Ronghui Gu

CONTACT INFORMATION	Department of Computer Science Yale University 51 Prospect Street, New Haven, CT 06511 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
- Graduation with Distinction (top 2 %)

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 μC/OS-II.

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%**)

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 MANUSCRIPTS	**Language and Compiler Support for Building Certified Concurrent Abstraction Layers.** (with Z. Shao, X. Wu, J. Kim, J. Koenig, T. Ramananandro, V. Sj oberg, 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**, senior project on verifying synchronous IPC Spring 2015

Graduate students at Yale University

 Mengqi Liu, research project on 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
	Graduation with Distinction (top 2%), Tsinghua University	Jul. 2011
	Outstanding Graduate, Beijing City	Jul. 2011
	Outstanding Undergraduate Thesis Award, 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

MEDIA COVERAGE	Yale Daily News	Nov. 2016
	International Business Times	Nov. 2016
	Yale News	Nov.2016

INDUSTRIAL EXPERIENCE	**Google Inc.**	Mountain View, CA
	Software Engineer	2016 - present
	Ecopia Tech Corporation	Ontario, Canada
	Research Intern	Summer 2015

PROFESSIONAL ACTIVITIES	**Member:** CPS-VO
	Reviewer: TACAS'15

CITIZENSHIP   Peoples Republic of China

REFERENCES   **Zhong Shao**
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Yale University
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New Haven, CT 06520-8285, USA

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