

## Christopher H. Brooks

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Computer Science Department  
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### Research Interests:

Data and Web Mining, Multiagent Systems, Service Learning and Social Impact of Technology, Distributed Systems, Information Economics, Machine Learning, Peer-to-peer Architectures.

### Education:

- Ph.D. Computer Science and Engineering, University of Michigan  
Emphasis on Artificial Intelligence. August, 2002  
Advisor: Edmund H. Durfee  
Thesis: "Niche Formation and Efficient Learning of Consumer Preferences in a Dynamic Information Economy."
- M.S. Computer Science - San Francisco State University. May 1997.  
Thesis: "DOTS: A Distributed Online Testing System."
- B.A./J.B.A. English and Journalism - University of Wisconsin, May, 1991. (cum laude).

### Professional Experience:

- August 2002-present: Assistant Professor, University of San Francisco.
- May 1998-August 2002: Graduate Student Research Assistant, University of Michigan.
- January, 1998 - May, 1998: Graduate Student Instructor, University of Michigan: Taught Introduction to Programming Systems.
- August, 1997 - January, 1998: Graduate Student Instructor, University of Michigan: Taught Introduction to Artificial Intelligence.
- May, 1996 - August, 1997: Research Assistant, Lawrence Berkeley National Laboratory. Worked on DPSS, a high-performance distributed storage system, and implemented JAMM, a set of agents for maintaining the DPSS.
- January, 1995 - August, 1996: Instructor, San Francisco State University. Taught and administered Introduction to UNIX.
- January, 1994 - December, 1994: Teaching Assistant, San Francisco State University. Taught Introduction to UNIX.

### **Significant Projects:**

**Slashpack:** For the past two years, my students and I have been developing Slashpack (Semi-Large Scale Hypertext Package), a Python-based toolkit for collecting, storing and processing hypertext data. Slashpack has been used to collect web pages, blogs, files, and research papers from the Web. A notable application built on top of Slashpack is CitePack, a tool for autonomous discovery of Web-based research material.

**Tag Analysis:** We have also used Slashpack to conduct research into better techniques for annotating and describing blogs. As a part of Nancy Montanez' thesis work, we have developed techniques for characterizing the usefulness of a particular tag in describing a blog entry, as well as algorithms for suggesting particular tags based on the content of the blog and its similarity to other blogs.

**Community Connections:** For the past four years, I have directed Community Connections, a service-learning project within the Computer Science department. Community Connections has provided technology-oriented service-learning opportunities for over 100 USF students, both in San Francisco and on our yearly immersion trip to Tacna, Peru. Through Community Connections, USF students have set up and maintained computer labs, taught classes, developed course materials, upgraded and configured servers, and designed and deployed databases and websites.

### **Awards and Honors:**

- Campus Compact Carnegie Foundation Faculty Fellow, 2007. This is a two-year, competitively awarded stipended position to help develop curricula and strategies for encouraging political engagement in service-learning.
- Applied for an NSF CCLI grant: "Incorporating Practical Programming Projects into Undergraduate AI Education" (in process as of May 2007. Amount: \$148,728)
- USF Faculty Development Fund award for travel to the 2007 International Conference on Autonomous Agents and Multiagent Systems.
- USF Faculty Development Fund award for travel to the 2007 Engineering Projects in Public Service conference.
- University of San Francisco Faculty Service-Learning Award, 2006
- USF Faculty Development Fund award for travel to the 2006 World Wide Web Conference (WWW-2006).
- USF Faculty Development Fund award for travel to the 2006 American Association for Artificial Intelligence Conference.
- USF Faculty Development Fund award for travel to the 2005 International Conference on Autonomous Agents and Multiagent Systems.
- USF Faculty Development Fund award for travel to the First International Conference on Technology, Knowledge and Society, 2005.
- USF Jesuit Foundation Grant of \$5,000 for support of Community Connections.
- USF Faculty Development Fund award for travel to the 2004 World Wide Web Conference (WWW-2004).
- Fund for the Improvement of Postsecondary Education (FIPSE) grant. \$55,000. Received in 2003 for support of Community Connections.
- USF Faculty Development Fund award for travel to the 2003 ACM Electronic Commerce conference.
- USF Jesuit Foundation Grant of \$5,000 for support of the 2003 Peru Immersion.
- USF Faculty Development Fund award for travel to the 2003 International Conference on Autonomous Agents and Multiagent Systems.
- Graduate Assistance in Areas of National Need (GAANN) Fellowship recipient, 2001-2002.
- National Science Foundation Graduate Fellowship - Honorable Mention 1996 and 1997
- National Merit Scholar, 1987-1991.

