Ronghui Gu   *Curriculum vitae*

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, rg3123@columbia.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 reasoning.

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.
- **Distinction Dissertation** of Yale Graduate School of Art and Science
- Nomination for **ACM Dissertation Award**

M.S. and M.Phil. in Computer Science   2011 - 2014

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 Assistant, Associate Research Scientist   2011 - present

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 μC/OS-II running on the PowerPC platform.

INDUSTRIAL EXPERIENCE

Google Inc.   Mountain View, CA

Software Engineer   2016 - 2017

Ecopia Tech Corporation   Ontario, Canada

Research Intern   Summer 2015

SELECTED
CONFERENCE
PUBLICATIONS

An Auditing Language for Preventing Correlated Failures in the Cloud.
(with Ennan Zhai, Ruzica Piskac, Xun Lao, and Xi Wang)
*Proceedings of 32th ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (**OOPSLA'17**), 2017.*
(Accept rate: **29%**)

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
Honor: Selected in the **Research Highlights** section of the CACM.

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%**)

SELECTED
PRESENTATIONS

Introduction to CertiKOS.
- New England Systems Verification Day, MA   Oct. 2017

Building Fully Trustworthy OS Kernels through Formal Verification.
- University of Washington, WA   Aug. 2017
- Chicago University, IL   Apr. 2017
- University of Minnesota Twin Cities, MN   Mar. 2017
- Pennsylvania State University, PA   Mar. 2017
- New York University, NY   Mar. 2017
- Boston University, MA   Mar. 2017
- University of Connecticut, CT   Feb. 2017

- Columbia University, NY   Feb. 2017

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		
Distinction Dissertation, Yale University	Dec. 2016
Nomination for ACM Dissertation Award, Yale University	Aug. 2016
Robert Willets Carle Scholarship, Yale University	Feb. 2016
Excellent Undergraduate (top 1.9%), Tsinghua University	Jul. 2011
Excellent Undergraduate of 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
First Prize of National Mathematical Olympiad Competition, China	Oct. 2006

PROFESSIONAL ACTIVITIES

Member of Program Committee, *the 2018 IEEE Security Development Conference (SecDev)*, 2018.

Member of External Review Committee, *39th annual ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI'18)*, 2018.

Reviewer for *Transactions on Computers*, *IET Software*, *Science China Information Sciences*, *FMAT'17*, *TACAS'15*. 2015 - present.

Member of CPS-VO. 2015 - present.

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

CITIZENSHIP   Peoples Republic of China