

Yao Li

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Research Interests

I am generally interested in improving programmers' productivity by providing tools for them to *conveniently* build *reliable* systems from the *programming language* level. I'm specifically interested in the following fields:

- More flexible and more convenient type system without compromising type safety.
- New paradigms that will benefit programming and debugging in domains such as parallel/concurrent programming.
- Meta-programming or multi-stage programming techniques.
- Compiler optimization techniques (especially optimizations for new programming paradigms).
- Verification/Analysis/Profiling techniques.

Education

2013-2016 (expected) Master of Science in Engineering,
Software Engineering, Shanghai Jiao Tong University

2009-2013 Bachelor of Science in Engineering,
Software Engineering, Shanghai Jiao Tong University

Publication

- **ScalaHDL: Express and Test Hardware Designs in a Scala DSL**
by Yao Li, Antonio R. Lopes, Zhouyun Xu, Zhengwei Qi, and Haibing Guan,
on proceedings of the 32nd IEEE International Conference on Computer Design (ICCD), 2014

Projects

- **ScalaHDL: From High-Level Scala to Low-Level FPGA**
 - This is a joint research and development project between Morgan Stanley and our lab.
 - I was the major designer of the language and the major developer in this project. I was also responsible for coordinating with other team members, including people from London and Shanghai.
 - We have published a paper on ICCD 2014. After that we have developed some new design philosophy and there's another paper describing the latest version under review.
- **Scala Forklift: Type-safe Data Migration Tool for Slick, Git and Beyond**
<https://github.com/lastland/scala-forklift>
 - In coordination with Jan Christopher Vogt (a major contributor to the Slick database library), I developed his proof-of-concept implementation into a production-ready tool. Together we have also developed the experimental git integration feature which makes it easier to work with git branches.

■ **CubeWorld: A 3D Chess Game**

- In this 3D chess game the players are asked to place their pieces on a 3D cubic chess board in turn and compete to connect their own pieces as a line. This game was developed by three other students and me.
- I was responsible for the implementation of the main game logic and the AI (The AI has been proved to be quite challenging for human players. During an exhibition only 2 of more than 10 students in our university managed to beat the AI. And no one managed to beat it in the first round.). I also designed and implemented the achievement system.
- This game has won the *1st Prize in the 4th Intel Cup National Collegiate Software Innovation Contest in China*, *Most Popular Collegiate Innovation Projects of Shanghai Jiao Tong University*, and a grade A as *National Undergraduate Innovation Program*.

Honors & Awards

- China National Scholarship (*the scholarship with highest honor and reward*), 2014
- Outstanding Graduate of Shanghai Jiao Tong University, 2013
- China National Scholarship (*the scholarship with highest honor and reward*), 2012
- Most Popular Collegiate Innovation Projects of Shanghai Jiao Tong University, 2012
- 1st Prize in the 4th Intel Cup National Collegiate Software Innovation Contest in China, 2011
- 1st Prize in National Olympiad in Informatics in Provinces, 2008
- 1st Prize in National Olympiad in Informatics in Provinces, 2007

Experiences

July 2012 - Microsoft, Shanghai, China

Sep 2012 *Software Development Engineer Intern*

I worked in the infrastructure team led by Zhiliang Xu in the Commerce Department. I was responsible for investigating how Windows Azure could benefit our existing system, and helping transfer and migrate a project from Redmond to our team. I've also independently developed a web application which help users view their Azure storage more conveniently.

Sep 2013 - Shanghai Jiao Tong University, Shanghai, China

Jan 2014 *Teaching Assistant*

I acted as the teaching assistant of course Programming and Data Structures for undergraduate students.

Mar 2015 - Universita della Svizzera italiana, Lugano, Switzerland

July 2015 *Research Assistant*

I worked with Prof. Walter Binder and his dynamic analysis group on profiling Java/Scala programs using dynamic analysis tools. We are still working on this topic and expecting some results to publish soon.

Tests

- TOEFL: 109
- GRE: 156(Verbal) + 168(Quantitative) + 3.5(Analytical Writing)