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## Edward Z. Yang

- EDUCATION
- ◇ **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

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