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Education:
1992: PhD in Computer Science and Engineering, Edinburgh University, UK
1987, 1984: MEng/BEng Computer Science and Engineering, Tsinghua University, China

Research interests are programming languages, compiler technology, program analysis, high performance computing, and embedded systems. My current projects include concurrent programming for multicores, compiler techniques for embedded systems, compiler support for power and energy management. compiler techniques for improving SIMD parallelism, pointer analysis, reflection analysis, static and dynamic analysis for bug detection, and static and dynamic analysis for Android security. I lead the Programming Languages and Compilers Group and its subgroup Compiler Research Group (CORG) at UNSW.

Professional Activities
- Associate Editor, IEEE Transactions on Computers, (March 2011 -- March 2015)
- Associate Editor, Software: Practice and Experience , (2012 -- Present)
- Associate Editor, International Journal of Embedded Systems, Inderscience Publishers (February 2004 -- Present)
- Associate Editor, International Journal of Parallel, Emergent and Distributed Systems (June 2009 -- May 2016)
- Associate Editor, Journal of Computer Science and Technology (December 2003 -- Present)

Selected Publication (2012-2017)
2017
1 Tian Tan, Yue Li and Jingling Xue. Efficient and Precise Points-to Analysis: Modeling the Heap by Merging Equivalent Automata. In *2017 ACM Conference on Programming Language Design and Implementation (PLDI'17)*, pages ?? -- ??, 2017.
2 Lian Li, Yi Lu and Jingling Xue. Dynamic Symbolic Execution for Polymorphism. In *2017 International Conference on Compiler Construction (CC'17)*, pages 120 -- 130, 2017.
3 Yifei Zhang, Tian Tan, Yue Li and Jingling Xue. Ripple: Reflection Analysis for Android Apps in Incomplete Information Environments. In *7th ACM Conference on Data and Application Security and Privacy (CODASPY'17),* pages ?? -- ??, Scottsdale, Arizona, 2017. (See also arXiv:1612.05343.) (PDF)
4 Xing Xu, Xiangke Liao and Jingling Xue. Automatic Generation of Fast BLAS3-GEMM: A Portable Compiler Approach. In *14th Annual IEEE/ACM International Symposium on Code Generation and Optimization (CGO'17)*, pages ?? -- ??, Austin, 2017. (PDF) (One of the Four Best Paper Award Nominees)
5 Y. Wang, T. Wang, D. Liu, Z. Shao and Jingling Xue. Fine Grained, Direct Access File System Support for Storage Class Memory. *Journal of Systems Architecture, ,* 72:80--92,

2017.

2016

1 Jianjun Xu, Xiankai Meng, Qingping Tan and Jingling Xue. Masking Soft Errors with Static Bitwise Analysis *23rd Asia-Pacific Software Engineering Conference (APSEC'16)*, Hamilton, New Zealand, pages ?? -- ??, 2016.

2 Canqun Yang, Cheng Chen, Tao Tang, Xuhao Chen, Jianbin Fang and Jingling Xue. An Energy-Efficient Implementation of LU Factorization on Heterogeneous Systems. In *2016 International Conference on Parallel and Distributed Systems (ICPADS'16)*, Wuhan, China, pages ?? -- ??, 2016.

3 Tian Tan, Yue Li and Jingling Xue. Making k-Object-Sensitive Pointer Analysis More Precise with Still k-Limiting. In *23nd International Static Analysis Symposium (SAS'16)*, pages 489 -- 510, Edinburgh, 2016. (PDF)

4 Yulei Sui and Jingling Xue. On-Demand Strong Update Analysis via Value-Flow Refinement. *ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE'16)* , 2016. (PDF)

5 Duo Liu, Kan Zhong, Tianzheng Wang, Yi Wang, Zili Shao, Edwin H.-M. Sha, and Jingling Xue. Durable Address Translation in PCM-based Flash Storage Systems. *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 2016.

