

# Keith Schwarz

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## Education

**MS in Computer Science, Stanford University (2011)**

**BS in Computer Science, Stanford University (2011)**

Conferred with Distinction  
Minor in Mathematics

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## Work Experience

### **Lecturer, Department of Computer Science**

*September 2011 - , Stanford University*

Teaching introductory computer science courses and helping to increase the quality of computer science education worldwide.

### **Visiting Lecturer, CS143: Compilers**

*June 2011 - August 2011, Stanford University*

Taught a first course in the theory and practice of compiler design, covering scanning, parsing, semantic analysis, runtime environments, code generation, and optimization.

### **Designer and Instructor, CS106L: Standard C++ Programming Laboratory**

*September 2007 - December 2010, Stanford University.*

Created class syllabus, gave lectures, developed instructional materials, designed and graded assignments. Class explores standard C++ programming practice, including the C++ standard library and advanced C++ programming techniques. The course consistently received some of the highest evaluations of any course in the Stanford School of Engineering.

### **Software Engineer Intern**

*Summer 2010, Palantir Technologies.*

Designed and implemented a framework for storing Java objects in memory-mapped files, allowing large objects to be stored outside of main memory with a minimal performance hit. Augmented this system to store mutable objects persistently. Designed and implemented a library that allows code running in one JVM to create, modify, and access Java objects on a different JVM. Wrote a JVM plugin to track object allocation via the MBean interface.

### **CURIS Research Student**

*Summer 2009, Stanford University. Advisor: Prof. Alex Aiken.*

Developed an algorithm for statically determining whether a program is memoryless; whether its behavior depends only on a finite-length computation history.

### **Platform Intern**

*Summer 2008, Mozilla Corporation.*

Implemented the `-moz-transform` CSS property, allowing web developers to apply affine linear transformations to HTML elements. Developed an algorithm to `const-correct` C++ source code. A demo of `-moz-transform` (viewable in Firefox 3.5+) can be found at <http://www.keithschwarz.com/mirror.html>.

## Invited Talks

### Panelist at “Nifty Assignments,” SIGCSE Symposium 2011

Presenting assignment “Evil Hangman,” in which students write a program that cheats at Hangman by adaptively dodging the player's guesses.

### Interview on BBC Radio 5's *Outriders* Program, November 22, 2011

Describing the “Archive of Interesting Code,” a personal project to research and implement interesting algorithms and data structures.

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## Honors and Awards

### George Forsythe Memorial Award (*Stanford University, 2010*)

Awarded for excellence in student teaching.

### Siebel Scholar, Class of 2011

Awarded annually for academic excellence and demonstrated leadership to 80 top students from the world's leading graduate schools.

### Henry Ford II Scholar (*Stanford University, 2010*)

Awarded for having the highest GPA of any senior in the School of Engineering.

### Frederick Emmons Terman Award (*Stanford University, 2010*)

Awarded for having a GPA in the top 5% of the School of Engineering

### Honorable Mention, Boothe Prize for Excellence in Writing (*Stanford, 2007*)

For essay “Eminent Domain and Antitrust: A Proposal to Remedy Kelo's Excess” detailing how antitrust law can be applied to eminent domain jurisprudence.

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## Projects

### CS106L Course Reader

<http://www.keithschwarz.com/coursereader.pdf>

An introduction to the C++ programming language aimed at Stanford undergraduates.

### +script

<http://www.keithschwarz.com/+script/>

An implementation of the Java Virtual Machine written in JavaScript.

### Archive of Interesting Code

<http://www.keithschwarz.com/interesting/>

A project to research, understand, and implement interesting algorithms and data structures.

### tmplite

<http://www.keithschwarz.com/tmplite/>

A Haskell-like programming language that cross-compiles into C++ template metaprograms.

### strain

<http://www.keithschwarz.com/strain/>

A lexer generator in the spirit of GNU `flex`.

### kleene

<http://www.keithschwarz.com/kleene/>

A utility to create self-referential C++ programs using Kleene's Second Recursion Theorem.