### **Highly Refereed Publications:**

Christopher H. Brooks and Nancy Montanez. Improved Annotation of the Blogosphere via Autotagging and Hierarchical Clustering. *Proceedings of the 15th World Wide Web Conference (WWW06)*, Edinburgh, Scotland, May 2006.

Christopher H. Brooks and Edmund H. Durfee. "Congregation Formation in Multiagent Systems." *The Journal of Autonomous Agents and Multiagent Systems* 7, pp. 145-170, 2003.

Christopher H. Brooks and Edmund H. Durfee. Using Landscape Theory to Measure Learning Difficulty for Adaptive Agents. "Adaptive Agents and Multi-Agent Systems", Lecture Notes in Artificial Intelligence, Springer-Verlag, 2003.

Christopher H. Brooks, Robert S. Gazzale, Jeffrey K. MacKie-Mason, and Edmund H. Durfee. "Improving Learning Performance by Applying Economic Knowledge." (poster abstract). *Proceedings of the ACM Conference on Electronic Commerce (EC-03)*, August, 2003.

Christopher H. Brooks, Robert S. Gazzale, Rajarshi Das, Jeffrey O. Kephart, Jeffrey K. MacKie-Mason and Edmund H. Durfee. "Model Selection in an Information Economy: Choosing What to Learn." *Computational Intelligence*, 18(4), November 2002.

Christopher H. Brooks and Edmund H. Durfee. "Congregating and Market Formation." *Proceedings of the First International Joint Conference on Autonomous Agents and Multiagent Systems*, pp. 96-103, July, 2002.

Jeffrey O. Kephart, Christopher H. Brooks, and Rajarshi Das. "Pricing Information Bundles in a Dynamic Environment." *Proceedings of the 3rd ACM Conference on Electronic Commerce*, pp. 180-190. October, 2001.

Christopher H. Brooks, Edmund H. Durfee and Rajarshi Das. "Price Wars and Niche Discovery in an Information Economy." *Proceedings of the 2nd ACM Conference on Electronic Commerce*, pp. 95-106, October, 2000.

Christopher H. Brooks, Edmund H. Durfee and Aaron Armstrong. "An Introduction to Congregating in Multiagent Systems." *Proceedings of the Fourth International Conference on Multiagent Systems (ICMAS-2000)*, pp. 79-86, July, 2000.

Christopher H. Brooks, Scott Fay, Rajarshi Das, Jeffrey K. MacKie-Mason, Jeffrey O. Kephart and Edmund H. Durfee. "Automated Strategy Searches in an Electronic Goods Market: Learning and Complex Price Schedules." *Proceedings of the 1st ACM Conference on Electronic Commerce*, pp. 31-40, November, 1999.

Brian Tierney, William Johnston, Brian Crowley, Gary Hoo, Chris Brooks, Dan Gunter. "The NetLogger Methodology for High Performance Distributed Systems Performance Analysis," Proceeding of IEEE High Performance Distributed Computing conference ( HPDC-7 ), July 1998, LBNL-42611.

### **Edited Collections:**

Christopher H. Brooks, Athula Ginige, and David Wolber. *Proceedings of the 2006 International Conference on Web Engineering*. 2006, ACM Press.

### **Refereed Publications:**

Christopher H. Brooks, Yeh Fang, Ketaki Joshi, Papanii Okai, and Xia Zhou. Citepack: An Autonomous Agent for Discovering and Integrating Research Sources. *Proceedings of the AAAI 2007 Workshop on Information Integration on the Web* (to appear), Vancouver, CA, July, 2007.

Christopher H. Brooks, Monica Agarwal, Jason Endo, Ryan King, Nancy Montanez, and Rudd Stevens. Slashpack: An Integrated Toolkit for Gathering and Filtering Hypertext Data (poster) *Proceedings of the 21st National Conference on Artificial Intelligence (AAAI-06)*, Boston, MA, July, 2006.

