Shale Xiong

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Education

Imperial College London   **London, United Kingdom**
PhD. in Computing   *10/2015 — 09/2019 (expected)*

I work on **verification of concurrent programs**, particularly reasoning about concurrent programs using **separation logic** with the goal of modular reasoning and functional correctness. I also work on **consistency models of databases and distributed systems**, particularly formalising the behaviours (operational semantics) of different consistency models so to verify implementation and client's programs. In general, I am interested in programming languages, concurrency and distributed systems. My supervisor is Prof. Philippa Gardner. The PhD is funded by the department of computing at Imperial College London. Things I did except my main research:

- Web-master for ACM student chapter: maintained the generated static website `http://acm.doc.ic.ac.uk` (by Wintersmith) and organised *The 2017 Imperial College Computing Student Workshop (ICCSW)*.
- Web-master for my research group: maintained the generated static website `https://vtss.doc.ic.ac.uk` (by Jekyll) and contributed to the lecture note for separation logic.
- Several small projects that help myself: 1) script to compile C++ coursework and compare the difference from the standard; 2) script to maintain and tidy up LaTeX; 3) pipeline to generate and deploy my personal website to Google Cloud; 4) learn some Haskell and coq in my own time.

Imperial College London   **London, United Kingdom**
MSc. in Advanced Computing , Distinction, 76.5/100   *10/2014 — 09/2015*

I mainly chose courses related to verification and computer theory, including *program analysis*, *system verification (topic: model checking)*, *advanced issues in object oriented programming (topic: semantics)*, *separation logic*, *modal logic*, *complexity*.

- Independent study option on modular reasoning on concurrency using separation logic.
- Group project using Test Driven Development (Mockito).

Southwest Jiaotong University   **Chengdu, China**
BEng. in Software Engineering , Rank 1st/74 in class, 91.08/100   *09/2010 — 06/2014*

The degree mainly focuses on programming and computer engineering, including *C/C++*, *Java*, *Assembly*, *algorithm*, *data structure*, *database*, *OS* and *compiler*.

- A member of the team for the internal student's supporting system: maintained and re-factored the system from directly access of database to MVC model (Struts and Hibernate).
- A research project between depts. of computing and transport: built a prototype to monitor the weight distribution of containers when transporting them via railways, which consists of several sensors and software to read (in C), process and present data (in Java).
- Student representative from second to forth year.

Honours & Awards

Department Scholarship
Department of Computing, Imperial College London   *10/2015 — 09/2019*
There are only few scholarships available for international students.

Si-Shi-Yang-Hua Medal
Southwest Jiaotong University   *11/2013*
I received the highest honour for students in Southwest Jiaotong University, with one winner in thousand students, and there were 20 undergraduate winners in 2013 among all undergraduate students in the university. After this I also received the **best undergraduate project** and **best undergraduate student** from the university.

National Scholarship
Ministry of Education, the People's Republic of China   *11/2012, 11/2011*
I received the national scholarship in two continuous year, which is the highest award for undergraduates and postgraduates among all public universities in China granted by Ministry of Education.

Publications

Abstract Specifications for Concurrent Maps, with Pedro da Rocha Pinto, Gian Ntzik, and Philippa Gardner, 26th European Symposium on Programming (ESOP), 2017.

Data Consistency in Transactional Storage Systems: a Centralised Approach, with Andrea Cerone, Azalea Raad, Philippa Gardner, arXiv, `https://arxiv.org/abs/1901.10615`

Teaching

Tutor for *Model of Computation*

Department of Computing, Imperial College London   *2018, 2017, 2016, 2015*

I answered students' questions from the exercise sheets including questions related with operational semantics, register machine and lambda calculus. I also marked the coursework and gave them feedback.

Tutor for *Separation Logic*

Department of Computing, Imperial College London   *2018, 2015*

It was a course for master students and the main topics are separation logics for sequential programs and some demo of Infer `http://fbinfer.com/` tool. I answered students' questions, marked the coursework and gave them feedback.

Lab helper for *C++*

Department of Computing, Imperial College London   *2018, 2017, 2016*

It was a C++ lab for conversion master students, who come from non-computing background. I helped them coding and debugging in C++, gave advice about designing and implementing, and marked their coursework.

Department of Electrical and Electronic Engineering, Imperial College London   *2016*

I helped the first year undergraduate students for coding and debugging in C++, and marked their coursework.

Coursework marker for *Database*

Department of Computing, Imperial College London   *2018, 2017*

I marked the coursework, which focus on SQL queries and ER graphs.

Coursework marker for *Algorithm*

Department of Computing, Imperial College London   *2018*

I marked the coursework written in Java, which focus on developing algorithms and analysing time complexity.

Conferences & Workshops

The ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL)	2019, 2018, 2017
The Google's Compiler and Programming Language Summit	2018, 2017
The Workshop on Formal Methods and Tools for Security (FMATS)	2018, 2017
The Oregon Programming Languages Summer School (OPLSS)	2017
The European Symposium on Programming (ESOP)	2017
The Concurrent Workshop	(Kent) 2016, (Imperial College) 2015
The Introduction to Verification and Testing Workshop (INVEST)	2017, 2015

Skills & Language

C++ : I helped students in the lab. I am familiar with most modules from STL and, their the performance and implementation. I am familiar C++11 concurrency model and weak memory behaviours.

Java : I am familiar with the byte codes and the semantics of them. I verified the `ConcucrentSkipListMap`. For my undergraduate and master degree, I had experience for frameworks including *Struts*, *Hibernate*, *Mosquito*.

HTML/**CSS** : I maintained `https://psvg.doc.ic.ac.uk`, a static website generated by *Jekyll*. I maintained and re-factored `http://acm.doc.ic.ac.uk`, a static website generated by *Wintersmith*.

Bash, Python, Haskell, Coq : Basic understanding.

Git : Basic commands everyday.

LaTeX: I use it everyday. I help my research group for typesetting slides and lecture notes.

Mandarin : Native speaker. Write in Simplified Chinese but can read Traditional Chinese.

English : Working language.