

## CURRICULUM VITAE

### **PADMAVATHI V. MUNDUR**

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### **CITIZENSHIP: UNITED STATES**

#### **Education:**

Ph.D.	2000	George Mason University, Fairfax VA, Information Technology
M.E.	1990	University of Virginia, Charlottesville, VA, Systems Engineering
PG-Diploma	1986	Indian Institute of Science, India, Industrial Management
B.E.	1985	Bangalore University, India, Industrial and Production Engineering

#### **Experience in Higher Education:**

2006 – Present	University of Maryland, College Park, Research Faculty, UMIACS
2000 - 2006	University of Maryland Baltimore County, Assistant Professor, Department of Computer Science and Electrical Engineering
1998 - 1999	George Mason University, Fairfax, VA, Computer Science Department, Center for Image Analysis, GRA
1993 - 1995	George Mason University, Fairfax, VA, Computer Science Department, GTA

#### **Experience in Other Than Higher Education:**

1995 - 1998	George Mason University, Fairfax, VA, Computer Science Department and Center for New Engineer (CNE), Unix Systems Administrator
1996 Fall	Georgetown University Medical Center, Imaging Science and Information Systems (ISIS) Research Center, Intern
1991 - 1992	Georgetown University Hospital, Georgetown, Washington, D.C., Management Engineer

#### **Research Support and/or Fellowships at UMBC:**

#### **External Funding:**

2005 - 2006	Performance Analysis of Delay Tolerant Networks, \$108,000, RABA Technologies/LTS, Single PI (Total Proposed Amount: \$351,145 for three years, 2005 - 2008, 2 <sup>nd</sup> and 3 <sup>rd</sup> option years)
2004 - 2005	NASA GSFC Cyberinfrastructure Initiative, \$79,075, NASA, Co-PI (PI: Milton Halem, other Co-PIs: Ray Chen, Yelena Yesha)
2001	Mobile Multimedia and Streaming Technologies: A State of the Art Survey. \$25,170, AetherSystems Inc. PI (Co-PI: Anupam Joshi)

**Internal Funding:**

- 2004 - 2005 Video Summarization, \$6,773, Research Assistant Support (RAS)  
 2005 Research Assistant Support, \$7,000, UMBC ADVANCE grant  
 2003 Analysis of Web-based Multi-tier Architectures, \$5,000, Summer Faculty Fellowship  
 2002 - 2003 Evaluation of Architectural Alternatives for Mobile Information Infrastructure, \$12,600, Research Assistant Support (RAS)  
 2002 Quality of Service Issues over Wireless/WDM Network, GRA Support for one semester, NASA CASPR Research Initiative

**Ph.D. Students at UMBC:****Graduated**

- Yong Rao, Ph.D. Graduated August 2006, ABD Nov 2004, "Automatic video processing using clustering and user relevance feedback," **Chair/Advisor**, Yelena Yesha Co-Advisor

**In Progress**

- SookYoung Lee, "Routing Algorithms for Delay Tolerant Networks," In progress, **Chair/Advisor**

**Master's and Undergraduate Students at UMBC:**

- Ushashree Kaja, "Security solutions for delay tolerant networks," MS Project 2006, **Chair/Advisor**
- Yun Teng, "Performance analysis of delay tolerant networks," MS **Thesis** 2005, **Chair/Advisor**
- Poorva Arankalle, "Clustered server architecture for Internet streaming," MS **Thesis** 2004, **Chair/Advisor**
- Nikunj Patel, "Music information retrieval and query by humming," MS **Thesis** 2004, **Chair/Advisor**
- Amit Mahajan, "QoS issues for multimedia applications in mobile and wireless environment," MS **Thesis** 2003, **Chair/Advisor**
- Ashwatha Mathur, "Integrated solutions for streaming applications on the Internet," MS **Thesis** 2003, **Chair/Advisor**
- Snehal Manohar, "Information extraction using overlay text in videos," MS Project 2004, **Chair/Advisor**
- Peng Yu Liu, "Internet multicasting for streaming applications," MS Project 2004, **Chair/Advisor**
- Kevin Fisher, Undergraduate Research Assistant, NASA Cyberinfrastructure Project 2004-2005, **Advisor**
- Eric Eaton, Undergraduate Research Assistant, Summer 2002 "Multi-tier video conferencing architectures,"— Poster presentation at the Undergraduate Research & Creative Achievement Day, **Advisor**