Christopher H. Brooks and Nancy Montanez. An Analysis of the Effectiveness of Tagging in Blogs. *Proceedings of the 2005 AAAI Spring Symposium on Computational Approaches to Analyzing Weblogs*. Stanford, CA, March 2006.

David Wolber and Christopher H. Brooks, Associative Sources and Agents for Zero-input Publishing (poster), *Proceedings of the 13th World Wide Web Conference (WWW04)*, New York City, May, 2004.

Christopher H. Brooks, Robert S. Gazzale, Jeffrey K. MacKie-Mason and Edmund H. Durfee. Improving Learning Performance by Applying Economic Knowledge. AAMAS-03 Workshop on Agent-Mediated Electronic Commerce V (AMEC-V). August, 2003.

Christopher H. Brooks and Edmund H. Durfee. "Congregating and Market Formation." *Proceedings of the AAAI 2002 Spring Symposium on Collaborative Learning Agents*. March, 2002.

Christopher H. Brooks, Rajarshi Das, Jeffrey O. Kephart, Jeffrey K. MacKie-Mason, Robert S. Gazzale and Edmund H. Durfee. "Information Bundling in a Dynamic Environment" *Proceedings of the 2001 IJCAI Workshop on Economic Agents, Models and Mechanisms*. August, 2001.

Christopher H. Brooks, Rajarshi Das, Jeffrey O. Kephart, Jeffrey K. MacKie-Mason, Robert S. Gazzale and Edmund H. Durfee. "Information Bundling in a Dynamic Environment." presented at the 7th International Conference of the Society for Computational Economics, Yale University, June 2001.

Christopher H. Brooks and Edmund H. Durfee. "Decision-theoretic Learning of Agent Models in an Information Economy." *Proceedings of the 2001 AAAI Spring Symposium on Game-theoretic and Decision-theoretic Agents*, March, 2001.

Christopher H. Brooks and Edmund H. Durfee. "Automated Learning of Pricing and Bundling Strategies in Information Economies." (poster). *Proceedings of the National Conference on Artificial Intelligence*, pp. 1066, August, 2000.

Christopher H. Brooks and Edmund H. Durfee. "Toward Automated Pricing and Bundling of Information Goods." *AAAI Workshop on Knowledge-based Electronic Markets*, pp. 8-13, August, 2000.

Christopher H. Brooks and Edmund H. Durfee. "Congregation Formation in Information Economies." *AAAI Workshop on Artificial Intelligence in Electronic Commerce*, pp. 62-68, July, 1999.

### **Invited Presentations:**

“Student and Community Leadership as a Model for Sustainable Service-Learning” EPICS 2007 Conference, San Diego, California, May 22-24, 2007.

“Community Connections: Leaders Bridging the Digital Divide” (with Julie Reed and Nancy Montanez) Western Region Campus Compact Consortium’s Ninth Annual ‘Continuums of Service’ Conference, Bellevue, Washington, April 20, 2006.

“Lessons Learned in Bridging the Digital Divide via Service Learning”, First International Conference on Technology, Knowledge and Society. University of California, Berkeley, February 19, 2005.

### **Workshops:**

Attended the NSF Workshop on Multi-agent Computation in Natural and Artificial Economies, Brookings Institution, October 2001. (By invitation)

Attended the 2001 AAI Doctoral Consortium, August 2001. (Accepted by competitive selection.)

Attended the 2001 Santa Fe Institute Graduate Workshop on Computational Economics, July, 2001. (Accepted by competitive selection)

Attended the First European Agent Systems Summer School, July, 1999.

### **Teaching Experience:**

#### **At USF:**

- **CS 662: Introduction to Artificial Intelligence Programming** Fall 2003, Fall 2004, Fall 2005, Fall 2006, Fall 2007.
- **CS 682: Distributed Software Development** Spring 2005, Spring 2006, Spring 2007
- **CS 107: Computing, Robots and Python** Fall 2006, Spring 2007, Fall 2007.
- **CS 480: Computers and Society** Spring 2004, Spring 2006
- **CS 112: Introduction to Programming II** Spring 2005, Fall 2005
- **CS 345: Programming Language Paradigms** Fall 2002, Fall 2003, Fall 2004
- **CS 245: Data Structures and Algorithms** Spring 2004
- **CS 486: Special Topics: Software Agents and Electronic Commerce** Spring 2003
- **CS 490/690 Senior Project/Master’s Project** Fall 2002, Spring 2003.

