Eric L Seidel

Software Engineer

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Work Experience

- **Bloomberg LP** — New York, NY
  Senior Software Engineer — *Aug. 2017 — Current*
  - Designed low-latency caching service of feature enablement flags with real-time updates over Apache Kafka.
  - Accelerated feedback cycle of oracle-testing system for DSL describing financial quotes.
  - Extended FORTRAN parser to support non-standard language features, enabling automated refactoring of legacy codebase.
  - Designed and maintained libraries and infrastructure for writing Haskell at Bloomberg.

- **UC San Diego** — La Jolla, CA
  Graduate Student Researcher — *Sep. 2012 — Aug. 2017*
  - Applied machine-learning techniques to improve type-error localization for Hindley-Milner type systems.
    * Outperforms other localization techniques on novice type-errors with only one semester of training data (E. L. Seidel, Sibghat, Chaudhuri, Weimer, and Jhala 2017).
  - Built tool to synthesize counter-examples to type errors.
    * Performs type-checking alongside execution, produces trace demonstrating how program gets stuck (E. L. Seidel, Jhala, and Weimer 2016).
  - Worked on LiquidHaskell, a refinement type-based verifier for Haskell.
    * Implemented efficient testing framework using refinement types to prune input search space (E. L. Seidel, Vazou, and Jhala 2015).
    * Verified memory safety and functional correctness of `Data.Text` library, discovered and fixed a memory bug in the process.

- **Bloomberg LP** — New York, NY
  Software Engineering Intern — *Jun. 2016 — Aug. 2016*
  - Worked on Haskell libraries to communicate with existing software infrastructure.

- **Galois, Inc.** — Portland, OR
  Software Engineering Intern — *Sep. 2014 — Dec. 2014*
  - Worked on symbolic verifier for Ivory, an EDSL for programming embedded systems.

Education

- **UC San Diego** — La Jolla, CA
  Ph.D. Computer Science — *2017*
  - Thesis: "Data-Driven Techniques for Type Error Diagnosis"

- **The City College of New York** — New York, NY
  B.S. Computer Science — *2012*

Open Source Contributions & Service

- Member of the GHC Steering Committee (2018 — Current).

- Served on the Haskell Symposium 2019 Program Committee.

- Contributed `HasCallStack`, a lightweight call-stack mechanism, to GHC.

Publications

- E. L. Seidel, R. Jhala, and W. Weimer (2018). "Dynamic witnesses for static type errors (or, Ill-Typed Programs Usually Go Wrong)". In: *J. Funct. Programming* 28

- E. L. Seidel (2017). "Data-Driven Techniques for Type Error Diagnosis". PhD thesis. UC San Diego

- E. L. Seidel, H. Sibghat, K. Chaudhuri, W. Weimer, and R. Jhala (Oct. 2017). "Learning to Blame: Localizing Novice Type Errors with Data-driven Diagnosis". In: *Proc. ACM Program. Lang.* 1.OOPSLA, 60:1–60:27

- E. L. Seidel, R. Jhala, and W. Weimer (2016). "Dynamic Witnesses for Static Type Errors (or, Ill-Typed Programs Usually Go Wrong)". In: *Proceedings of the 21st ACM SIGPLAN International Conference on Functional Programming*. ICFP 2016. Nara, Japan: ACM, pp. 228–242

- T. Elliott, L. Pike, S. Winwood, P. Hickey, J. Bielman, J. Sharp, E. Seidel, and J. Launchbury (2015). "Guilt free ivory". In: *Proceedings of the 8th ACM SIGPLAN Symposium on Haskell*. ACM, pp. 189–200

- E. L. Seidel, N. Vazou, and R. Jhala (2015). "Type Targeted Testing". In: *Programming Languages and Systems*. Springer Berlin Heidelberg, pp. 812–836

- N. Vazou, E. L. Seidel, and R. Jhala (2014). "Liquidhaskell: Experience with refinement types in the real world". In: *Proceedings of the 2014 ACM SIGPLAN symposium on Haskell*. ACM, pp. 39–51

- N. Vazou, E. L. Seidel, R. Jhala, D. Vytiniotis, and S. Peyton-Jones (2014). "Refinement types for haskell". In: *Proceedings of the 19th ACM SIGPLAN international conference on Functional programming*. ACM, pp. 269–282