Jussara Marques de Almeida

jussara@cs.wisc.edu
http://www.cs.wisc.edu/~jussara

Work Address

Department of Computer Science
University of Wisconsin, Madison
Madison, Wisconsin 53706
Phone : (608) 263-6658

Home Address

4723 Sheboygan Avenue #104
Madison, Wisconsin 53705

Phone : (608) 231-6976

Research Interests

Content Distribution Networks, Performance Modeling, Operating Systems and Networking, World Wide Web

Education

University of Wisconsin-Madison (September 1997 - present)
PhD Candidate in Computer Sciences (GPA: 4.0/4.0)
Thesis Topic: Caching Strategies for Streaming Media Files
Advisor: Prof. Mary Vernon
Master degree in Computer Science (May 1999)

Universidade Federal de Minas Gerais, Brazil (January 1995 - June 1997)
Master degree in Computer Science (GPA: 4.0/4.0)
Master Thesis: *Investigation into the interaction between an operating system and a Web Server*

Universidade Federal de Minas Gerais, Brazil (January 1991 - December 1994)
Bachelor degree in Computer Science (GPA 3.79/4.0)

Experience

Dept. of Computer Science, University of Wisconsin
Research Assistant - September 99 - present
Member of the *Sword* project: http://www.cs.wisc.edu/ vernon/sword.html
Advisor: Prof. Mary Vernon

Dept. of Computer Science, University of Wisconsin
Research Assistant - September 97 - August 99
Member of the *WisWeb* project: http://www.cs.wisc.edu/ cao/wisweb.html
Advisor: Prof. Pei Cao

IBM T. J. Watson Research Center
Summer Intern - June - August, 98

Dept. of Computer Science, UFMG, Brazil
Teaching Assistant and Lecturer
Graduate Computer Architecture course (March 97 - July 97)
Undergraduate Operating System course (March 96 - July 96)
Undergraduate Numerical Analysis course (August 95 - December 96)

TELEMIG - Telecommunications of Minas Gerais
Software Developer and Consultant - January 95 - December 95

IBM Brazil
Part-time system administrator - January 94 - December 94

Selected Projects

University of Wisconsin - Madison

- **Content Distribution Networks for Streaming Media Files** - As a member of the *Sword* project, I am currently addressing the issues of how to design content distribution networks for streaming media files with the goal of minimizing the *delivery cost* for both unicast and multicast environments. Research assistant advised by Mary Vernon.
- **Workload Characterization of Streaming Media Servers** - With the goal of further understanding client behavior and designing more realistic workload models to drive the development of more efficient caching strategies, I am currently analyzing logs from different streaming media servers, looking into characteristics such as file popularity and client interactivity. Research assistant advised by Mary Vernon.
- **Peregrine** - participated in the design, implementation and performance testing of Peregrine, a high performance proxy server, with emphasis on the storage subsystem, intercommunication between proxies and kernel optimization and profiling. Research assistant advised by Pei Cao.
- **Wasp** - developed a benchmark for Web servers that emulates WAN characteristics, such as network delay and packet loss, in a local area network. Summer internship at IBM T.J. Watson.
- **Summary Cache** - participated in the design and analysis of a new scalable cache sharing protocol that significantly reduces CPU overhead and bandwidth consumption while still maintaining almost the same cache hit ratio as the previously proposed and widely deployed ICP protocol. Research assistant advised by Pei Cao.
- **Wisconsin Proxy Benchmark (WPB)** - developed a distributed multiprocess benchmark that can be used to compare the performance of various proxy products and predict their behavior in real-life situations. Several proxy servers were analyzed based on the results collected by the benchmark. Research assistant advised by Pei Cao.
- **Quality-of-Service Web Content Hosting** - analyzed the impact of priority-based process scheduling on the performance of a Web Server. Using Linux and Apache server as the testbed, this project involved an analysis of the effectiveness of process prioritization in providing different levels of quality of service. Two schemes were implemented: one at the kernel level and the other at the user level. Course project for CS736 (Advanced Operating Systems)
- **Multi- and Unicast Over a Reliable Link Layer** - Designed and implemented a reliable link layer protocol and a network layer protocol that support multicasting. Using Unix IPC and Solaris threads, this project involved the implementation of sliding window protocol for reliability and flow control, link state algorithm for routing and recovery in the presence of node failures. Course project for CS640 (Introduction to Computer Networks).

