Aaron B. Todd

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Work Experience

Symbiont.io, New York, NY *June 2016 - Present*
Lead Engineer

- Built foundational smart contract programming SDK distributed to clients and used by 40+ engineers internally.
- Designed core blockchain privacy model and cryptographic primitives, delivering implementation in Haskell.
- Set smart contract architecture for private equity, index data, fixed income, and mortgage servicing product lines.
- Technical and organizational contributions across nearly all subjects, from ops to application dev.

Bridgewater Associates, Westport, CT *Jan 2014 - April 2016*
Senior Software Developer

- Developed system for validating analytics platform changes against existing confidential logic.
- Built optimization algorithms for trade generation pipeline contributing to launch of Optimal Portfolio fund.
- Designed and implemented domain specific language for position aggregations used in three Scala projects, providing faster delivery and stronger correctness guarantees.

Mozilla, Mountain View, CA *Summer 2013*
Research Engineering Intern

- Implementing directly in Rust, added work stealing to the green thread runtime scheduler.

Education

B.A. in Computer Science, Grinnell College *May 2011*
M.S. in Computer Science, Indiana University Bloomington *May 2013*

- *Adviser Ryan Newton* Researched deterministic parallel programming working in Haskell, including a deterministic parallel merge sort published at PLDI 2014.
- *Adviser Beth Plale* Implemented REST API abstracting over compute resources in Scala, Akka and Spray for the HathiTrust Research Center.

Selected Patents & Publications

U.S. Patent 10320843B1: **"Methods, systems, and devices for encrypted electronic storage and confidential network transfer of private data through a trustless distributed ledger technology system"**, June 2019

U.S. Patent 10146792B1: **"Systems and methods for implementing a programming model for smart contracts within a decentralized computer network"**, December 2018

Kuper, L., Todd, A., Tobin-Hochstadt S., Newton, R.R. **Taming the Parallel Effect Zoo: Extensible Deterministic Parallelism with LVish** *PLDI '14*

Computer Skills

Scala, Python, Go, Haskell, Scheme, SQL, Rust, Google Cloud, Kubernetes, Docker, Terraform, CircleCI, Git