**Service on Ph.D. and M.S. Thesis Committees at UMBC**

- Tom Goff, Ph. D., Graduated 2006, Member, Advisor: D. Phatak
- Edward Ziegler, Ph. D., In Progress 2005, Member, Advisor: D. Sidhu
- Kemal Akkaya, Ph.D., Graduated 2005, Member, Advisor: M. Younis

- Gargi Banerjee, Ph.D., Graduated 2003, Member, Advisor: D. Sidhu
- Aseem Lalani, MS Thesis 2006, Member, Advisor: M. Younis
- Kevin Atkinson, MS Thesis 2005, Member, Advisor: C. Nicholas
- Ragini Yalamanchali, MS Thesis In Progress, Member, Advisor: C. Nicholas
- Fang Yan, MS Project 2004, Reader, Advisor: Y. Yesha
- Gaurav Gupta, MS Thesis 2003, Member, Advisor: M. Younis
- Kunjan Naik, MS Project 2003, Reader, Advisor: D. Phatak
- Shamit Patel, MS Thesis 2002, Member, Advisor: K. Kalpakis

**Publications: 22 publications of which 7 are journal articles and 15 are in conference proceedings**

Journal Articles (Refereed):

Accepted:

M. Seligman, K. Fall, and P. Mundur, "Storage Routing for DTN Congestion Control," accepted for publication in *Journal on Wireless Communications & Mobile Computing*, Special Issue on Disruption Tolerant Networking for Mobile or Sensor Networks, January 2007.

In Print:

P. Mundur and P. Arankalle, "Optimal Server Allocations for Streaming Multimedia Applications on the Internet," *Computer Networks Journal*, Elsevier Publishers, Vol. 50, Issue 18, December 2006.

P. Mundur, Y. Rao, and Y. Yesha, "Keyframe-based Video Summarization using Delaunay Clustering," *International Journal on Digital Libraries*, Vol. 6, No. 2, pp 219-232, April 2006.

P. Mundur, A. Sood, and R. Simon, "Class-based Access Control for Distributed Video-on-Demand Systems," *IEEE Transactions on Circuits and Systems on Video Technology*, Vol. 15, No. 7, pp 844-853, July 2005.

P. Mundur, R. Simon, and A. Sood, "End-to-end Analysis of Distributed Video-on-Demand Systems," *IEEE Transactions on Multimedia*, Vol. 6, No. 1, pp 129-141, February 2004. (Journal Impact Factor 6 – among top 20 journals in Telecommunications, source: www.ieee.org).

P. Mundur, R. Simon, and A. Sood, "The Analysis and Performance of Multi-rate Service in Distributed Video-on-Demand Systems," *Journal of Multimedia Tools and Applications*, Vol. 17, No. 1, pp 51-75, May 2002.

R. Simon, P. Mundur, and A. Sood, "Access Policies for Distributed Video-on-Demand Systems," *Journal of the Washington Academy of Sciences*, Special Issue on Communications, Vol. 85, No. 2, pp 155-176, December 1998.

Under Review:

P. Mundur, S. Lee and M. Seligman, "Routing in Delay Tolerant Networks using Storage Domains," under review for *IEEE/ACM Transactions on Networking*, November 2006.

Conference Proceedings(Refereed):

