context**, *Jinqiu Yang*, *Lin*
[C01] *Tan*, In the Proceedings of International Conference on Mining Software Repositories, 2012, pp. 161-170, 10 pages.
[Cited **91** times]
- Paper Under Review.**
- TSE **Tracking the Evolution of Static Code Warnings: the State-of-the-Art and a**
Submitted **Better Approach**, *Junjie Li**, *Jinqiu Yang*, 15 pages.
[R05] Submitted to the IEEE Transaction on Software Engineering in January 2021

- EMSE Submitted [R04] **On the usage and development of Deep Learning compilers: An empirical study on TVM**, Xiongfei Wu, Jinqiu Yang, Lei Ma, Yinxing Xue, Jianjun Zhao, 33 pages.
Submitted to the Empirical Software Engineering Journal in December 2020
- TOSEM Major [R03] **CoCoFuzzing: Testing Neural Code Models with Coverage-Guided Fuzzing**, Moshi Wei**, Yuchao Huang**, Jinqiu Yang, Junjie Wang, Song Wang, Submitted to the ACM Transactions on Software Engineering and Methodology .
Working on a major revision since January 2021. First submission in December 2020.
- EMSE Minor [R02] **An Empirical Study on Test Smell Evolution and Maintenance**, Dong Jae Kim**, Tse-Hsun (Peter) Chen, Jinqiu Yang, Submitted to the Empirical Software Engineering Journal.
Working on a minor revision since Jan. 2021. First Submission in May 2020. Major revision submitted in October 2020.
- TSE Minor [R01] **Studying Duplicate Logging Statements and Their Relationships with Code Clones**, Zhenhao Li**, Tse-Hsun Chen, Jinqiu Yang, Weiyi Shang, Submitted to the IEEE Transaction on Software Engineering, 14 pages.
Working on a minor revision since Jan. 2021. First Submission in September 2019. Major revision submitted in May 2020.

Patents

- P2 **Generating web API specification from online documentation**, Julian T Dolby, John E Wittern, Jinqiu Yang, Annie TT Ying, US 15403150.
- P1 **Visualization of security warning solution points**, Kristofer A Duer, John T Peyton, Stephen D Teilhet, Jason N Todd, Lin Tan, Jinqiu Yang, US 10324825.

Grants (sole PI unless noted otherwise)

Pending

NSERC 2021-2025	Create Program under the second-phase review	\$1,500,000 (co-applicant)
Pending 2021	Under contract review at the Concordia research office	\$190,000

Granted

Google 2020	Google Cloud Research Credit	\$5000
Mitacs 2020-2023	Accelerate with Ericsson	\$160,000
Concordia 2020	Faculty Optimization Funding	\$15,000
NSERC 2019-2024	Discovery Grant	\$140,000
NSERC 2019-2024	ECR Supplement Award	\$12,500

Concordia U 2019	Seed Grant	\$7,000
Concordia U 2018–2021	Start-up Grant	\$50,000
Microsoft 2016–2017	Azure Research Grant	\$20,000

Awards

ACM	Distinguished Paper Award at MSR 2018 [C08]
ACM	CAPS Travel Award, 2017
IBM	CAS Project of the Year, 2015
UWaterloo	Faculty of Engineering Award, 2013 and 2014
UWaterloo	Conference Travel Award, 2012, 2013 and 2017
UWaterloo	Best Speaker Award at Graduate Seminars, 2013
UWaterloo	Provost Doctoral Entrance Award, 2013

Supervision

Current supervised Students at Concordia

PhD	Cheng Cheng, <i>since 2019.05. Passed PhD Comprehensive in June 2020.</i> Topic: Performance Testing for Internet-of-Things Systems
MSc/PhD	Triet Pham, [C13, C15], <i>since 2019.09, fast-tracked to PhD, Recipient of Top Concordian PhD Fellowship (\$50,000).</i> Topic: Improving the Reliability of AI-Based Systems
MSc/PhD	Bo Yang, [C11], <i>since 2019.09, fast-tracked to PhD, Recipient of Top Concordian PhD Fellowship (\$50,000).</i> Topic: Invariant-Guided Automated Program Repair
MSc	Junjie Li, [R04], <i>since 2019.09, Recipient of Mitacs RTA Award.</i> Topic: On the Evolution of Static Code Warnings
MSc/PhD	Mostafa Jangali, <i>since 2020.01, Recipient of Top Concordian PhD Fellowship (\$50,000).</i> Topic: Micro-Performance Test Benchmark <i>co-supervised with Dr. Weiyi Shang</i>
MSc	Yu Shi, <i>since 2020.09.</i>
MSc	Jeognik Cho, <i>since 2020.09.</i>
MSc	Yurui Wang, <i>since 2020.09.</i>

Graduated Students at Concordia

MSc	Zi Peng, [C14, R02], 2018.09 - 2020.09, . Topic: On the Code Dependency in Continuous Integration Testing <i>co-supervised with Dr. Tse-Hsun (Peter) Chen</i>
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Current and Past Mentees Outside Concordia

