

CURRICULUM VITAE

John Musacchio

Technology and Information Management
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Education

The University of California, Berkeley	Electrical Engineering and Computer Sciences	Ph.D., 2005
The University of California, Berkeley	Electrical Engineering and Computer Sciences	M.S., 1998
The Ohio State University	Electrical Engineering	B.S., 1996

Appointments

2005 - *Assistant Professor*,
Technology and Information Management, Jack Baskin School of Engineering,
University of California, Santa Cruz.

2003-2004 *Graduate Student Researcher and Instructor*,
Electrical Engineering and Computer Sciences Department,
University of California, Berkeley.

2000-2003 *Architecture Mgr.* (02-03), *Sr. Design Eng.* (01-02), *Design Eng.* (00-01),
Terablaze Inc., San Jose, CA.

1996-2000 *Graduate Student Researcher*,
Electrical Engineering and Computer Sciences Department,
University of California, Berkeley.

Fields of Interest

Network economics; game theory; stochastic modelling and control of queuing networks with applications in communications networks.

Publications in Refereed Journals and Conferences

- N. Bao and J. Musacchio, "Optimizing the Decision to Expel Attackers from an Information System," *invited paper*, to appear at the 47th Annual Allerton Conference on Communication and Control, Monticello, IL, Sept. 2009.
- J. Musacchio, G. Schwartz, and J. Walrand, "Network Economics: Neutrality, Competition, and Service Differentiation," *invited book chapter*, to appear in *Next-Generation Internet Architectures and Protocols*, edited by B. Ramamurthy, G. Rouskas, and K. Sivalingam, Cambridge University Press.
- S. Wu and J. Musacchio, "N-Player Cournot and Price-Quantity Function Mixed Competition," *invited paper*, *GameNets Conference*, Istanbul, Turkey, May 2009, 10 pages.

- J. Musacchio, S. Wu, "The Price of Anarchy in Differentiated Services Networks," *Proc. of 46th Annual Allerton Conference on Communication and Control*, Monticello, IL, Sept. 2008, 8 pages.
- J. Musacchio, G. Schwartz, and J. Walrand, "A Two-Sided Market Analysis of Provider Investment Incentives with an Application to the Net Neutrality Issue," *Review of Network Economics*, vol. 8, no. 1, March 2009, pp. 22-39.
- G. Ryder, K. Ross, and J. Musacchio, "Optimal Service Policies Under Learning Effects," *International Journal of Service Operations Management*, vol. 4, no. 6, 2008, pp. 631-51.
- J. Musacchio, G. Schwartz, and J. Walrand, "Network Neutrality and Provider Investment Incentives," *invited paper, Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2007, 8 pages
- J. Musacchio and S. Wu, "The Price of Anarchy in a Network Pricing Game," *Proc. of 45th Annual Allerton Conference on Communication and Control*, Monticello, IL, Sept. 2007, 10 pages.
- R. Gupta, J. Musacchio, and J. Walrand, "Sufficient Rate Constraints for QoS Flows in Ad-Hoc Networks," *Ad-Hoc Networks*, vol. 5, no. 4, May 2007, pp. 429-43.
- J. Musacchio, J. Walrand, and S. Wu, "A Game Theoretic Model for Network Upgrade Decisions," *Proc. of 44th Annual Allerton Conference on Communication and Control*, Monticello, IL, Sept. 2006, pp 191 - 200.
- J. Musacchio and J. Walrand. "WiFi Access Point Pricing as a Dynamic Game." *IEEE/ACM Transactions on Networking*, vol. 14, no. 2, April 2006, pp. 289-301.
- J. Musacchio and J. Walrand, "WiFi Access Point Pricing as a Dynamic Game," *Proc. of Seventh INFORMS Telecommunications Conference*, Boca Raton, Florida, March 2004, 3 pages.
- A. Dimakis, L. He, J. Musacchio, H. S. W. So, T. Tung and J. Walrand, "Adaptive Quality of Service for a Mobile Ad Hoc Network," *Proc. of International Conf. on Mobile and Wireless Communication Networks*, Singapore, Oct. 2003, 4 pages.
- J. Musacchio and J. Walrand, "Game Theoretic Modeling of WiFi Pricing," *invited paper, Proc. of 41st Annual Allerton Conference on Communication and Control*, Monticello, IL, Oct. 2003, 10 pages.
- M. Moore, J. Musacchio, and K. Passino, "Genetic Adaptive Control for an Inverted Wedge: Experiments and Comparative analyses," *Engineering Applications of Artificial Intelligence*, vol. 14, no. 1, Feb. 2001, pp 1-14.
- M. Moore, J. Musacchio, and K. Passino, "Genetic adaptive control for an inverted wedge," *Proc. of the 1999 American Control Conference*, 1999, pp. 400-4.
- N. Jakatdar, X. Niu, J. Musacchio, and C. Spanos, "In-situ metrology for deep ultraviolet lithography process control," *Proc. of the SPIE - The International Society for Optical Engineering*, vol. 3332, 1998, pp. 262-70.
- J. Musacchio, S. Rangan, C. Spanos, and K. Poolla, "On the Utility of Run to Run Control in Semiconductor Manufacturing," *Proc. of 1997 IEEE International Symposium on Semiconductor Manufacturing Conference*, San Francisco, October 1997. pp. D9-D12.

