

- CONTACT INFORMATION Department of Computer Science  
Yale University  
51 Prospect Street, New Haven, CT 06511-8937  
Phone: +1 (203) 430-2840  
Email: ronghui.gu@yale.edu  
Homepage: <http://www.guronghui.com>
- INTEREST Programming languages and operating systems, with a focus on language-based support for safety and security, certified system software, certified programming and compilation, formal methods, and concurrency.
- EDUCATION **Yale University** New Haven, CT  
Ph.D. in Computer Science 2011 - 2016  
  - Advisor: Prof. Zhong Shao
  - Thesis: An Extensible Architecture for Building Certified Sequential and Concurrent OS Kernels.
  - Nomination for **ACM Dissertation Award**
M.S. and M.Phil. in Computer Science 2011 - 2014  
  - GPA: 3.9 / 4**Tsinghua University** Beijing, China  
B.S. in Computer Science 2007 - 2011  
  - Advisor: Prof. Yuan Dong and Prof. Shengyuan Wang
  - GPA: 91.2 / 100 Rank: 4 / 118
  - Excellent Undergraduate of Tsinghua University, **top 1.9%** (67 among 3543)
  - Honors Undergraduate Thesis of Tsinghua University, top 4% (5 among 118)

PROFESSIONAL EXPERIENCE **Yale University** New Haven, CT  
*Research Associate* 2016 - present  
*Research Assistant* 2011 - 2016  
Working on CertiKOS, an extensible architecture for building certified OS kernels. As the lead developer of the project, verified a series of sequential and concurrent OS kernels in Coq with my Yale colleagues. The most realistic one is written in 6,500 lines of C and x86 assembly and runs on stock x86 multicore machines.

**Tsinghua University** Beijing, China  
*Research Assistant* Spring 2011  
Working on verifying the preemptive scheduling and nested interrupt handling of  $\mu$ C/OS-II running on the PowerPC platform.

CONFERENCE PUBLICATIONS **CertiKOS: An Extensible Architecture for Building Certified Concurrent OS Kernels.**  
(with Z. Shao, H. Chen, X. Wu, J. Kim, V. Sjöberg, and D. Costanzo)

*Proceedings of the 12th USENIX Symposium on Operating Systems Design and Implementation (OSDI'16), 2016.*

(Accept rate: **18%**)

**Media coverage:** Yale News, International Business Times, Yale Daily News

**End-to-End Verification of Information-Flow Security for C and Assembly Programs.**

(with D. Costanzo and Z. Shao)

*Proceedings of the 37th annual ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI'16), 2016.*

(Accept rate: **16%**)

**Toward Compositional Verification of Interruptible OS Kernels and Device Drivers.**

(with C. Hao, X. Wu, Z. Shao, and J. Lockerman)

*Proceedings of the 37th annual ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI'16), 2016.*

(Accept rate: **16%**)

**Deep Specifications and Certified Abstraction Layers.**

(with J. Koenig, T. Ramananandro, Z. Shao, X. Wu, S. Weng, H. Zhang, and Y. Guo)

*Proceedings of the 42nd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL'15), 2015.*

(Accept rate: **23%**)

MANUSCRIPTS

**Language and Compiler Support for Building Certified Concurrent Abstraction Layers.**

(with Z. Shao, X. Wu, J. Kim, J. Koenig, T. Ramananandro, V. Sjöberg, H. Chen, and D. Costanzo)

Submitted to *the 38th annual ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI'17), 2017.*

**Safety and Liveness of MCS LockLayer by Layer.**

(with V. Sjöberg, J. Kim, and Z. Shao)

Submitted to *the 6th ACM SIGPLAN Conference on Certified Programs and Proofs (CPP'17), 2017.*