6 Feng Zhang, Peng Di, Hao Zhou, Xiangke Liao and Jingling Xue. RegTT: Accelerating Tree Traversals on GPUs by Exploiting Regularities. In *2016 International Conference on Parallel Processing (ICPP'16), pages 562 -- 571,* Philadelphia, 2016. (PDF)

7 Yulei Sui, Ding Ye, Yu Su and Jingling Xue. Eliminating Redundant Bounds Checks in Dynamic Buffer Overflow Detection Using Weakest Preconditions. *IEEE Transactions on Reliability (TR)*, ??(?):?--?, 2016. (PDF)

8 Yulei Sui, Xiaokang Fan, Hao Zhou and Jingling Xue. Loop-Oriented Array- and Field-Sensitive Pointer Analysis for Automatic SIMD Vectorization. In *ACM SIGPLAN/SIGBED 2016 International Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES'16),* pages 41 -- 51, Santa Babara, 2016.

9 Yue Li, Tian Tan, Yifei Zhang and Jingling Xue. Program Tailoring: Slicing by Sequential Criteria. In *30th European Conference on Object-Oriented Programming (ECOOP'16),* pages 15:1 -- 15:27, Rome, 2016. (PDF) (Best Paper Award)

10 Yulei Sui and Jingling Xue. SVF: Interprocedural Static Value-Flow Analysis in LLVM. In *2016 International Conference on Compiler Construction (CC'16)*, pages 265 -- 266, 2016.

11 Hao Zhou and Jingling Xue. A Compiler Approach for Exploiting Partial SIMD Parallelism. *ACM Transactions on Architecture and Code Optimization (TACO)*, 13(1):11:1-- 11:26, 2016.

12 Hao Zhou and Jingling Xue. Exploiting mixed SIMD parallelism by reducing data reorganization overhead. In *13th Annual IEEE/ACM International Symposium on Code Generation and Optimization (CGO'16),* pages 59 -- 69, Barcelona, 2016. (Best Paper Award)

13 Yulei Sui, Peng Di and Jingling Xue. Sparse Flow-Sensitive Pointer Analysis for Multithreaded C Programs. In *13th Annual IEEE/ACM International Symposium on Code Generation and Optimization (CGO'16),* pages 160 -- 170, Barcelona, 2016.

14 Hua Yan, Yulei Sui, Shiping Chen and Jingling Xue. Automated Memory Leak Fixing on Value-Flow Slices for C Programs. In *31st ACM/SIGAPP Symposium on Applied Computing (SAC'16),* pages 1396 -- 1403, Pisa, 2016.

2015

1 Juan Chen, Yuhua Tang, Yong Dong, Jingling Xue, Zhiyuan Wang and Wenhao Zhou. Reducing Static Energy in Supercomputer Interconnection Networks Using Topology-Aware Partitioning. *IEEE Transactions on Computers (TC)*, ??(?):?--?, 2015. (PDF)

2 Yu Su, Ding Ye, Jingling Xue and Xiangke Liao. An Efficient GPU Implementation of Inclusion-based Pointer Analysis. *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 27(2):353-366, 2015.

3 L. Wang, X. Liao, J. Xue, L. S. Wei, Y.C. Wen, X. Yang. Enhancement of Cooperation between File Systems and Applications on VFS Extensions for Optimized Performance. *Science China Information Sciences*, 58(9):1-10, 2015.

4 Xiaokang Fan, Yulei Sui and Jingling Xue. Contention-Aware Scheduling for Asymmetric Multicore Processors. In *21st IEEE International Conference on Parallel and Distributed*

Systems, pages 742 -- 751, Melbourne, 2015.

5 Jiacheng Zhao, Huimin Cui, Jingling Xue and Xiaobing Feng. Predicting Cross-Core Performance Interference on Multicore Processors with Regression Analysis. *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 2015.

6 Yi Wang, Tianzheng Wang, Zili Shao, Duo Liu and Jingling Xue. File System-Independent Block Device Support for Storage Class Memory. *The International Workshop of Software-Defined Data Communications and Storage (SDDCS) 2015, in conjunction with IEEE INFOCOM 2015*, Hongkong, 2015.

