

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 – 2018
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] **A Complete Formal Semantics of X86-64 User-Level Instruction Set Architecture.**
Sandeep Dasgupta, *Daejun Park*, Theodoros Kasampalis, Vikram S. Adve, and Grigore Rosu. *Manuscript*, 2018.
- [2] **Cross-Language Program Equivalence with Application to LLVM.**
Theodoros Kasampalis, *Daejun Park*, Vikram S. Adve, and Grigore Rosu. *Manuscript*, 2018.
- [3] **Verifiable Computing for Approximate Computation.**
Shuo Chen, Jung Hee Cheon, Dongwoo Kim, and *Daejun Park*. *Manuscript*, 2018.
- [4] **Efficient Logistic Regression on Large Encrypted Data.**
Kyoohyung Han, Seungwan Hong, Jung Hee Cheon, and *Daejun Park*. *Cryptology ePrint Archive, Report 2018/662*, 2018.
- [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

- Formal Verification Lead**, Runtime Verification, Inc., IL Jan 2018 – Present
- ▶ Leading the Ethereum smart contract *formal verification* team.
- Research Intern**, Microsoft Research, WA Summer 2017
- ▶ Designed a novel *verifiable computing* technique for secure deep neural network training.
- Founding Member & Technical Lead**, Sparrow, Korea 2008 – 2012
- ▶ Designed and implemented *a static program analysis tool* detecting memory safety errors and security vulnerabilities in embedded-system software.

Honors & Awards

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| 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

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