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Edward Z. Yang

Education

- **Stanford University** *1st year PhD student*
- **Massachusetts Institute of Technology** *Class of 2012*
  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

My research combines my interest in functional programming languages and its associated technology (types, compilers, proof assistants), my knowledge and involvement with the open source software community, and my belief that systems must be designed for humans, and not slavishly follow the whims of computers.

- **Stanford** *Rotation, Fall 2012*
  Currently working on information flow control and designing new APIs for operating systems.
- **MIT** *UROP, 2011–2012*
  I built Logitext, an interactive textbook for teaching first-order propositional logic. I also worked with Adam Chlipala on the Bedrock project, an effort to bring low-level, foundational proofs in separation logic to the general purpose theorem prover Coq.
- **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.