7 Ryan Moore, Bruce Childers and Jingling Xue. Performance Modeling of Multithreaded Programs for Mobile Asymmetric Chip Multiprocessors. In *12th IEEE International Conference on Embedded Software and Systems (ICESS'15),* pages 957 -- 963, New York, 2015. (PDF)

8 Yue Li, Tian Tan and Jingling Xue. Effective Soundness-Guided Reflection Analysis. In *22nd International Static Analysis Symposium (SAS'15),* pages 162 -- 180, Saint-Malo, 2015. (PDF)

9 Peng Di, Yulei Sui, Ding Ye and Jingling Xue. Region-Based May-Happen-in-Parallel Analysis for C Programs. In *2015 International Conference on Parallel Processing (ICPP'15), pages 889 -- 898,* Beijing, 2015. (PDF)

10 Feng Wang, Hao Jiang, Ke Zuo, Xing Su, Jingling Xue and Canqun Yang. Design and Implementation of a Highly Efficient DGEMM for 64-bit ARMv8 Multi-Core Processors. In *2015 International Conference on Parallel Processing (ICPP'15), pages 200 -- 209,* Beijing, 2015. (PDF)

11 Wenting He, Huimin Cui, Binbin Lu, Jiacheng Zhao, Shengmei Li, Gong Ruan, Jingling Xue, Xiaobing Feng, Wensen Yang and Youliang Yan. Hadoop+: Modeling and Evaluating the Heterogeneity for MapReduce Applications in Heterogeneous Clusters. In *25th International Conference on Supercomputing (ICS'15), pages 143 -- 153,* Newport Beach, 2015. (PDF)

2014

1 Ding Ye, Yu Su, Yulei Sui and Jingling Xue. WPBound: Enforcing Spatial Memory Safety Efficiently at Runtime with Weakest Preconditions. In *25th IEEE International Symposium on Software Reliability Engineering (ISSRE'14),* pages 88 -- 99, Naples, Italy, 2014. (PDF)

2 Sen Ye, Yulei Sui and Jingling Xue. Region-based Selective Flow-Sensitive Pointer Analysis. In *21th International Static Analysis Symposium (SAS'14),* pages 319 -- 336, Munich, 2014. (PDF)

3 L. Wang, J. Xue and X. Yang. Acyclic Orientation Graph Coloring for Software-Managed Memory Allocation. *Science China Information Sciences*, 57(9):1-18, 2014.

4 Yue Li, Tian Tan, Yulei Sui and Jingling Xue. Self-Inferencing Reflection Resolution for Java. In *28th European Conference on Object-Oriented Programming (ECOOP'14),* pages 27 -- 53, Uppsala, 2014. (PDF)

5 Xiang-Ke Liao, Can-Qun Yung, Tao Tang, Huizhan Yi, Feng Wang, Qiang Wu and Jingling Xue. OpenMC: Towards Simplifying Programming for TianHe Supercomputers. *Journal of Computer Science and Technology (JCST)*, 29(3):532-- 546, 2014. (PDF)

6 Yu Su, Ding Ye and Jingling Xue. Parallel Pointer Analysis with CFL-Reachability. In *2014 International Conference on Parallel Processing (ICPP'14), pages 451 -- 460,* Minnesota, 2014. (PDF)

7 Huimin Cui, Gong Ruan, Jingling Xue, Rui Xie, Lei Wang and Xiaobing Feng. A Collaborative Divide-and-Conquer K-Means Clustering Algorithm for Processing Large Data. In *2014 ACM International Conference on Computing Frontiers (CF'14),* pages 20:1 -- 20:10, 2014.

8 Yulei Sui, Ding Ye and Jingling Xue. Detecting Memory Leaks Statically with Full-Sparse Value-Flow Analysis. *IEEE Transactions on Software Engineering (TSE)*, 40(2):107 -- 122, 2014.

9 Ding Ye, Yulei Sui and Jingling Xue. Accelerating Dynamic Detection of Uses of Undefined Variables with Static Value-Flow Analysis. In *11th Annual IEEE/ACM International Symposium on Code Generation and Optimization (CGO'14),* pages 154 -- 164, Orlando, Florida, 2014.

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Allocation for Clustered VLIW Processors. In *International Conference on Design, Automation and Test in Europe (DATE'14)*, pages 90:1 -- 90:4, Dresden, 2014.

