

Prateek Tandon

3760 South Figueroa St, #504
Los Angeles, CA 90007

E-mail: tandonp@usc.edu
Mobile: 408-891-0290

Perm Address: 21192 Maria Lane
Saratoga, CA 95070

Objective:

Interdisciplinary research in fields of artificial intelligence, computational neuroscience, robotics and machine learning. Experience in multi-agent systems, natural language processing, and accessibility.

Education

University of Southern California, Los Angeles, CA. Expected Graduation: June 2010

- Majoring in Computer Engineering/Computer Science with Engineering Honors
- Engineering GPA 3.9, Cumulative GPA 3.9. On Dean's List in all semesters.
- Recipient of USC Presidential, Alumni, Langston and Moore Scholarships.
- Recipient of a USC Merit Research Scholarship.
- Recipient of a Vice Provost Fellowship for USC Brain Project.

Monta Vista High School, Cupertino, CA. Graduated: June 2006

- Final GPA: 4.3 weighted, 3.8 unweighted

Computer Skills

- Excellent software skills – Java, C, C++, PHP, ASP/Visual Basic, Flex, AJAX/Javascript, MySQL, Prolog, HTML/CSS, Perl, Python, Verilog, LISP, Scheme, CLIPS.
- Robotic/AI Frameworks: PlayerStage, Gazebo, OpenCV, SOAR, WordNet, StanfordPOS, WEKA Machine Learning Toolkit, Oztop Arm Simulator, Microsoft Robotics Studio.
- Extensive web experience building databases, websites, and facebook applications

Professional Experience:

Undergraduate Researcher, USC TeamCore Group September 2008 – present

- Researcher on the USC Landroids Project (<http://teamcore.usc.edu/maaf/>) to deploy Distributed Constraint Optimization Algorithms (DCOP) on robots in a mesh network.
- Used decision tree analysis to determine suitability of DCOP algorithms for different graph structures in the network. This technique was published as part of group workshop paper at IJCAI AI Conference 2009.
- Implemented DCOP algorithms on a robotic network of 5 iCreates hardware. Collaborated with USC Wireless Sensing Lab to explore network metrics for optimization by DCOP. Paper submitted to the Infocom Conference on Computer Communications.
- Working to determine whether k=2 DCOP algorithms can yield benefits on a robotic sensor network. Expected submission by January 2011.

Undergraduate Researcher, USC Brain Project, January 2009 – present

- High level research goal: Extend computational models of the mirror system to understand how the brain processes one's own tool use as well as understands the tool use of others. Use this knowledge to improve robotic tool use.
- Working on senior thesis "A Robotic Controller for Hammering Task" - teaching a robotic arm to use a hammer to drive a nail into a board. Drawing from motor control and fMRI studies of human tool use.
- Built a reinforcement learning implementation of the task. Making my model more realistic in relation to the human arm. From the robotics side, working with visual processing and manipulation techniques to prototype the hammering task on a Lynxmotion AL5D robot arm.

Student Associate in Artificial Intelligence, SRI International, Menlo Park. June 2008 – August 2008

- Created several java components for the DARPA-sponsored CALO project in the general area of applying artificial intelligence techniques to the problem of information overload and personal information management.
- Built natural language processing algorithms to extract named entities and create summaries of informal text bodies.

Intern, Network Management Technology Group, Cisco Systems, San Jose. June 2007 – August 2007

- Wrote java servlet software to create an API for third party extensions to Cisco Monitor Director product.
- Created user interface mockups in Flex for next version of Cisco Monitor Manager product.
- Helped team resolve backend and user interface bugs.

Intern, Stanford Institute for the Quantitative Study of Society (SIQSS). June 2004 – August 2006

- Built a bibliographic database system to electronically manage academic citations. Wrote a parser to convert bibliographic citations in text format to EndNote format.
- Designed and built the new SIQSS website in a paid internship (SIQSS.com).

Extra-Curricular Activities:

Executive Director, Project:Possibility, September 2007 – Present

- Helping grow open source society of 20-50 active developers to develop software for persons with disabilities (www.projectpossibility.org).
- Project:Possibility team won the **First Prize** at the **USC Student Innovator Showcase 2008**

(http://stevens.usc.edu/programs_conferences_showcases.php).

- Built integrated word prediction system to help people with limited mobility generate text on a computer. Novel features: (A) Baseline english language model was generated from wikipedia to ensure maximum predictive capability (B) Learns from a person's word use so can pick up their language patterns.
- Built binary input video game playable by a person with limited mobility.

Vice Chair and Founding Officer, Association for Computing Machinery, USC Chapter, September 2006 - Present

- Helped restart the ACM Chapter at USC to provide a forum for anyone interested in computer science.
- ACM was **nominated for Engineering Student Organization of the Year in 2008 and 2009.**
- Organized SS.12, a programming contest to develop software for people with disabilities (see: ss12.info).
- Organized a programming contest to develop software for the one laptop per child platform (see codeforacause.net).
- Organized a programming contest to develop software for leading mobile platforms (see hackathon.info)

Website Coordinator, Parkside Area Government. September 2006 – May 2008

- Facilitated web communication between Parkside residents and Area Government (scf.usc.edu/~pirc).
- Built and operated Parkside Weekly, a newsletter system that utilizes Google Calendar APIs to send weekly updates regarding events to a 600+ member residential community.
- Deployed software for an ambitious student-run calendar of USC events (Troyspace.org).

Database Design Consultant, U.S. Coast Guard. June 2007

- Designed and implemented an ASP database solution to aggregate and manage data across hospitals. Receptior of Coast Guard commendation and service token.

Team Captain, Monta Vista High School Speech & Debate Club

- Served as captain of my high school debate squad. Won "Most Valuable Debater" award during senior year.
- Created online evidence database for circulation of debate material to Speech and Debate team.

Member, Topcoder.com

- Actively competed in TopCoder contests. Built application components in development and design contests.

Honors and Awards:

- USC Google All Nighter – Created a game that won "Most Fun" award (February 2008).
- USC P.24 Contest - Won "Best Use of Theme" award in 24 hour programming contest (April 2007)
- ACM Regional Programming Contest – Placed in the top third of 73 teams for two years (November 2006, 2007)
- USC Programming Contest – Placed 9th overall (April 2007).

Publications:

- Matthew Taylor, Manish Jain, Prateek Tandon, Milind Tambe. Using DCOPs to Balance Exploration and Exploitation in Time-Critical Domains. Distributed Constraint Reasoning Workshop at IJCAI 2009.
- Marcos A. M. Viera, Matthew E. Taylor, Prateek Tandon, Manish Jain, Ramesh Govindran, Gaurav Sukhatme, Milind Tambe. A Distributed Reasoning Approach to Mobile Mesh Network Optimization. [Submitted for review, InfoCom Conference on Computer Communications 2010]

Personal: Male, 21 years, U.S. citizen. References available on request.