

# Ronghui Gu

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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: <a href="http://www.guronghui.com">http://www.guronghui.com</a>	
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	<b>Yale University</b>	New Haven, CT
	Ph.D. in Computer Science	2011 - 2016
	<ul style="list-style-type: none"><li>• Advisor: Prof. Zhong Shao</li><li>• Thesis: An Extensible Architecture for Building Certified Sequential and Concurrent OS Kernels.</li><li>• Nomination for ACM Dissertation Award</li></ul>	
	M.S. and M.Phil. in Computer Science	2011 - 2014
	<ul style="list-style-type: none"><li>• GPA: 3.9 / 4</li></ul>	
	<b>Tsinghua University</b>	Beijing, China
	B.S. in Computer Science	2007 - 2011
	<ul style="list-style-type: none"><li>• Advisor: Prof. Yuan Dong and Prof. Shengyuan Wang</li><li>• GPA: 91.2 / 100      Rank: 4 / 118</li><li>• Graduation with Distinction (top 2 %)</li></ul>	
PROFESSIONAL EXPERIENCE	<b>Yale University</b>	New Haven, CT
	<i>Research Associate</i>	2016 - present
	<i>Research Assistant</i>	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.	
	<b>Tsinghua University</b>	Beijing, China
	<i>Research Assistant</i>	Spring 2011
	Working on verifying the preemptive scheduling and nested interrupt handling of $\mu\text{C}/\text{OS-II}$ running on the PowerPC platform.	
CONFERENCE PUBLICATIONS	<b>CertiKOS: An Extensible Architecture for Building Certified Concurrent OS Kernels.</b> (with Z. Shao, H. Chen, X. Wu, J. Kim, V. Sjöberg, and D. Costanzo) <i>Proceedings of the 12th USENIX Symposium on Operating Systems Design and Implementation (OSDI'16), 2016.</i>	

(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%**)

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     **Teaching Assistant** at Yale University     Fall 2012 - Fall 2015

EXPERIENCE

- 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	<b>Undergraduate students</b> at Yale University	
	<b>Hengchu Zhang</b> , senior project on verifying synchronous IPC	Spring 2015
	<b>Graduate students</b> at Yale University	
	<b>Mengqi Liu</b> , research project on verifying real-time CPS	2015 - present
SELECTED PRESENTATIONS	<b>An Extensible Architecture for Building Certified Concurrent OS Kernels.</b>	
	• 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
	<b>Deep Specifications and Certified Abstraction Layers.</b>	
	• 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	<b>Google Inc.</b>	Mountain View, CA
	<i>Software Engineer</i>	2016 - present
	<b>Ecopia Tech Corporation</b>	Ontario, Canada
	<i>Research Intern</i>	Summer 2015

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

CITIZENSHIP     Peoples Republic of China

REFERENCES     **Zhong Shao**  
                  Professor  
                  Department of Computer Science  
                  Yale University  
                  51 Prospect Street  
                  New Haven, CT 06511–8937, USA  
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                  Phone: +1 203 432-6828  
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**Benjamin C. Pierce**  
                  Henry Salvatori Professor  
                  Department of Computer and Information Science  
                  University of Pennsylvania  
                  3330 Walnut Street  
                  Philadelphia, PA 19104-6389, USA  
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                  Homepage: <http://www.cis.upenn.edu/~bcpierce/>

**Adam Chlipala**  
                  Associate Professor  
                  Department of Electrical Engineering and Computer Science  
                  MIT  
                  77 Mass Ave, 32-G842  
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**Ruzica Piskac**  
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