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2013

1 Yu Su, Ding Ye and Jingling Xue. Accelerating Inclusion-based Pointer Analysis on Heterogeneous CPU-GPU Systems. In *2013 IEEE International Conference on High Performance Computing (HiPC'13)* , pages 149 -- 158, 2013. ([PDF](#))

2 Jianli Li, Jingling Xue, Xinwei Xie, Qing Wan, Qingping Tan, Lanfang Tan. Epipe: a Low-Cost Fault-Tolerance Technique Considering WCET Constraints. *Journal of Systems Architecture,* 59(10-D):1383 -- 1393, 2013.

3 Jiacheng Zhao, Huimin Cui, Jingling Xue, Xiaobing Feng, Youliang Yan and Wensen Yang. An Empirical Model for Predicting Cross-Core Performance Interference on Multicore Processors. In *22nd International Conference on Parallel Architectures and Compilation Techniques (PACT'13)* , pages 201 -- 212, Edinburgh, 2013. ([PDF](#))

4 Lin Gao, Lian Li, Jingling Xue and Pen-Chung Yew. SEED: A Statically-Greedy and Dynamically-Adaptive Approach for Speculative Loop Execution. *IEEE Transactions on Computers (TC)*, 62(5):1004--1016, 2013. ([PDF](#))

5 Xinwei Xie, Jingling Xue and Jie Zhang. AccuLock: Accurate and Efficient Detection of Data Races. *Software -- Practice and Experience (SPE)*, 43(5):543 -- 576, 2013. ([PDF](#))

6 Xuemeng Zhang, Hui Wu and Jingling Xue. Instruction scheduling with k-successor tree for clustered VLIW processors. *Design Automation for Embedded Systems*, 439 -- 458, 2013. ([PDF](#))

7 Yi Lu, Lei Shang, Xinwei Xie and Jingling Xue. An Incremental Points-to Analysis with CFL-Reachability. In *2013 International Conference on Compiler Construction (CC'13)*, pages 61 -- 81, Rome, Italy, 2013. ([PDF](#))

8 Yi Lu, John Potter and Jingling Xue. Structural Lock Correlation with Ownership Types. In *2013 European Symposium of Programming (ESOP'13),* pages 391 -- 410, Rome, Italy, 2013. ([PDF](#))

9 Huimin Cui, Qing Yi, Jingling Xue and Xiaobing Feng. Layout-oblivious Compiler Optimization for Matrix Computations. *The 8th International Conference on High-Performance Embedded Architectures and Compilers (HiPEAC'13), Berlin, Germany, 2013. ([PDF](#))*

10 Yulei Sui, Yue Li and Jingling Xue. Query-Directed Adaptive Heap Cloning For Optimizing Compilers. In *11th Annual IEEE/ACM International Symposium on Code Generation and Optimization (*[CGO'13](#)*)*, pages 1 -- 11, ShenZhen, China, 2013. ([PDF](#))

11 (Best Paper Award)

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13 Qing Wan, Hui Wu and Jingling Xue. Scratchpad Memory Aware Task Scheduling with Minimum Number of Preemptions on a Single Processor. In *8th Asia and South Pacific Design Automation Conference (ASP-DAC 2013),* pages 741 -- 748. Yokohama, Japan, 2013. ([PDF](#))

2012

1 Authors: J Xue and Q Cai

2 Huimin Cui, Jingling Xue, Lei Wang, Yang Yang, Xiaobing Feng and Dongrui Fan. [Extendable Pattern-Oriented Optimization Directives](#). *ACM Transactions on Architecture and Code Optimization (TACO)*, 9(3):14:1--14:37, 2012.

3 Huimin Cui, Qing Yi, Jingling Xue and Xiaobing Feng. Layout-oblivious Compiler Optimization for Matrix Computations. In *21st International Conference on Parallel Architectures and Compilation Techniques (PACT'12)* , pages 429 -- 430, Minneapolis, 2012.

4 Qiang Wu, Canqun Yang, Feng Wang and Jingling Xue. A Fast Parallel Implementation of Molecular Dynamics With the Morse Potential on a Heterogeneous Petascale Supercomputer. In *IEEE 26th International Parallel and Distributed Processing Symposium WorkshopsI (IPDPSW'12)*, Shanghai, pages 140 -- 149, 2012.

