

Jiaying Li

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EDUCATION

SEP. 2013 - JUN. 2018 Ph.D in COMPUTER SCIENCE,
Singapore University of Technology and Design, Singapore
Advisor: Assoc. Prof. Jun Sun
SEP. 2011 - JUN. 2013 Study in COMPUTER SYSTEM ARCHITECTURE
Institute of Computing Technology,
Chinese Academy of Sciences, Beijing, China
Advisor: Lu Xu, Jianfeng Zhan
SEP 2007 - AUG. 2011 B.Eng. in SOFTWARE ENGINEERING
Nankai University, Tianjin, China
GPA: 3.9/4.0; RANK: 3/134

RESEARCH INTERESTS

Software engineering, program analysis, machine learning

RESEARCH EXPERIENCE

SEP. 2016 - AUG. 2017 ZIMU: Complex invariant learning framework based on program structures

- Design an algorithm to partition program based on program structures and learn disjunctive invariants based on the resulting partitions;
- Design a heuristic algorithm to search for good program partitionings that lead to simpler loop-invariant by exploring program structure adaptively.

OCT. 2016 - APR. 2017 PTA-LEARN: Parametric timed automata verification with active learning

- Enhance the scalability of existing model checkers for PTA by adopting machine learning techniques;
- Form conjectures on the constraint based on sampling and classification;
- Actively seek out informative parameter values and check the corresponding timed automata so that we converge to an accurate conjecture quickly.

DEC. 2015 - JUN. 2016 ZILU: Invariant generation framework based on classification and selective sampling

- Build an invariant learning framework based on program variable valuations in run-time and classification algorithms;
- Propose an active learning technique, known as selective sampling, to overcome the limitation of random sampling;
- Actively seek out informative parameter values and check the corresponding timed automata so that we converge to an accurate conjecture quickly;

OCT. 2010 - JUNE. 2011 AN OPERATING SYSTEM KERNEL

- Design a micro-kernel of operating systems based on the book 'Orange S' and Linux kernel version 0.11 source code;
- Implement most basic kernel functions, including process management, I/O, interprocess communication, File System, memory management.

WORKING EXPERIENCE

JUL. 2013 - SEP. 2013	Research assistant in Information Systems of Technology and Design, Singapore University of Technology and Design, Singapore
DEC. 2012 - JUN. 2013	Research assistant in Advanced Computer Research Center, Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China
MAR. 2012 - NOV. 2012	Research assistant in Data Storage and Management Technology Research Center, Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China
OCT. 2011 - JAN. 2012	Developer in Trend Media Corporation Limited., Beijing, China
OCT. 2009 - JAN. 2010	Developer in Sun Micro systems, Inc., Beijing, China

SCHOLARSHIPS

SEP. 2013 - AUG. 2018	SUTD President's Graduate Fellowship
OCT. 2010 - JUN. 2011	First Prize National Fellowship
OCT. 2009 - JUN. 2010	National Scholarship
OCT. 2008 - JUN. 2009	National Endeavor Scholarship
OCT. 2007 - JUN. 2008	Second Prize National Fellowship

LANGUAGES

CHINESE:	Mother tongue
ENGLISH:	Fluent

PUBLICATION LIST

Jiaying Li, Jun Sun, Learning Disjunctive Invariants based on Loop Structures, *The 40th International Conference on Software Engineering*, Gothenburg, Sweden, 2018 (under review)

Jiaying Li, Jun Sun, Bo Gao and 'Etienne Andre', Classification-based Parameter Synthesis for Parametric Timed Automata, *The 19th International Conference on Formal Engineering Methods*, Xi'an, China, 2017

Jiaying Li, Jun Sun, Li Li, Quang Loc Le and Shang-Wei Lin, Automatic Loop-invariant Generation and Refinement through Selective Sampling, *The 32nd IEEE/ACM International Conference on Automated Software Engineering*, Illinois, USA, 2017

Truong Khanh Nguyen, Tian Huat Tan, Jun Sun, **Jiaying Li**, Yang Liu, Manman Chen, Jin Song Dong, Scaling BDD-based Timed Verification with Simulation Reduction, *The 19th International Conference on Formal Engineering Methods*, Tokyo, Japan, 2016

Jiaying Li, An Invariant Inference Framework using Active Learning and SVMs, *The 20th International Conference on Engineering of Complex Computer Systems*, Doctorial Symposium, Gold Coast, Australia, 2015.

SERVICES

Volunteer:	FM 2014
Presentation:	ICECCS 2015, ICFEM 2016
Teaching assistant:	Machine learning (undergraduate, ISTD, SUTD, 2014) Elements of software construction (undergraduate, ISTD, SUTD, 2014)

SKILLS

Programming:	Professional in C, C++, bash shell
Operating Systems:	Professional in Linux