

Daejun Park

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Research Interests

- Formal verification of real-world safety-critical systems, from compilers to smart contracts to cryptographic primitives.

Education

Ph.D., Computer Science, University of Illinois at Urbana-Champaign	2013 – 2019
M.S., Computer Science and Engineering, Seoul National University, Korea	2006 – 2008
B.S., Computer Science and Engineering, Seoul National University, Korea	2001 – 2006

Publications

- [1] **Cross-Language Program Equivalence with Application to LLVM.**
Theodoros Kasampalis, *Daejun Park*, Vikram S. Adve, and Grigore Rosu. *Manuscript*, 2018.
- [2] **Verifiable Computing for Approximate Computation.**
Shuo Chen, Jung Hee Cheon, Dongwoo Kim, and *Daejun Park*. *Manuscript*, 2018.
- [3] **A Complete Formal Semantics of x86-64 User-Level Instruction Set Architecture.**
Sandeep Dasgupta, *Daejun Park*, Theodoros Kasampalis, Vikram S. Adve, and Grigore Rosu. *Proceedings of the 40th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI'19)*, 2019.
- [4] **Logistic Regression on Homomorphic Encrypted Data at Scale.**
Kyoohyung Han, Seungwan Hong, Jung Hee Cheon, and *Daejun Park*. *Proceedings of the Thirty-First AAAI Conference on Innovative Applications of Artificial Intelligence (IAAI'19)*, 2019.
- [5] **A Formal Verification Tool for Ethereum VM Bytecode.**
Daejun Park, Yi Zhang, Manasvi Saxena, Philip Daian, and Grigore Rosu. *Proceedings of the 2018 26th ACM SIGSOFT International Symposium on Foundations of Software Engineering (FSE'18)*, 2018.
- [6] **KEVM: A Complete Formal Semantics of the Ethereum Virtual Machine.**
Everett Hildenbrandt, Manasvi Saxena, Nishant Rodrigues, Xiaoran Zhu, Philip Daian, Dwight Guth, *Daejun Park*, Yi Zhang, Brandon Moore and Grigore Rosu. *Proceedings of the 2018 IEEE Computer Security Foundations Symposium (CSF'18)*, 2018.
- [7] **Invariant Synthesis for Incomplete Verification Engines.**
Daniel Neider, P. Madhusudan, Pranav Garg, Shambwaditya Saha, and *Daejun Park*. *Proceedings of the 24th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS'18)*, 2018.

- [8] **Semantics-Based Program Verifiers for All Languages.**
 Andrei Stefanescu, Daejun Park, Shijiao Yuwen, Yilong Li, and Grigore Rosu. *Proceedings of the 2016 ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA'16)*, 2016. **Distinguished Paper Award**
- [9] **KJS: A Complete Formal Semantics of JavaScript.**
 Daejun Park, Andrei Stefanescu, and Grigore Rosu. *Proceedings of the 36th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI'15)*, 2015.
- [10] **Global Sparse Analysis Framework.**
 Hakjoo Oh, Kihong Heo, Wonchan Lee, Woosuk Lee, Daejun Park, Jeehoon Kang, and Kwangkeun Yi. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, Vol.36, No.3, Sep 2014.

Work Experience

Research Scientist , Runtime Verification, Inc., IL	2018 – Present
► <i>Formally verifying</i> high-profile, security-critical Ethereum smart contracts.	
Research Intern , Microsoft Research, WA	Summer 2017
► Designed a novel <i>verifiable computing</i> technique for secure deep neural network training.	
Founding Member & Technical Lead , Sparrow, Korea	2008 – 2012
► Designed and implemented <i>a static program analysis tool</i> detecting memory safety errors and security vulnerabilities in embedded-system software.	

Honors & Awards

Feng Chen Memorial Award, University of Illinois at Urbana-Champaign	2017
Distinguished Paper Award at OOPSLA'16	2016
Korean Government Scholarship	2013–2015
Honors Scholarship, Seoul National University	2003–2004
Bronze Medal in National Mathematics Competition	2000

References

Grigore Rosu	Kwangkeun Yi
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