TEACHING  
EXPERIENCE

**Teaching Assistant** at Yale University

Fall 2012 - Fall 2015

- CPSC 422/522 Operating System Design and Implementation (Fall 2015)  
Instructor: Prof. Zhong Shao
- CPSC 458/558 Automatic Decision Systems (Fall 2015)  
Instructor: Dr. Stephen Slade
- CPSC 439/539 Software Engineering (Spring 2015 and Spring 2014)  
Instructor: Prof. Ruzica Piskac
- CPSC 424/524 Parallel Programming Techniques (Fall 2014 and Fall 2013)  
Instructor: Dr. Andrew Sherman

- CPSC 112 Introduction to Programming Languages (Spring 2013 and Fall 2012)  
Instructor: Prof. Drew V. McDermott and Prof. Daniel Abadi

ADVISING  
EXPERIENCE

**Undergraduate students** at Yale University

Hengchu Zhang

- Completed the senior project on verifying synchronous IPC     Spring 2015
- Currently a doctoral student at the University of Pennsylvania

**Graduate students** at Yale University

Mengqi Liu

- Completed a submission about verifying real-time CPS     2015 - present

SELECTED  
PRESENTATIONS

**An Extensible Architecture for Building Certified Concurrent OS Kernels.**

- University of California, Davis, CA     Dec. 2016
- Columbia University, NY     Dec. 2016
- University of Pennsylvania, PA     Nov. 2016
- Princeton University, NJ     Nov. 2016
- OSDI, GA     Nov. 2016

**Deep Specifications and Certified Abstraction Layers.**

- Yale Programming Languages Day, CT     Nov. 2015
- New England Programming Languages and Systems Symposium     June 2015
- High Confidence Software and Systems Conference, Maryland     May 2015
- POPL, Mumbai, India     Jan. 2015

SELECTED  
HONORS

- Nomination for ACM Dissertation Award, Yale University     Aug. 2016
- Robert Willets Carle Scholarship, Yale University     Feb. 2016
- Travel Grant for POPL15, NSF     Jan. 2015
- Doctoral Fellowship, Yale University     Aug. 2011
- Excellent Undergraduate (top 1.9%), Tsinghua University     Jul. 2011
- Excellent Undergraduate, Beijing City     Jul. 2011
- Honors Undergraduate Thesis (top 4%), Tsinghua University     Jul. 2011
- Sohu Scholarship, Tsinghua University     Oct. 2010
- Ticket Master Scholarship, Tsinghua University     Oct. 2009
- Tsinghua Outstanding Social Work Scholarship     Oct. 2008
- Elite Youth League Member of Jiangsu Province, China     Apr. 2007
- First Prize of National Mathematical Olympiad Competition, China     Oct. 2006
- First Prize of National Chemistry Olympiad Competition, China     Oct. 2006

PROFESSIONAL  
ACTIVITIES

**Reviewer:** Science China Information Sciences, TACAS'15  
**Member:** CPS-VO

CITIZENSHIP

Peoples Republic of China

REFERENCES

**Zhong Shao**

Professor  
Department of Computer Science  
Yale University  
51 Prospect Street  
New Haven, CT 06511-8937, USA  
Email: zhong.shao@yale.edu  
Phone: +1 203 432-6828  
Homepage: <http://www.cs.yale.edu/homes/shao/>

**Benjamin C. Pierce**

Henry Salvatori Professor  
Department of Computer and Information Science  
University of Pennsylvania  
3330 Walnut Street  
Philadelphia, PA 19104-6389, USA  
Email: bcpierce@cis.upenn.edu  
Phone: +1 215 898-6222  
Homepage: <http://www.cis.upenn.edu/~bcpierce/>

**Adam Chlipala**

Associate Professor  
Department of Electrical Engineering and Computer Science  
MIT  
77 Mass Ave, 32-G842  
Cambridge, MA 02139-4307, USA  
Email: adamc@csail.mit.edu  
Phone: +1 617 324-8439  
Homepage: <http://adam.chlipala.net/>

**Ruzica Piskac**

Assistant Professor  
Department of Computer Science  
Yale University  
51 Prospect Street  
New Haven, CT 06511-8937, USA  
Email: ruzica.piskac@yale.edu  
Phone: +1 203 432-8001  
Homepage: <http://www.cs.yale.edu/homes/piskac/>