

# Ronghui Gu

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## EDUCATION

- Ph.D. Computer Science, **Yale University**, New Haven CT Dec. 2016
- Thesis: An Extensible Architecture for Building Certified Sequential and Concurrent OS Kernels.
  - Advisor: Prof. Zhong Shao.
  - Distinction Dissertation of Yale Graduate School of Art and Science.
  - Yale Nominee of the ACM Doctoral Dissertation Award.
- B.S. Computer Science, **Tsinghua University**, Beijing, China June 2011
- Rank: 4 / 140
  - Outstanding Undergraduate of Tsinghua University, top 1.9% (3 among 140).
  - Honors Undergraduate Thesis of Tsinghua University, top 4% (5 among 140).
  - Outstanding Student of Beijing City.

## PROFESSIONAL APPOINTMENTS

**Columbia University**, New York, NY. Assistant Professor of Computer Science, since 2018.

**CertiK**, New York, NY. Co-founder, since 2017.

**Yale University**, New Haven, CT. Associate Research Scientist, 2017; Research Assistant, 2012-2016. Designed and developed CertiKOS, the first fully verified concurrent OS kernel.

**Google**, Mountain View, CA. Software Engineer, 2016-2017.

**Tsinghua University**, Beijing, China. Research Assistant for Prof. Yuan Dong and Prof. Shengyuan Wang, 2010-2011. Verified the preemptive scheduler and nested interrupt handler of  $\mu\text{C}/\text{OS-II}$ .

## SELECT PUBLICATIONS

R. Gu, Z. Shao, H. Chen, J. Kim, J. Koenig, X. Wu, V. Sjöberg, and D. Costanzo, “Building Certified Concurrent OS Kernels.” *Communications of ACM (CACM)*, 62(10), 89-99, 2019.

L. Nelson, J. Bornholt, R. Gu, A. Baumann, E. Torlak, and X. Wang. “Serval: Scaling Symbolic Evaluation for Automated Verification of Systems Code.” *Proceedings of the 27th ACM Symposium on Operating Systems Principles (SOSP 2019)*, October, 2019.

M. Zou, H. Ding, D. Du, M. Fu, R. Gu, and H. Chen. “Using Concurrent Relational Logic with Helper for Verifying the AtomFS File System.” *Proceedings of the 27th ACM Symposium on Operating Systems Principles (SOSP 2019)*, October, 2019.

R. Gu, Z. Shao, J. Kim, X. Wu, J. Koenig, V. Sjöberg, H. Chen, D. Costanzo, and T. Ramanathan, “Certified Concurrent Abstraction Layers.” *Proceedings of the 39th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2018)*, June 2018.

X. Yuan, J. Yang, and R. Gu, “Partial Order Aware Concurrency Sampling.” *Proceedings of the 30th International Conference on Computer Aided Verification (CAV 2018)*, July 2018.

E. Zhai, R. Piskac, R. Gu, X. Lao, and X. Wang, “An Auditing Language for Preventing Correlated Failures in the Cloud.” *Proceedings of the ACM on Programming Languages (OOPSLA 2017)*, Oct. 2017.

R. Gu, Z. Shao, H. Chen, X. Wu, J. Kim, V. Sjöberg, and D. Costanzo, “CertiKOS: An Extensible Architecture for Building Certified Concurrent OS Kernels.” *Proceedings of the 12th Symposium on Operating Systems Design and Implementation (OSDI 2016)*, Nov. 2016.

D. Costanzo, Z. Shao, and R. Gu, “End-to-End Verification of Information-Flow Security for C and Assembly Programs.” *Proceedings of the 37th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2016)*, June 2016.

C. Hao, X. Wu, Z. Shao, J. Lockerman, and R. Gu, “Toward Compositional Verification of Interruptible OS Kernels and Device Drivers.” *Proceedings of the 37th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2016)*, June 2016.

R. Gu, J. Koenig, T. Ramanandaro, Z. Shao, X. Wu, S. Weng, H. Zhang, and Y. Guo, “Deep Specifications and Certified Abstraction Layers.” *Proceedings of the 42nd ACM Symposium on Principles of Programming Languages (POPL 2015)*, Jan. 2015.

## PROFESSIONAL ACTIVITIES

Member of Program Committee, *41st annual ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI 2020)*.

Member of Program Committee, *16th USENIX Symposium on Networked Systems Design and Implementation (NSDI 2019)*.

Member of Program Committee, *2019 ACM Symposium on Cloud Computing (SoCC 2019)*.

Member of Program Committee, *2019 IEEE Security Development Conference (SecDev 2019)*.

Member of Program Committee, *5th International Workshop on Coq for Programming Languages (CoqPL 2019)*.

Member of Program Committee, *2nd International Workshop on the use of Theorem Provers for Modelling and Verification at the Hardware-software Interface (ENTROPY 2019)*.

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

Member of Student Research Competition Committee, *23rd ACM SIGPLAN International Conference on Functional Programming (ICFP 2018)*.

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

Reviewer for *Transactions on Computers, IET Software, Science China Information Sciences*. 2015 - present.

## TEACHING EXPERIENCE

COMS 4115 Programming Languages and Translators.

COMS E6998 Formal Verification of System Software.

COMS W3101 Programming Languages.

Graduate Seminar on Systems.

## SELECT HONORS

MIT Technology Review 35 Innovators Under 35 Semi-Finalist.

Feb. 2019

Distinction Dissertation, Yale University.

Dec. 2016

Yale Nominee, ACM Doctoral Dissertation Award.	Aug. 2016
Robert Willets Carle Scholarship, Yale University.	Feb. 2016
Outstanding Undergraduate (top 1.9%), Tsinghua University.	Jul. 2011
Outstanding Student of Beijing City, China.	Jul. 2011
Honors Undergraduate Thesis (top 4%), Tsinghua University.	Jul. 2011