- PhD Moshi Wei, [C16], since 2020.09, York University.
- MSc Jerin Yasmin, [C15], since 2019.09, Queen's University.
- MSc Yuefei Liu, [C06], 2016.09–2018.12, University of Waterloo.
First Employment: Amazon
- MSc Alexey Zhikhartsev, [C06], 2015.09–2017.08, University of Waterloo.
First Employment: Huawei Canada

Teaching

Assistant Professor at Concordia University, Montreal, QC, Canada

- SOEN 691 Automated Program Debugging and Repair.
Graduate Winter 2021 (12 students)
- SOEN 7481 Software Verification and Testing.
Graduate Fall 2020 (26 students)
- COMP 248 Introduction to Object-Oriented Programming.
Undergraduate Winter 2020 (81 students), Winter 2021 (50 students)
- SOEN 6611 Software Measurement.
Graduate Winter 2019 (67 students), Spring 2019 (90 students), Winter 2020 (96 students)
- SOEN 342 Software Requirement.
Undergraduate Fall 2018 (93 students)

Guest Lecturer at University of Waterloo, Waterloo, ON, Canada

- SE465/ECE653 Software Testing, Quality Assurance, and Maintenance.
Winter 2015

Service

Program Committee and Organizing Committee

- ICSME 2021 The 37th International Conference on Software Maintenance and Evolution - Research Track
- FSE 2021 The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering - Industry Track
- ASE 2021 The 36th IEEE/ACM International Conference on Automated Software Engineering - Late Breaking Ideas Track
- MSR 2021 The 2021 Mining Software Repositories Conference - Hackthon Track
- ICPC 2021 The 29th IEEE/ACM International Conference on Program Comprehension - Tool Demo Track
- ICPC 2021 The 29th IEEE/ACM International Conference on Program Comprehension - Education Track
- IBF 2021 The Third International Workshop on Intelligent Bug Fixing
- ASE 2020 The IEEE/ACM International Conference on Automated Software Engineering - Research Track

ASE 2020 The IEEE/ACM International Conference on Automated Software Engineering - Tool Demo

IBF 2020 The Second International Workshop on Intelligent Bug Fixing

SCAM 2020 The IEEE International Working Conference on Source Code Analysis and Manipulation - Research Track

FSE 2020 The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering - Visions and Reflections

SEAD 2020 The International Workshop on Software Security from Design to Deployment

APSEC 2020 The 27th Asia-Pacific Software Engineering Conference - Research Track

APSEC 2020 The 27th Asia-Pacific Software Engineering Conference - Early Result Achievement Track

ICSE 2019 Industry Program Co-Chair at the 41st ACM/IEEE International Conference on Software Engineering

SCAM 2019 The IEEE International Working Conference on Source Code Analysis and Manipulation - Research Track

ASE 2019 The IEEE/ACM International Conference on Automated Software Engineering - Tool Demo

SANER 2019 The IEEE International Conference on Software Analysis, Evolution and Reengineering - Tool Demo

SEAD 2019 The International Workshop on Software Security from Design to Deployment

[Journal Referee](#)

IEEE IEEE Transaction on Software Engineering (TSE)

IEEE IEEE Transaction on Software Reliability

ACM ACM Transactions on Software Engineering and Methodology ACM Transactions on Software Engineering and Methodology (TOSEM)

Elsevier Journal of Systems and Software (JSS)

Springer Empirical Software Engineering (EMSE)

Springer Automated Software Engineering Journal (ASE-J)

John Wiley & Sons Journal of Software: Evolution and Process (JSEP)

IEEE IEEE Transactions on Dependable and Secure Computing (TDSC)

[Grant Reviewer](#)

NSERC Alliance, 2020

NSERC Discovery, 2021

[Service at Concordia](#)

University NSERC and CIHR Doctoral Committee, since 2020.05

Department Graduate Advising Committee, since 2020.09

Department Research Seminar Coordinator, since 2019.08

Invited Talks

- MaLTeSQuE *On Applying Machine Learning in Quality Assurance Practice*. Invited Panelist, Virtual Event, November 2020.
- NASAC *Improving Software Quality Assurance by Mining Software Repository*. Invited Talk at the MSR Panel in NASAC, Hangzhou, China, November 2019
- ICSE Invited Talk at the Student Mentoring Workshop, Montreal, Quebec, Canada May 2019
- Ryerson Univ. *Utilizing Software Data for Automated Bug Fixing*. Invited Talk in the Department of Computer Science at Ryerson University, Toronto, Canada, February 2018
- IBM Watson *Extracting Web API Specifications from Documentation*. Invited Talk at IBM Watson Research lab, Yorktown, New York State, USA, August 2016
- IBM Canada *Towards Better Utilizing Static Security Testing*. Invited Talk at IBM University Day, Toronto, Canada, April 2016
- CASCON *Visualizing Security Warnings*. Invited Talk at the Workshop of Application Security, Markham, Ontario, Canada October 2015

Other Work Experience

- IBM Watson Research Lab Research Intern 2016.06–2016.08
I worked with the API Harmony team on developing techniques to automatically generate web API specification from free-format documentation.
- IBM CAS Student Researcher 2014–2017
I worked with IBM developers to improve users' adaption of security warnings of AppScan Source