1. P. Mundur, S. Lee, and M. Seligman, "Routing for Data Delivery in Dynamic Networks," *MILCOM*, October 2006.
2. P. Mundur, S. Lee, and M. Seligman, "Routing in Intermittent Network Topologies," *MSWiM*, October 2006.
3. M. Seligman, K. Fall, and P. Mundur, "Alternative Custodians for Congestion Control in Delay Tolerant Networks," *SIGCOMM Workshop CHANTS*, September 2006.
4. Y. Rao, P. Mundur, and Y. Yesha, "Fuzzy SVM Ensembles for Relevance Feedback in Image Retrieval," *Proc. Conference on Image and Video Retrieval (CIVR)*, May 2006.
5. N. Patel and P. Mundur, "An  $n$ -gram-based Approach for Finding Repeating Patterns in Musical Compositions," *Proc. European Internet and Multimedia Systems and Applications Conference, EuroIMSA, Sponsored by IASTED*, Switzerland, February 2005.
6. Y. Rao, P. Mundur, and Y. Yesha, "Automatic Video Summarization for Wireless and Mobile Environment," *Proc. IEEE International Conference on Communications (ICC)*, Paris, France, June 20-24, 2004. (about 30% acceptance rate)
7. A. Matthur and P. Mundur, "Dynamic Load Balancing across Mirrored Multimedia Servers," *Proc. of IEEE Conference on Multimedia Expo (ICME)*, Baltimore, MD, July 6-9, 2003. (about 25% acceptance rate)
8. A. Matthur and P. Mundur, "Congestion Adaptive Streaming: An Integrated Approach," *Proc. of Distributed Multimedia Systems (DMS)*, Miami, FL, September 24-26, 2003.
9. A. Mahajan, P. Mundur, and A. Joshi, "Adaptive Multimedia System Architecture for Improving QoS in Wireless Networks," *Proc. 3<sup>rd</sup> IEEE Pacific -Rim Conference on Multimedia (PCM)*, Taipei, Taiwan, December 16-18, 2002.
10. P. Mundur, A. Sood, and R. Simon, "A Multi-rate Service Model for Distributed Video-on-Demand Systems," *Proc. Conference on Internet and Multimedia Systems and Applications (IMSA'00)*, Las Vegas, Nevada, November 20-23, 2000.
11. R. Simon, A. Sood, and P. Mundur, "Network Service Selection for Distributed Multimedia Applications," *Proc. International Conference on Computational Intelligence and Multimedia Applications (ICCIMA '99)*, New Delhi, India, September 23-26, 1999.
12. P. Mundur, R. Simon, and A. Sood, "Integrated Admission Control in Hierarchical Video-on-Demand Systems," *Proc. IEEE International Conference on Multimedia Computing and Systems (ICMCS '99)*, pp 220-225, Florence, Italy, June 7-11, 1999. (about 25 % acceptance rate)
13. P. Mundur, R. Simon, and A. Sood, "End-to-End Request Handling in Distributed Video-on-Demand Systems," *Proc. Conference on Communication Networks and Distributed Systems Modeling and Simulation Conference, CNDS (The Society for Computer Simulation)*, pp 151-156, San Francisco CA, January 17-20, 1999.
14. P. Mundur, A. Sood, and R. Simon, "Threshold-based Admission Control for Multi-class Video-on-Demand Systems," *Proc. IEEE International Performance, Computing, and Communications Conference (IPCCC'98)*, pp 154-160, Phoenix AZ, February 1998. (about 30% acceptance rate)
15. K. R. Cleary, B. A. Levine, G. S. Norton, and P. V. Mundur, "Challenges in Sending Large Radiology Images over Military Communications Channels," *Proc. SPIE Conference on PACS Design and Evaluation*, Vol. 3035, pp 230-236, February 1997.

Other

P. Mundur, "An Integrated Approach to End-to-End Analysis of Distributed Video-on-Demand Systems," *Ph.D. Dissertation*, Spring 2000.

### Non-Peer-Reviewed Works

1. P. Mundur, M. Seligman, and S. Lee, "Routing in Delay Tolerant Networks using Storage Domains," UMIACS-TR-2007-01, <http://hdl.handle.net/1903/4024>, November 2006.
2. P. Mundur, "Quickest Delivery using Modified Breadth First Search in Delay Tolerant Networks," Technical Report TR-CS-05-04, University of Maryland Baltimore County, July 2005.
3. Peng Yu Liu and P. Mundur, "Multimedia Multicast over the Internet – A Survey," Technical Report TR-CS-05-03, University of Maryland Baltimore County, May 2004.
4. A. Mahajan, P. Mundur, and A. Joshi, "Mobile multimedia and streaming technologies: a survey," Technical Report TR-CS-05-02, University of Maryland Baltimore County, August 2002.
5. P. Mundur, A. Sood, and R. Simon, "Effects of Traffic Reshaping on Distributed Video-on-Demand Systems," Technical Report TR99-04, George Mason University, May 1999.

