

# Woosuk Lee

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## Education

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**Computer Science and Engineering, Seoul National University**      Mar 2009 – Feb 2016

Doctor of Philosophy in Computer Science and Engineering  
Thesis: Improving the Usability of Static Analyzers [4]  
Advisor: Prof. Kwangkeun Yi

**Computer Science and Engineering, Seoul National University**      Mar 2005 – Feb 2009

Bachelor of Science in Computer Science

## Research Interests

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My research interest spans all aspects of programming systems with the goal of improving software quality and programmer productivity. In particular,

- ▶ Sound, Scalable, & User-friendly Static Analysis [4, 2, 7, 8, 6, 9, 11, 10]
- ▶ Scalable Automated Program Generation [1, 12, 5, 3]

## Experience

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**Hanyang University**      Sep 2018 – present  
Assistant Professor

**University of Pennsylvania**      Jan 2017 – Aug 2018  
Post-doctoral Researcher  
Advisor: Prof. Mayur Naik

**Georgia Institute of Technology**      Mar 2016 – Jan 2017  
Post-doctoral Researcher  
Advisor: Prof. Mayur Naik

**University of California, Berkeley**      Jul 2012 – Nov 2012  
Visiting Student  
Advisor: Prof. Dawn Song

**Fasoo.com**      Jul 2010 – Aug 2010  
Intern

Advisor: Dr. Kyujin Cho

## Publications

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Author names annotated \* indicate co-first authorship for papers where multiple authors made equally significant contributions.

- [1] Kihong\* Heo, Woosuk\* Lee, Pardis Pashakhanloo, and Mayur Naik. Effective program debloating via reinforcement learning. In *Proceedings of the 2018 ACM SIGSAC Conference on Computer and Communications Security, CCS '18*, pages 380–394, New York, NY, USA, 2018. ACM.
- [2] Sulekha Kulkarni, Richard Zhang, Ximing Si, Kihong Heo, Woosuk Lee, and Mayur Naik. Beyond deductive methods in program analysis. 2018.
- [3] DongKwon Lee, Woosuk Lee, Hakjoo Oh, and Kwangkeun Yi. Optimizing homomorphic evaluation circuits by program synthesis and term rewriting. In *Proceedings of the 41st ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI 2020*, page 503–518, New York, NY, USA, 2020. Association for Computing Machinery.
- [4] Woosuk Lee. Improving the usability of static analyzers, 2016.
- [5] Woosuk Lee, Kihong Heo, Rajeev Alur, and Mayur Naik. Accelerating search-based program synthesis using learned probabilistic models. In *Proceedings of the 39th ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI 2018*, pages 436–449, New York, NY, USA, 2018. ACM.
- [6] Woosuk Lee, Hyunsook Hong, Kwangkeun Yi, and Jung Hee Cheon. Static analysis with set-closure in secrecy. In Sandrine Blazy and Thomas Jensen, editors, *22nd International Static Analysis Symposium*, pages 18–35, Berlin, Heidelberg, 2015. Springer Berlin Heidelberg.
- [7] Woosuk Lee, Wonchan Lee, Dongok Kang, Kihong Heo, Hakjoo Oh, and Kwangkeun Yi. Sound non-statistical clustering of static analysis alarms. *ACM Trans. Program. Lang. Syst.*, 39(4):16:1–16:35, August 2017.
- [8] Woosuk Lee, Wonchan Lee, and Kwangkeun Yi. Sound non-statistical clustering of static analysis alarms. In Viktor Kuncak and Andrey Rybalchenko, editors, *Verification, Model Checking, and Abstract Interpretation*, pages 299–314, Berlin, Heidelberg, 2012. Springer Berlin Heidelberg.
- [9] Woosuk Lee, Hakjoo Oh, and Kwangkeun Yi. A progress bar for static analyzers. In Markus Müller-Olm and Helmut Seidl, editors, *21st International Static Analysis Symposium*, pages 184–200, Cham, 2014. Springer International Publishing.
- [10] Hakjoo Oh, Kihong Heo, Wonchan Lee, Woosuk Lee, Daejun Park, Jeehoon Kang, and Kwangkeun Yi. Global sparse analysis framework. *ACM Trans. Program. Lang. Syst.*, 36(3):8:1–8:44, September 2014.

- [11] Hakjoo Oh, Kihong Heo, Wonchan Lee, Woosuk Lee, and Kwangkeun Yi. Design and implementation of sparse global analyses for c-like languages. In *Proceedings of the 33rd ACM SIGPLAN Conference on Programming Language Design and Implementation*, PLDI '12, pages 229–238, New York, NY, USA, 2012. ACM.
- [12] Xujie\* Si, Woosuk\* Lee, Richard Zhang, Aws Albarghouthi, Paraschos Koutris, and Mayur Naik. Syntax-guided synthesis of datalog programs. In *Proceedings of the 2018 26th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering*, ESEC/FSE 2018, pages 515–527, New York, NY, USA, 2018. ACM.

## Software

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I have contributed as a main developer to the following open-source software:

- ▶ Sparrow: a static analyzer for C program  
<http://www.github.com/ropas/sparrow>
- ▶ Euphony: a probabilistic model-guided program synthesizer  
<https://github.com/wslee/euphony>
- ▶ Chisel: A System for Debloating C/C++ Programs  
<https://chisel.cis.upenn.edu>

## Patents

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- ▶ Copyright information inserting system and method (Registration No. (date): 1010971040000 (12/15/2011))
- ▶ Electronic apparatus for determining whether program comprises malicious code and method for controlling thereof (Application No. (date): 10-2015-0055481 (04/20/2015))

## Academic Activities

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Program Committee (PC) members

- ▶ ESOP 2020: European Symposium on Programming
- ▶ PLDI 2019: 40th ACM SIGPLAN Conference on Programming Language Design and Implementation
- ▶ ICSE 2020 (Software Engineering in Practice track): 42nd International Conference on Software Engineering
- ▶ TAPAS 2020: 11th Workshop on Tools for Automatic Program Analysis

Reviwer

- ▶ IEEE Transactions on Software Engineering
- ▶ ACM Transactions on Programming Languages and Systems

## References

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