

# Jiajun Jiang

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## EDUCATION

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- **Peking University** Beijing, PR China  
*Ph.D. Candidate of Computer Software and Theory*  
*Sep. 2015 – Present*
  - Awards: Individual Scholarship.
- **Northwestern Polytechnical University** Xi'an, PR China  
*Bachelor of Computer Science and Technology*  
*Sep. 2011 – Jul. 2015*
  - Awards: National scholarship(2), Merit Student(2), Excellent Student Cadre, Excellent Graduate Student, etc.

## RESEARCH INTEREST

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- **Automated Debugging** Automatically finding and resolving of defects that prevent correct operations of software.
- **Program Transformation** Towards type safe program transformation and API adaptation.

## PUBLICATIONS

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- Jiajun Jiang, Yingfei Xiong, Hongyu Zhang, Qing Gao, Xiangqun Chen. **Shaping Program Repair Space with Existing Patches and Similar Code**. ISSTA'18: The 27th International Symposium on Software Testing and Analysis, July 16-21, 2018, Amsterdam, Netherlands.
- Chenglong Wang, Jiajun Jiang, Jun Li, Yingfei Xiong, Xiangyu Luo, Lu Zhang, Zhenjiang Hu. **Transforming Programs between APIs with Many-to-Many Mappings**. ECOOP'16: 30th European Conference on Object-Oriented Programming 2016, July 18-22, 2016, Rome, Italy, page 25:1–25:26.

## STUDY EXPERIENCE

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- **School of Electrical Engineering & Computing, The University of Newcastle** NSW, Australia  
*Visiting Ph.D Student*  
*May. – Nov. 2017*
  - **Automatic Program Repair** Automatically repair real world programs by leveraging exiting program patches from a code base and the similar code within the faulty program, based on which a technical paper was published on ISSTA'18 and a prototype tool *SimFix* was developed.
- **Software Engineering Institute, EECS, Peking University** Beijing, PR China  
*Publication Assistant for SPLC 2016*  
*May. – Sep. 2016*
  - **Proceeding publication** Assisting publication/proceedings chair to deal with some publication related work, including communicating with paper authors, contacting publisher (ACM), and finally making the final conference proceedings
- **Knowledge Engineering Laboratory, DCST, Tsinghua University** Beijing, PR China  
*Visiting Student*  
*Jul. – Aug. 2014*
  - **Knowledge Trend Analysis & Visualization** Finding and predicting hot research topics by analyzing the paper keywords with statistical methodology. Analyzing authors relationships via their paper citations and displaying them using visualization technology.

## PROJECTS

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- **StateCoverLocator** This is an automatic fault localization technique that traces predicate coverage information while running test cases to locate suspicious faulty program elements.
- **SimFix** SimFix is an automatic program repair tool, which leverage patches from existing code base and similar code within the project for patch generation (paper ISSTA'18).
- **Patl4J** PATL is a transformation language which can transform Java programs from one API to another, which focus on many-to-many API adaptation (paper ECOOP'16).

## VOLUNTEER EXPERIENCE

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- **Volunteer Co-chair** International Symposium on Software Testing and Analysis, 2019.
- **Volunteer Member** International Systems and Software Product Line Conference, 2016.

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## 教育经历

- **北京大学** 中国北京  
博士研究生 • 计算机软件与理论 2015.09 – 现在  
○荣誉: 专项奖学金.
- **西北工业大学** 中国西安  
学士 • 计算机科学与技术 2011.09 – 2015.07  
○荣誉: 国家奖学金(2), 校三好学生(2), 校优秀学生干部, 优秀毕业生等。

## 研究兴趣

- **自动化调试技术** 自动发现和修复程序中存在的缺陷代码。
- **自动化程序变换** 自动化程序变换和适配, 并保证变化后的程序是类型安全的。

## 发表论文

- Jiajun Jiang, Yingfei Xiong, Hongyu Zhang, Qing Gao, Xiangqun Chen. **Shaping Program Repair Space with Existing Patches and Similar Code**. ISSTA'18: The 27th International Symposium on Software Testing and Analysis, July 16-21, 2018, Amsterdam, Netherlands.
- Chenglong Wang, Jiajun Jiang, Jun Li, Yingfei Xiong, Xiangyu Luo, Lu Zhang, Zhenjiang Hu. **Transforming Programs between APIs with Many-to-Many Mappings**. ECOOP'16: 30th European Conference on Object-Oriented Programming 2016, July 18-22, 2016, Rome, Italy, page 25:1–25:26.

## 学习经历

- **纽卡斯尔大学** ▷电子工程和计算学院 澳大利亚  
访问博士生 2017.05– 2017.11  
○ **自动化程序缺陷修复** 通过挖掘开源软件中的历史修复模板, 以及匹配缺陷程序中存在的相似代码片段来辅助自动化的缺陷修复过程。成功发表国际学术论文一篇, 并开发了一个原型修复工具SimFix。
- **北京大学** ▷信息科学技术学院 中国北京  
SPLC 2016 出版助理 2016.05. – 2016.09  
○ **论文出版** 辅助论文集出版主席处理论文发表相关事宜。包括与论文作者和出版机构 (ACM) 沟通, 检查论文的格式和版权等相关内容, 并负责编辑了最终版的论文集。
- **清华大学** ▷计算机科学技术系 中国北京  
访问学生 2014.07 – 2014.08  
○ **知识趋势分析和可视化分析** 统计论文中的关键字, 挖掘和预测当前研究的热点话题, 并且通过分析论文间的引用关系来分析作者之间的关系, 通过可视化技术呈现。该技术被用于AMiner系统。

## 代表项目

- **StateCoverLocator** 通过预测程序中的谓词, 并且计算谓词的覆盖情况预测程序中出错的位置。通过预定义的出错怀疑度公式为每个候选的出错位置打分。
- **SimFix** SimFix 是一个自动化的软件缺陷修复工具, 该工具利用历史修复补丁和相似代码自动为缺陷的程序生成候选修复。在Defects4J数据集上验证其修复效果, 相比之前的工作SimFix修复缺陷的数量最多, 其中三分之一的缺陷是现有方法没有修复的。该项目对应ISSTA'18 国际学术会议论文。
- **Patl4J** PATL 是一个程序变换语言, 用户通过定义程序接口的映射关系, 自动化地将原程序变换为目标程序, 实现程序接口的自动化迁移。并且结合我们ECOOP'16 论文中的程序变换方法, 可以轻松实现针对程序借口多对多的映射。

## 志愿者经历

- **ISSTA 2019** 志愿者主席
- **SPLC 2016** 志愿者