### **Professional Activities:**

#### Conference Paper Presentations:

1. Routing in Intermittent Network Topologies, MSWiM Conference, Torremolinos, Malaga, Spain, October 2-6, 2006.
2. Automatic Video Summarization for Wireless and Mobile Environment, IEEE International Conference on Communications (ICC), Paris, France, June 20-24, 2004.
3. Dynamic Load Balancing across Mirrored Multimedia Servers, IEEE Conference on Multimedia Expo (ICME), Baltimore, MD, July 6-9, 2003.
4. Congestion Adaptive Streaming: An Integrated Approach, Distributed Multimedia Systems (DMS), Miami, FL, September 24-26, 2003.
5. Adaptive multimedia system architecture for improving QoS in wireless networks, Pacific-rim Conference on Multimedia (PCM'02) Taipei, Taiwan, December 16-18, 2002.
6. A Multi-rate service model for distributed video-on-demand systems, Internet and Multimedia Systems and Applications (IMSA'00), Las Vegas, Nevada, November 20-23, 2000.
7. Integrated admission control in hierarchical video-on-demand systems, IEEE International Conference on Multimedia Computing and Systems (ICMCS'99), Florence, Italy, June 7-11, 1999.
8. End-to-end request handling in distributed video-on-demand systems, Conference on Communication Networks and Distributed Systems Modeling and Simulation (CNDS'99), The Society for Computer Simulation International, San Francisco, CA, January 17-20, 1999.
9. Threshold-based admission control for multi-class video-on-demand systems, IEEE International Conference on Performance, Computing, and Communications (IPCCC'98), Phoenix, AZ, February 16-18, 1998.

#### Other Professional Presentations

1. Research Issues in Multimedia Networking and Data Management, Computer Science Colloquium, Georgetown University, Invited Talk, November 19, 2004.
2. Research Issues in Multimedia Networking and Data Management, Electrical Engineering Seminar, UMBC, November 12, 2004.

3. End-to-end analysis of distributed video-on-demand systems, Graduate Seminar, UMBC, November 10, 2000.

### **University, Departmental, Community, and Professional Service at UMBC:**

#### University and Departmental Service

2006-2008	Faculty Affairs Committee for Faculty Senate, University level
2005-present	Faculty Advisor for Systems Engineering Program, College Level
2003, 2005, 2006	Committee Member, Admissions Committee
2002-2004	Committee Member, Scheduling Committee
Fall 2002	Committee member, Colloquia Committee
2000-2002	Committee member, Graduate Committee
Fall 2001	Seminar coordinator
2001-present	Undergraduate student advisement
Fall 2001	Instructor on Record (IOR) for an IFSM on-line course on Computer Networks, College level

#### Professional Service

Editorial Board Member, IEEE Communications Surveys and Tutorials Online Journal

Session Organizer on Communication Networks Simulations at Winter Simulation Conference, (WSC) 2006, December 3-6 2006, Monterey, CA

Program Committee Member, The 26th International Conference on Distributed Computing Systems (ICDCS), July 4-7 2006, Lisboa, Portugal

NSF Panel Reviewer, CSR-PDOS, April 6-7, 2006.

Program Committee Member, IEEE International Conference on Multimedia & Expo (ICME), July 6-8 2005, Amsterdam, The Netherlands

Program Committee Member, Symposium on Mobile Computing in conjunction with International Conference on Wireless Networks, Communications, and Mobile Computing (WirelessComm), June 13-16 2005, Maui, Hawaii

NSF Panel Reviewer, CSR - CISE, March 28-29, 2005

Program Committee Member, The 24th International Conference on Distributed Computing Systems (ICDCS), March 23-26 2004, Tokyo, Japan

Program Committee Member, IEEE International Conference on Multimedia & Expo (ICME), 27-30 June 2004, Taipei, Taiwan

Program Committee Member, Trusted Internet Workshop in conjunction with High Performance computing (HiPC), 2003.

NSF Panel Reviewer, CAREER Distributed Systems - CISE , November, 2003

Referee for funding applications, Research Council of Norway, September 2002.

Guest Editor, Special Issue on Wired and Wireless Multimedia for Journal of High Speed Networks, Sept-Oct., 2002

NSF Panel Reviewer, ITR Operations Research, April 2001.

Session Chair at IMSA (2000) and CNDS (1999) conferences.

Reviewing Activities:

IEEE Transactions on Multimedia  
IEEE Multimedia  
IEEE Transactions on Knowledge and Data Engineering  
IEEE Transactions on Fuzzy Systems  
IEEE Transactions on Parallel and Distributed Systems  
Journal of Systems and Software  
Journal of Information Systems  
Journal of High Speed Networks  
Journal on Digital Libraries

Professional Recognition:

2005 Profile on a poster distributed nationally to all middle schools for *EngineerGirl!* which is an NAE initiative to encourage middle school girls to study mathematics and science; also invited to appear on their web site.