Universidade Federal de Minas Gerais - Brazil

- **Interaction between and Operating System and a Web Server** - designed and implemented a performance tool for analysing web server behavior. The tool - Webmonitor - was based on the instrumentation of both operating system (Linux) and web server (Apache). Using Webmonitor and a profiling tool, quantified the impact of each main component of the operating system on server performance, with emphasis on the networking system (TCP/IP). Master Thesis.

Awards

The Lawrence H. Landweber NCR Fellowship in Distributed Systems
September 2000 - August 2002

Scholarship from CNPq (Brazilian Govern Agency) for Doctorate Program.
University of Wisconsin - Madison September 1997 - August 2001

Scholarship from CNPq for Master Program
Universidade Federal de Minas Gerais - Brazil
March 1995 - March 1997

Scholarship from CNPq for Undergraduate Research Program
Universidade Federal de Minas Gerais - Brazil
Advisor: Osvaldo Carvalho
Topic: Visualization of parallel programs

Skills

C, C++, Pascal, Java, Unix (Solaris, AIX, Linux), Windows NT.

Representatives Publications

Almeida, J. M., Eager, D. L. and Vernon, M. K., *Provisioning Content Distribution Networks for Streaming Media*, in Proc. of 21st Annual Joint Conf. of IEEE Computer and Communication Societies - Infocom'02, New York, June 2002.

Almeida, J. M., Krueger, J., Eager, D. L. and Vernon, M. K., *Analysis of Educational Media Server Workloads*, in Proc. of 11th International Workshop on Network and Operating System Support for Digital Audio and Video - NOSSDAV'01, Port Jefferson, New York, June, 2001.

Almeida, J. M., Eager, D. L. and Vernon, M. K., *A Hybrid Caching Strategy for Streaming Media Files*, in Proc. of Multimedia Computing and Networking 2001, San Jose, California, January 2001.

Nahum, E. M, Rosu, M., Seshan, S. and Almeida, J., *The Effects of Wide-Area Conditions on WWW Server Performance*, in Proc. of ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems , Cambridge, MA, June 2001

Fan, L., Cao, P., Almeida, J. and Broder, A. Z., *Summary Cache: A Scalabel Wide-Area Web Cache Sharing Protocol*, in Proceedings of SIGCOMM 1998, Vancouver, Canada, September 1998.
Also in IEEE/ACM Transactions on Networking, Volume 8, No. 3, pp 281-293, June 2000.

Almeida, J., Dabu, M., Manikutty, A. and Cao, P., *Providing Differentiated Quality-of-Service in Web Hosting Services*, 1998 SIGMETRICS Workshop on Internet Server Performance, Madison, Wisconsin, June 1998.

Almeida, J. and Cao, P., *Measuring Proxy Performance with the Wisconsin Proxy Benchmark*, 3^{rd} Web Caching Workshop, Manchester, England, June 1998.
Also in the Journal of Computer Networks and ISDN Systems, Volume 30, No 22-23, November 1998

Almeida, J. M., Almeida, V. A. F. and Yates, D., *Measuring the Behavior of a World-Wide Web Server*, Seventh IFIP Conference on High Performance Networking, White Plains, NY, USA, April 1997.

Almeida, J. M., Almeida, V. A. F. and Yates, D., *WebMonitor: a Tool for Measuring World-Wide Web Server Performance*, First Monday, vol. 2, no. 7, July 1997.

Almeida, V.A.F., Almeida, J. M., and Murta, C. D., *Performance Analysis of a WWW Server*, CMG'96 - 22nd International Conference on Technology Management and Performance Evaluation of Enterprise-Wide Information Systems, San Diego, USA, December 1996.

Duarte, C., Almeida, J. M., and Almeida, V., *Performance Analysis of a WWW Server*, XXIII SEMISH (Integrated Seminar of Software and Hardware), Recife , Brazil, August 1996.

Almeida, V. A. F., Almeida, J. M., Murta, C. D., Oliveira, A. A., and Mendes, M. A. S., *Performance Analisys and Modeling of a WWW Internet Server*, Fourth Telecommunication Conference, Nashville USA, March 1996.

Yates, D., Almeida, V. and Almeida, J. M., *On the Interaction Between an Operating System and Web Server*, Technical Report 97-012 Boston University, July 1997. Also in the Technical Conference on Telecommunications R&D in Massachusetts, Lowell, MA, November 1997

References

upon request