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Edward Z. Yang

Education

- **Stanford University** *PhD candidate*
- **Massachusetts Institute of Technology** *Graduating Class 2012*
  Candidate for Bachelor of Science in Computer Science. GPA 5.0/5.0.
- **University of Cambridge** *Cambridge-MIT Exchange 2010–2011*
  Computer Science Tripos / History and Philosophy of Science

Research

I am interested in functional programming languages and its associated technology (types, compilers, proof assistants). I am especially interested in bridging the gap between readability and speed by eliminating allocation, use of high level optimizing compilers, and basic research into the properties of persistent data structures.

- **MIT** *UROP, Fall 2011*
  Working with Adam Chlipala investigating the automatic caching of side effects in web programs.
- **Microsoft Research Cambridge** *Collaborator, Spring 2011*
  Worked on the new code generator backend for GHC, which included debugging existing compiler bugs, as well as designing and implementing a new single-use inlining optimization pass using the Hoopl dataflow analysis framework.
- **Galois, Inc.** *Intern, Summer 2010*
  Worked on symbolic interpretation and formal verification as part of Cryptol (a compiler for cryptographic algorithms). Designed and implemented Haskell bindings for ABC, a system for sequential synthesis and verification, and integrated this with the Cryptol. Investigated interactive querying of the SAT solver to avoid nontermination problems in the compiler. See also Presentations.
- **MIT** *UROP, Spring 2010*
  Implemented and analyzed the performance characteristics of hash-array mapped tries in MIT Scheme with Alexey Radul and Gerald Sussman, comparing them to Clojure's implementation as well as analogous functional data structures such as big-endian Patricia tries.

Teaching

- **Evolution of a Shared Web Host** *SIPB Cluedumps, Fall 2011*
  Single two-hour lecture discussing the technical details of setting up a distributed and highly-available shared hosting service. `http://blog.ezyang.com/2010/09/evolution-of-a-shared-web-host/`
- **Haskell Type Classes** *SIPB IAP, Winter 2010*
  Single two-hour lecture introducing audiences to the Functor, Applicative, Monad typeclass hierarchy and their attendant laws. Chalk talk.
- **Teaching Assistant** *Zombies drink caffeinated 6.001, Winter 2010*
  Gave recitations for an accelerated introductory class on the structure and interpretation of computer programs.
- **Introduction to Web Application Security** *SIPB IAP, Winter 2009*
  Single two-hour lecture discussing a type-oriented approach to understanding web application security. `http://mit.edu/~ezyang/Public/iap/intro-to-was.html`

Presentations

Yang, Edward. "abcBridge: Functional Interfaces for AIGs and SAT solving." Presented at Galois Tech Talks.

PROFESSIONAL

◇ **Jane Street** *Tech Intern, Summer 2011*
Implemented the distributed consensus algorithm Paxos and invented a novel algorithm for crash recovery in the case of catastrophic disk failure. Also improved asynchronous programming infrastructure, including fixing an important space leak.

PERSONAL

◇ **Societies** Member of Phi Beta Kappa.

◇ **Blog** I maintain a technical blog at `http://blog.ezyang.com/` where I frequently discuss topics related to my research interests.