

Research Interests

My research interest lies in programming language and software engineering, focusing on techniques for improving software usability, reliability and security. In particular, I am now working on static program analysis and compiler optimization problems. I also have broad interests in functional programming languages, type theory, type systems, and formal verification.

Education

- April 2022 **Ph.D., Computer Science and Engineering**,
University of New South Wales (UNSW), Sydney, Australia.
Advisor: Jingling Xue
- July 2018 **M.Sc.Eng., Computer Science and Technology**,
Institute of Computing Technology, CAS (ICT, CAS), and
University of Chinese Academy of Sciences (UCAS), Beijing, China.
Advisor: Lian Li
- July 2014 **B.Sc., Astronomy**,
Beijing Normal University (BNU), Beijing, China.
Advisor: Heng Yu
- July 2013 **B.Sc., Educational Technology**,
Beijing Normal University (BNU), Beijing, China.
Advisors: Qing Chen and ShengQuan Yu

Research Experience

- March 2022 – present **Postdoctoral Research Fellow**,
University of New South Wales (UNSW), Sydney, Australia.
Advisor: Jingling Xue
- July 2018 – Feb 2019 **Research Associate**,
Institute of Computing Technology, CAS (ICT, CAS), Beijing, China.
Advisor: Lian Li

(Selected) Honors and Awards

- 2019 **ACM SIGSOFT Distinguished Paper Award (ASE 2019)**
- 2018 Excellent Thesis Award from ICT, CAS
Outstanding Student, the SKL of Computer Architecture, ICT, CAS
- 2014 Excellent Thesis Award from the Astronomy Department of BNU
A member of LiYun experimental class of BNU

Publications

- TSE'22 **Selecting Context-Sensitivity Modularly for Accelerating Object-Sensitive Pointer Analysis**,
Dongjie He, Jingbo Lu, Yaoqing Gao and Jingling Xue, IEEE Transactions on Software Engineering,
TSE 2022.
- ECOOP'22 **Qilin: A New Framework for Supporting Fine-Grained Context-Sensitivity in Java Pointer Analysis**,
Dongjie He, Jingbo Lu, and Jingling Xue, The 36th European Conference on Object-Oriented Pro-
gramming, ECOOP 2022.

- ASE'21 **Context Debloating for Object-Sensitive Pointer Analysis**,
Dongjie He, Jingbo Lu, and Jingling Xue,
The 36th IEEE/ACM International Conference on Automated Software Engineering, ASE 2021.
- SAS'21 **Selective Context-Sensitivity for k-CFA with CFL-Reachability**,
Jingbo Lu, Dongjie He, and Jingling Xue,
The 28th Static Analysis Symposium, SAS 2021.
- ECOOP'21 **Accelerating Object-Sensitive Pointer Analysis by Exploiting Object Containment and Reachability**,
Dongjie He, Jingbo Lu, Yaoqing Gao, and Jingling Xue,
The 35th European Conference on Object-Oriented Programming, ECOOP 2021.
- TOSEM'21 **CFL-Reachability-based Precision-Preserving Acceleration of Object-Sensitive Pointer Analysis**,
Jingbo Lu, Dongjie He, and Jingling Xue,
ACM Transactions on Software Engineering and Methodology, TOSEM 2021.
- ISSRE'20 **Exposing Android Event-Based Races by Selective Branch Instrumentation**,
Diyu Wu, Dongjie He, Shiping Chen and Jingling Xue,
The 31st International Symposium on Software Reliability Engineering, ISSRE 2020.
- ISSRE'20 **Correlating UI Contexts with Sensitive API Calls: Dynamic Semantic Extraction and Analysis**,
Jie Liu, Dongjie He, Diyu Wu and Jingling Xue,
The 31st International Symposium on Software Reliability Engineering, ISSRE 2020.
- ASE'19 **Performance-Boosting Sparsification of the IFDS Algorithm with Applications to Taint Analysis**,
Dongjie He, Haofeng Li, Lei Wang, Haining Meng, Hengjie Zheng, Jie Liu, Shuangwei Hu, Lian Li and Jingling Xue,
The 34th IEEE/ACM International Conference on Automated Software Engineering, ASE 2019.
ACM SIGSOFT Distinguished Paper Award
- ASE'18 **Understanding and Detecting Evolution-Induced Compatibility Issues in Android Apps**,
Dongjie He, Lian Li, Lei Wang, Hengjie Zheng, Guangwei Li, and Jingling Xue,
The 33th IEEE/ACM International Conference on Automated Software Engineering, ASE 2018.
- Draft **A CFL-Reachability Formulation of Callsite-Sensitive Pointer Analysis with Built-in On-the-Fly Call Graph Construction**,
Dongjie He, Jingbo Lu, and Jingling Xue,
submitted to OOPSLA 2022.
- Draft **Automatic Generation of Precision-Aware Stand-Alone Library Summaries for Whole-Program Pointer Analysis**,
Jingbo Lu, Dongjie He, and Jingling Xue,
submitted to OOPSLA 2022.

Professional Activities

Web Chair

CGO'20 18th ACM/IEEE International Symposium on Code Generation and Optimization

Journal Reviewer

SPE'22 Software: Practice and Experience 2022

JCST'22 Journal of Computer Science and Technology 2022

Extended Review Committee

ECOOP'22 36th European Conference on Object-Oriented Programming

OOPSLA'22 2022 ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications

Sub-Reviewer

OOPSLA'20, ICSE'21

Artifact Evaluation Committee

OOPSLA'21 2021 ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications

CGO'22 20th ACM/IEEE International Symposium on Code Generation and Optimization

ECOOP'22 36th European Conference on Object-Oriented Programming

CC'22 31st ACM SIGPLAN International Conference on Compiler Construction

OSDI'22 16th USENIX Symposium on Operating Systems Design and Implementation
ATC'22 2022 USENIX Annual Technical Conference
OOPSLA'22 2022 ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications
Programming The Art, Science, and Engineering of Programming (2023)

References

Jingling Xue, *Scientia Professor*,
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UNSW Sydney.
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Lian li, *Professor*,
Institute of Computing Technology, CAS,
Chinese Academy of Sciences.
✉ lianli@ict.ac.cn