#### **Projects and Independent Studies Supervised at USF:**

- Nancy Montanez, 2006. Investigating the efficacy of tags as an annotation mechanism for blogs.
- Yeh Fang, Xia Zhou, Ketaki Joshi, Li Lin, Ryan King, Summer 2006. Construction of CitePack, a system for autonomus discovery of research sources.
- Iman Sadreddin, Spring 2006. Using clustering techniques to auomatically categorize email.
- Paul Aoun, Fall 2005. Development of Web service layers for reliability and transactional semantics.
- Rudd Stevens, Jason Endo, Monica Agarwal, Summer 2005. Construction of Slashpack, a toolkit for collecting and processing hypertext documents.

- Jia Zheng, Fall 2004. Investigation of Vickrey auctions as a mechanism for resource allocation.
- Colin Bean, Summer 2004. Porting of Prisoner's Dilemma simulator to MPI for deployment on the Keck Cluster.
- Vaishali Kalonia, Spring 2004. Development of a simulation engine for Prisoner's Dilemma tournaments on small-world networks.
- Sherman Yang, Fall 2004. Implementation of Support Vector Machine learning algorithm in Python.
- Annie Lin, Jason Endo. Fall 2004. Development of an automated ticketing system for tracking community partner service requests.
- Sujatha Rangan. Summer 2003. Development of a web-based tool for editing video from the Internet Archive.
- Matthew Garrison. Spring 2003. Port of code for simulating information economies to C++.

#### **At San Francisco State University:**

- Introduction to UNIX 1994-1997. Completely responsible for a self-paced class of approximately 200 students, including grading, test design, software development and teaching.
- Introduction to Java 1996. Designed and taught a six-week introduction to Java course.

### **Service**

#### **Professional Service**

- Program Committee member for CAEPIA - The 12th Conference of the Spanish Association for Artificial Intelligence.
- Publicity Chair and Webmaster for the 2007 International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2007).
- Program Committee member for the 2007 International Conference on Web Engineering (ICWE 2007)
- Program Co-chair for the 2006 International Conference on Web Engineering (ICWE 2006).
- Program Committee member for the 2007 and 2008 International Conference on Weblogs and Social Media.
- Program Committee member for the 2006 World Wide Web Conference (WWW 2006).
- Program Committee member for AAMAS, 2002-2006.
- Program Committee member for the ACM Conference on Electronic Commerce, 2002-2007.
- Program Committee member for the Agent Mediated Electronic Commerce workshop, 2002-2007.
- Reviewed for the following journals:
  - Computational Intelligence
  - Marketing Science
  - Journal of Autonomous Agents and Multiagent Systems
  - IEEE Transactions on Systems, Man, and Cybernetics
  - Journal of Web Engineering

#### **Service to the University**

- Summer Advising, 2002-2007.
- Presented department overview to incoming freshmen, 2006, 2007.
- University Information Technology Committee (UITC), 2004-2007.
- UITC Learning Technologies subcommittee, 2006, 2007.
- Dean's Medal Committee, 2004-2007. (Chair: 2007)
- Service Learning Committee, 2003-2007.

- Retired Computer Allocation Committee, 2005-2007.
- Attended Commitment to Justice in Higher Education conference, 2005.
- Director, Community Connections Service-Learning Program, 2003-2007.

#### **Service to the CS Department**

- Helped develop Internet Engineering program, 2004-2007.
- Attended Major/Minor Fair, 2003-2005
- Offered New Graduate Student Orientation (with T. Parr), 2006, 2007.
- Undergraduate and Graduate Student Advising, 2002-2007.
- Faculty Search Committee, 2005.

#### **Theses supervised**

- Nancy Montanez. "An Analysis of the Efficiency of Tagging in the Blogosphere." 2007 (expected).

#### **Memberships:**

AAAI, ACM.

#### **Languages:**

Proficient in Python, C/C++, Lisp/CLOS, Java, Unix, Perl, Matlab.  
Familiar with Prolog, Objective C, Smalltalk, Soar.