

# Todd Sullivan

1215 Dexter Ave N #216  
Seattle, WA 98109  
816-868-2051

todd.sullivan@cs.stanford.edu  
www.daysignmedia.com

## Education:

### Stanford University *4.0 GPA*

**Master of Science in Computer Science** 2007 – 2009  
**Specialization in Artificial Intelligence**

### University of Missouri-Columbia *4.0/4.0 GPA*

**Bachelor of Science in Computer Science** 2004 – 2007 *4.0 Major GPA*  
**Honors Research Scholar**  
**Bachelor of Science in Mathematics** 2004 – 2007 *4.0 Major GPA*

## Honors and Awards:

### Nationally Competitive

**National Defense Science and Engineering Graduate (NDSEG) Fellow** 2007 – 2010  
**Phi Kappa Phi Fellowship Award of Excellence** 2007

### University of Missouri-Columbia

**Mizzou '39** 2007

One of the top 39 seniors at MU as chosen by the Mizzou Alumni Association based on academic achievement, leadership, and service.

**E. W. Mares and Dr. Kenneth R. Mares Scholarship and Academic Award** 2006

Undergraduate award recognizing research excellence in the sciences, social sciences, and the humanities.

**Outstanding Student Award – Computer Science** 2006, 2007

One of two awarded juniors (2006) and only awarded senior (2007) as voted by the Computer Science Faculty.

**Curtis L. Benton and Barbara Kortright Benton Scholarship - Finalist** 2006

Award for students who have demonstrated, through actual applications, the ability to create practical solutions to real problems.

## Experience:

**Software Development Engineer, Learning Machines group, Amazon Inc.** September 2009 – Present  
*Technologies: Ruby on Rails, Java, MySQL, JavaScript, CSS, XHTML, Amazon Web Services*

The Learning Machines group, also known as the "Reading Experience" team, owns the kindle.amazon.com website and is responsible for the popular highlights and sharing features on the Kindle.

- Sole developer for the sharing features on the Kindle. Primary developer of server-side portion.
- Cover a wide range of responsibilities including Kindle device work, backend service development, and web development. Active in projects from concept through production deployment.

**Natural Language Processing Consultant for PowerReviews Inc.** June 2008 – March 2009

*Technologies: Hadoop (MapReduce), Amazon EC2/S3, WordNet, Dependency Trees, Entity Recognition, Java*

- Single-handedly designed, developed, tested, and deployed a system that extracts pros and cons from product review text for millions of product reviews spanning thousands of product categories.
- Sole designer and developer of a system for spawning and managing Hadoop clusters on Amazon EC2 (including submitting arbitrary jobs and managing multiple clusters at the same time) through a simple, intuitive Java API.

### Automated Reasoning Applications at Stanford

- Led a team of 7 engineers in building a robotic assistance system for changing lanes on highways.
  - Sole architect/developer of the car detection and tracking subsystem.
  - Primary author of the paper in the proceedings of the AAAI 2010 Spring Symposium.
- Led a team of three in creating a propositional satisfiability solver.
  - Fastest solver out of 7 teams.
- Developed, in a team of three, a constraint satisfaction problem solver for solving crossword puzzles.
  - Sole architect/programmer except on AC3 and forward checking which were pair programmed.
  - Fastest solver out of 7 teams.
  - 10 times faster than 2<sup>nd</sup> place team.
- Created a job shop scheduler using temporal slack heuristics and multiple constraint propagation methods.
- Implemented the general purpose STRIPS planner Identidem in a team of two.
  - Designed the best planning domain out of 7 teams.
- Tech Lead in a team of three that created a system for navigating a quadruped robot over uneven terrain.
  - 2<sup>nd</sup> place out of 14 teams.
  - 1 of only 2 teams that could consistently navigate the hardest terrain difficulty.