5 Yian Zhu, Yue Li, Jingling Xue, Tian Tan, Jialong Shi, Yang Shen and Chunyan Ma. What is System Hang and How to Handle it. In *23rd IEEE International Symposium on Software Reliability Engineering (ISSRE'12),* pages 141 -- 150, Dallas, TX, 2012. (PDF)

6 Yi Lu, John Potter and Jingling Xue. Ownership Types for Object Synchronisation. In *10th Asian Symposium on Programming Languages and Systems (APLAS'12),* pages 18 -- 33. Kyoto, Japan, 2012. (PDF) Authors: J Xue and Q Cai

7 Peng Di, Ding Ye, Yu Su, Yulei Sui and Jingling Xue. Automatic Parallelization of Tiled Loop Nests with Enhanced Fine-Grained Parallelism on GPUs. In *2012 International Conference on Parallel Processing (ICPP'12), pages 350 -- 359,* Pittsburgh, 2012. (PDF)

8 Lei Shang, Yi Lu and Jingling Xue. Fast and Precise Points-to Analysis with Incremental CFL-Reachability Summarisation. In *27th IEEE/ACM International Conference on Automated Software Engineering (ASE'12),* pages 270 -- 273, Essen, Germany, 2012. (PDF)

9 Yulei Sui, Ding Ye and Jingling Xue. Static Memory Leak Detection Using Full-Sparse Value-Flow Analysis. In *International Symposium on Software Testing and Analysis (ISSTA'12),* pages 254 -- 264, Minneapolis, MN, 2012. (PDF)

10 Qing Wan, Hui Wu and Jingling Xue. WCET-Aware Data Selection and Allocation for Scratchpad Memory. In *ACM SIGPLAN/SIGBED 2012 International Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES'12),* pages 41 -- 50, Beijing, 2012. (PDF)

11 Yang Yang, Huimin Cui, Xiao-Bing Feng and Jingling Xue. A Hybrid Circular Queue Method for Iterative Stencil Computations on GPUs. *Journal of Computer Science and Technology (JCST)*, 27(1):57-- 74, 2012. (PDF)

12 Peng Di, Hui Wu, Jingling Xue, Feng Wang and Canqun Yang. Parallelizing SOR for GPGPUs Using Alternate Loop Tiling. *Parallel Computing*, 37(6-7):310 -- 328, 2012. (PDF)

13 Xinhai Xu, Xuejun Yang, Jingling Xue, Yufei Lin and Yisong Lin. PartialRC: A Partial Recomputing Method for Efficient Fault Recovery on GPGPUs. *Journal of Computer Science and Technology (JCST)*, 27(2):240--255, 2012.

14 Yi Lu, John Potter, Chenyi Zhang and Jingling Xue. A Type and Effect System for Determinism in Multithreaded Programs. In *2012 European Symposium of Programming (ESOP'12),* pages 518 -- 538, Tallinn, Estonia, 2012. (PDF)

15 Huimin Cui, Qing Yi, Jingling Xue, Lei Wang, Yang Yang and Xiaobing Feng. A highly-parallel reuse distance analysis algorithm on GPUs. In *26th IEEE International Parallel and Distributed Processing Symposium (IPDPS'12)*), pages 1080 -- 1092, Shanghai, China 2012. (PDF)

16 Lei Shang, Xinwei Xie and Jingling Xue. On-Demand Dynamic Summary-Based Points-to Analysis. In *10th Annual IEEE/ACM International Symposium on Code Generation and Optimization (CGO'12),* pages 264 -- 274, San Jose, California, 2012. Authors: J Xue and Q Cai

17 Xuejun Yang, Li Wang and Jingling Xue. Comparability Graph Coloring for Optimizing Utilization of Software-Managed Stream Register Files for Stream Processors. *ACM Transactions on Architecture and Code Optimization (TACO)*, 9(1):5:1 -- 5:30, 2012.

18 L Wang, J. Xue and X. Yang. Optimizing Modulo Scheduling to Achieve Reuse and Concurrency for Stream Processors. *Journal of Supercomputing*, 59(3):1229-1251, 2012. (PDF)

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