

# 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.
- M.S. Computer Science, **Yale University**, New Haven, CT June 2013
- M.Phil. Computer Science, **Yale University**, New Haven, CT June 2013
- B.S. Computer Science, **Tsinghua University**, Beijing, China June 2011
- GPA: 91.2 / 100      Rank: 4 / 118
  - Outstanding Undergraduate of Tsinghua University, top 1.9% (67 among 3543).
  - Honors Undergraduate Thesis of Tsinghua University, top 4% (5 among 118).
  - 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  $\mu\text{C}/\text{OS-II}$ .

## SELECTED 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)*, to appear.

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. Ramananandro, 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, *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.

## SELECTED HONORS

Columbia-IBM Center Seed Grant Award, Columbia University. Dec. 2018

Distinction Dissertation, Yale University. Dec. 2016

Nomination for ACM Dissertation Award, Yale University. 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

Sohu Scholarship, Tsinghua University. Oct. 2010

Ticket Master Scholarship, Tsinghua University. Oct. 2009

First Prize of National Mathematical Olympiad Competition, China. Oct. 2006