Dongjie He

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💬 HGWPLG2021

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.

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

TOSEM'23 **IFDS-based Context Debloating for Object-Sensitive Pointer Analysis**,
Dongjie He, *Jingbo Lu, and Jingling Xue*,
ACM Transactions on Software Engineering and Methodology, TOSEM 2023.

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 Programming, 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*, In submission, #: equal contribution.
Draft	**Automatic Generation of Precision-Aware Stand-Alone Library Summaries for Whole-Program Pointer Analysis**, *Jingbo Lu, **Dongjie He**, Wei Li, Yaoqing Gao, and Jingling Xue*, In submission.
Draft	**Reducing the Memory Footprint of IFDS-based Data-Flow Analyses Using Fine-Grained Garbage Collection**, ***Dongjie He**, Yujiang Gui, Yaoqing Gao, and Jingling Xue*, In submission.

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

References

Jingling Xue, *Scientia Professor, IEEE Fellow*,
School of Computer Science and Engineering,
UNSW Sydney.
✉ jingling@cse.unsw.edu.au

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