

<http://scw.tw/en>

## Education

**Ph.D., M.S., M.Phil.** Dept. of Computer Science, Yale University 2009.09 – 2015.11

**B.S.**, Double Major in Computer Science and Mathematics, National Taiwan University 2003.09 – 2007.06

## Experiences

**Senior Software Engineer, Google LLC.** 2018.10 – present

**Software Engineer, Google Inc.** 2015.12 – 2018.09

<https://www.google.com>

- 2019.04 – present: Led a team of 3 enabling software development for ARM within Google's workflow. With processor emulation, we allow 200+ unique users (90-day) to develop, test, debug, and continuously integrate ARM software in x86 development environment and production fleet. Added missing features and fixed bugs in QEMU and LLVM (more LLVM).
- 2015.12 – 2018.09: AdSense serving infrastructure. Merged two stacks totaled >6M QPS into the main stack, impacting >\$5B ARR. Re-implemented multiple business-critical features.

**Teaching Assistant, Yale University** 2010.08 – 2014.05

- Compiler and Interpreters (Fall 2010 & Fall 2012), Operating Systems (Spring 2011), and Formal Semantics (Fall 2011 & Fall 2013). All three are senior and graduate level courses.

**Software Engineer Intern, Google Inc.** 2010.05 – 2010.08

- Analyzed and constructed models based on historical data and applying the predictions in automated bidding agents. Project was later productionized handling multiple \$MM/month.

**Research Assistant under Prof. K. Chen, National Chungchi U.** 2006.02 – 2009.08

<http://www.cs.nccu.edu.tw/~chenk>

- Investigated the theoretical foundation of adding aspect-oriented programming to functional languages and implemented AspectFun based on Haskell. Involved techniques include type-directed program transformation and control flow static analysis [10, 12–14].

## Open Source Software Project Involvements

**LLVM** Committer; focus on AArch64 codegen fixes.

**QEMU** Contributor; focus on Linux user mode emulation features and bug fixes.

**pttbbs** Administrator. The largest telnet-based BBS in Taiwan. <http://ptt.cc>

## Publications

- [1] V. Sjöberg, Y. Sang, *S.-C. Weng*, and Z. Shao. “DeepSEA: A Language for Certified System Software,” in Proceedings of the ACM on Programming Languages Volume 3 Issue OOPSLA, October 2019: 84–110 (2019).

- [2] J. Hoffmann, A. Das, *S.-C. Weng*. “Towards automatic resource bound analysis for OCaml,” Proceedings of the 44th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2017): 359–373 (2017).
- [3] *S.-C. Weng*, “DeepSpec: Modular Certified Programming with Deep Specifications,” Ph.D. dissertation, 2016.
- [4] R. Gu, J. Koenig, T. Ramananandro, Z. Shao, N. Wu, *S.-C. Weng*, H. Zhang, and Y. Guo. “Deep Specifications and Certified Abstraction Layers,” in Proceedings of the 42th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL ’15): 595–608. New York, NY, USA, 2015. ACM.
- [5] T. Ramananandro, Z. Shao, *S.-C. Weng*, J. Koenig, and Y. Fu. “A Compositional Semantics for Verified Separation Compilation and Linking,” in Proceedings of the 4th ACM-SIGPLAN Conference on Certified Programs and Proofs (CPP ’15): 3–14. New York, NY, USA, 2015. ACM.
- [6] E. Syta, H. Corrigan-Gibbs, *S.-C. Weng*, D. Wolinsky, B. Ford, and A. Johnson. “Security Analysis of Accountable Anonymity in Dissent,” in ACM Transactions on Information and System Security 17(1): 4:1–4:35. New York, NY, USA, 2014. ACM.
- [7] A. Thomson, T. Diamond, *S.-C. Weng*, K. Ren, P. Shao, and D. J. Abadi. “Fast Distributed Transactions and Strongly Consistent Replication for OLTP Database Systems,” ACM Transactions on Database Systems 39(2): 11:1–11:39. New York, NY, USA, 2014. ACM.
- [8] A. Thomson, T. Diamond, *S.-C. Weng*, P. Shao, K. Ren, and D. J. Abadi. “Calvin: Fast Distributed Transactions for Partitioned Database Systems,” in Proceedings of the ACM SIGMOD International Conference on Management of Data (SIGMOD ’12): 1–12. New York, NY, USA, 2012. ACM.
- [9] A. Aviram, *S.-C. Weng*, S. Hu, and B. Ford. “Efficient System-Enforced Deterministic Parallelism,” in Communications of the ACM 55(5): 111–119. New York, NY, USA, 2012. ACM.
- [10] K. Chen, *S.-C. Weng*, J.-Y. Lin, M. Wang, and S.-C. Khoo. “Side-Effect Localization for Lazy, Purely Functional Languages via Aspects,” in Higher-Order and Symbolic Computation, June 2011: 1–39. Hingham, MA, USA 2011. Kluwer Academic Publishers.
- [11] A. Aviram, *S.-C. Weng*, S. Hu, and B. Ford. “Efficient System-Enforced Deterministic Parallelism,” in The 9th USENIX Symposium on Operating Systems Design and Implementation (OSDI ’10): 193–206. New York, NY, USA, 2009. ACM. **Jay Lepreau Best Paper Award.**
- [12] K. Chen, *S.-C. Weng*, M. Wang, S.-C. Khoo, and C.-H. Chen. “Type-Directed Weaving of Aspects for Polymorphically Typed Functional Languages,” in Science of Computer Programming 75(11): 1048–1076. Amsterdam, The Netherlands, 2010. Elsevier North-Holland, Inc.
- [13] K. Chen, J.-Y. Lin, *S.-C. Weng*, and S.-C. Khoo. “Designing Aspects for Side-Effect Localization,” in Proceedings of the 2009 ACM SIGPLAN workshop on Partial evaluation and program manipulation (PEPM ’09): 189–198. New York, NY, USA, 2009. ACM.
- [14] K. Chen, *S.-C. Weng*, M. Wang, S.-C. Khoo, and C.-H. Chen. “A Compilation Model for Aspect-Oriented Polymorphically Typed Functional Languages,” in Proceedings of the 14th international Symposium on Static Analysis (SAS ’07): 34–51. Berlin, Heidelberg, 2007. Springer Berlin Heidelberg.