Yuan, Xinhao

Contact

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Education

- MS/PhD, Columbia University 2012-present
  Department of Computer Science
- B.Eng, Tsinghua University 2007-2011
  Department of Computer Science and Technology

Summary

- Strong background in math, algorithms, programming, and software systems
- Fast learner who can master new technology quickly
- Passionate for creative software system research

Skills ■□□□□ - basic, ■■■□□ - experienced, ■■■■■ - expert

Academic

Operating System	■■■■◧
Distributed System	■■■■□
Compiler	■■■□□
Formal Methods	■■■■□

Programming

C/C++	■■■■◧
C#/Java	■■■◧□
Python	■■■□□
HTML5/CSS/Javascript	■■■■□

Others

- Libraries/Frameworks:
  Android, LLVM, jQuery/LESSCSS
- Strong hands-on experience with GNU/Linux environment

Working Experience

- Research Assistant, Columbia University, Advisor: Junfeng Yang 2012-present
  - Working on research projects of model checking and other formal methods for reliability of software systems
- Research Intern, Microsoft/Microsoft Research, Mentor: Cheng Huang 2016/01-2016/05
  - Worked on applying model checking method on Azure Storage system to improve its reliability
- Research Intern, Microsoft Research, Mentor: Lidong Zhou 2015/06-2015/08
  - Worked on distributed computing platform specialized for social analytics
  - Extended Naiad dataflow system to support consistent dataflow mutation on the fly
- Research Intern at System Research Group, Microsoft Research Asia, Mentor: Ming Wu 2009-2011
  - Implemented the TPC-C benchmark for Hyder project and published paper [2] in VLDB 2011.
  - Awarded "Stars of Tomorrow" internship certificate for the excellent performance

Projects More hosted on github.com

- **DrillMC**, a practical model checking framework for distributed software systems
  - Open-sourced on https://bitbucket.org/xinhaoyuan/drillmc
- **Txit** [1], a framework to make lock-free data structures managable to verify by leveraging transactional memory
- **AppDoctor** [2], a model checker that systematically tests user interactions of android apps to find crash bugs
  - Built the instrumenter that interposes the android framework to control the I/O and event handling of apps
- **Hyder** [3], a transactional key-value database system backed by shared log storage with a novel concurrency control protocol
  - Worked with my mentor to implement and refine the prototype system
  - Implemented the TPC-C benchmark on the prototype

Publications

[1] Make Lock-free Data Structures Verifiable with Artificial Transactions. PLOS 2015. Xinhao Yuan, David Williams-King, Junfeng Yang, Simha Sethumadhavan

[2] Efficiently, effectively detecting mobile app bugs with AppDoctor. In Proceedings of the Ninth European Conference on Computer Systems (EuroSys '14). Gang Hu, Xinhao Yuan, Yang Tang, Junfeng Yang

[3] Optimistic Concurrency Control by Melding Trees, VLDB 2011. Phil Bernstein, Colin Reid, Ming Wu, Xinhao Yuan

[4] S-FTL: An Efficient Address Translation for Flash Memory by Exploiting Spatial Locality, MSST 2011. Song Jiang, Lei Zhang, Xinhao Yuan, Hao Hu, Yu Chen

Awards

- 27th place in 37th Annual World Finals of the ACM International Collegiate Programming Contest (2013)
- Champion of ACM/ICPC '12, Greater New York Region
- Gold medal in the National Olympiad in Informatics '06, China