### **Natural Language Processing Research and Applications at Stanford**

- Created multiple systems for predicting the pros and cons that a reviewer tagged for a product based on the reviewer's rating, location, review text, submission time/day, and other information. Used maximum entropy classifiers, support vector machines, naïve Bayes, and combinatorial search.
- Led a team of three in creating a system for predicting the geographical region that speakers live in from audio-based product reviews. Sole creator of the context-dependent Gaussian Mixture Models.
- Collaborated in a group of three to design, develop, and evaluate a Java software package (GARI) for automatic relationship induction using learned syntactic patterns by generalizing R. Snow's technique for automatic hypernym discovery to work with any word relationship in a plug-and-play manner.
- Developed, through studies at Stanford, many language models, a machine translation system, acoustic speaker identification system, CKY Penn Treebank parser, and a maximum entropy sequence classifier for labeling proteins, DNA, RNA, cell lines and other biological entities in text.

**YabbleBabble** *November 2004 – August 2007 (Sold August 9, 2007)*

<http://www.yabblebabble.com> (Archive of August 2007 site)

*Technologies: PHP, MySQL, JavaScript, CSS, XHTML*

YabbleBabble was an e-commerce company that allowed crafters and artists to sell their products online.

- Founder. Conceived, designed, and developed the entire e-commerce system.
- Managed the group of 150+ crafters and artists that sold 1,500+ products through the service.
- Managed the day-to-day operations of providing customer support, marketing, and ensuring the prompt shipment of all orders.

**GPGPU Research under Prof. Chi-Ren Shyu** *February 2007 – May 2007*

*Technologies: GPGPU, BrookGPU, Cg, C++, Java*

Led a four-person team in converting a portion of IPSA, a Java-based protein structure comparison algorithm, for GPU processing that included profiling IPSA and developing prototypes for the GPU-based IPSA section.

- Designed, developed, and evaluated the profiler, Java-C++ interaction, and GPU-based section.
- GPU-based IPSA section was 9.828 times faster than its Java-based counterpart.

**Honors Undergraduate Research under Prof. Yi Shang** *June 2006 – May 2007*

*Technologies: TinyOS, OPEN-R, Tekkotsu, Java, C++, nesC, MySQL*

- Independently integrated a wireless sensor network with a network of Sony AIBOs.
- Created a server that facilitates message transfers and sensor queries.
- Developed a database logging utility for archival data analysis and storage of state histories.
- Built demonstration programs that run on the Sony AIBOs.

**University of Missouri-Columbia Engineering Entrepreneurs** *June 2006 – May 2007*

- Founder and President.
- Provided overall direction, facilitated all activities, and delegated responsibilities to members.
- Obtained campus-recognized student organization status and grew membership to 125+ students.
- Developed the organization's constitution, bylaws, and website.

**FIRST Lego League Head Team Coach** *August 2006 – January 2007*

- Taught children to construct and program robots using LEGO Mindstorms NXT technology.
- Guided children in the research and presentation process for the challenge.

**DaySign: Freelance Website and Multimedia Development** *July 2002 – August 2005*

*Technologies: Flash (Actionscript), PHP, MySQL, JavaScript, CSS, XHTML, Sony Sound Forge, Sony Acid*

Created websites, concept designs, e-commerce systems, and more. The following is a select list of projects:

- Designed and created a unique Flash-based e-commerce system for Lu Lu Josephine Clothing Company of Kansas City, Missouri.
- Designed and developed business and fan-based model portfolio websites for Christina Helton.
- Created a concept design for the Kharis Clothing e-commerce website (Atlanta, Georgia).
- Lead developer in a team of six people that created and maintained the Park Hill High School website.
  - Independently designed and managed the overall website structure, Future Business Leaders of America, cheerleading, girls' basketball, and 2004 state champions football websites.
- Composed and sold two electronic music CDs under the artist name Cycle Music.
  - Developed the website, the content on the CDs, and the extra content on the CD cases.
- Founded and managed a LAN party group that regularly held events with 40+ participants.
- Developed PorkChOps.net, a community for Park Hill High School students that included games, an instant messenger, and other Flash applications.
- Created the website and infrastructure for Welsch Enterprises' The Tassel Is Worth The Hassel program that allowed the St. Joseph School District in St. Joseph, Missouri to sell personalized products for each school.
- Created the website and managed the community for the 2002 Kansas City People to People Student Ambassador delegation to Australia and New Zealand. Was also a 2002 delegate.

---

To view academic transcripts, degrees, research projects, multimedia portfolio, and more, visit my website.

Todd Sullivan

816-868-2051

todd.sullivan@cs.stanford.edu

www.daysignmedia.com