Other Significant Publications

- J. Musacchio, “The Price of Anarchy in Parallel - Serial Competition with Elastic Demand,” UCSC SOE Tech Report UCSC-SOE-09-20. (in preparation for journal submission).
- J. Musacchio, and J. Walrand, “Throughput Analysis of Stochastic Networks Using Fluid Limits,” in preparation.
- J. Musacchio, J. Walrand, R. Myers, S. Parekh, J. Mo, and G. Agrawal, “Backpressure Mechanism for Switching Fabric,” U.S. Patent 7,426,185, Issued September 16, 2008.
- G. Agrawal, J. Musacchio, J. Mo, and J. Walrand, “Characterizing Transmission of Data Segments Within a Switch Fabric Using Multiple Counters for Each Destination Node,” U.S. Patent 7,480,246, Issued January 20, 2009.
- G. Agrawal, J. Musacchio, J. Mo, and J. Walrand, “Deficit-based striping algorithm,” U.S. Patent 7,319,695, Issued January 15, 2008.
- J. Musacchio, *Pricing and Flow Control in Communications Networks*. PhD Dissertation, Department of Electrical Engineering and Computer Sciences, UC Berkeley, Jan. 2005.

Professional Service

- Technical Program Committee for NetEcon 2009 conference
- Technical Program Committee for INFOCOM 2007 conference
- Session organizer for Asilomar 2007
- Reviewer for *IEEE Transactions on Communications*, *IEEE 2005 Globecom conference*, *Journal on Selected Areas of Communications*, *Computer Networks*, *EURASIP Journal on Wireless Communications and Networking*, *IEEE/ACM Transactions on Networking*

Invited Lectures

- March 2009, “The Price of Anarchy in Parallel - Serial Competition with Elastic Demand,” OptimA Conference, University of Illinois at Urbana Champaign Industrial and Enterprise Systems Engineering, invited talk.
- February 2009, “The Price of Anarchy in Parallel - Serial Competition with Elastic Demand,” Information Theory and Applications Workshop, UC San Diego, invited talk.
- April 2008, “A Two-Sided Market Analysis of Provider Investment Incentives With an Application to the Net-Neutrality Issue,” Caltech Computer Science Seminar, invited talk.
- October 2006, Panel on Future Internet Architecture, BroadNets Conference, invited panelist.
- October 2006, “Game Theory for Understanding Pricing and Delivery of Internet Services.” Industrial Engineering and Operations Research Seminar, UC Berkeley, ” invited talk.
- October 2005, Workshop on Queuing Games, Washington University School of Business, invited discussant.
- July 2005, “Achieving Fair Rates in a Stochastic Network with Ingress Flow Control,” INFORMS Applied Probability Conference, refereed abstract.
- June 2005, “Achieving Fair Rates with Ingress Policing,” ACM Sigmetrics Conference, Banff, Canada, invited talk.

July 2004, “Wi-Fi Access Point Pricing as a Dynamic Game,” Workshop on Economics of Communications Networks, Montreal, Canada, invited talk.

Grants

AFOSR, “Out-learning Attackers: A Game Theoretic Approach to Cyber Defense,” J. Musacchio at UCSC primary, G. Frazier at BAE Systems subcontractor, 2009-2012.

NSF, “NetSE: Large: Collaborative Research: Improving Internet Incentives,” Collaborative with J. Walrand and V. Ananthram of UC Berkeley, and S. Parekh of Alcatel-Lucent.

NSF, “Collaborative Research: NSF-Find: Market-Enabling Network Architecture,” Collaborative with J. Walrand and V. Ananthram of UC Berkeley, and S. Parekh of Alcatel-Lucent, 2006-2009.

UCSC/NASA University Affiliated Research Center, “Space Traffic Management Research Center,” P. Mantey (PI), G. Elkiam and J. Musacchio (Co-PIs), 2008-2010.

Naval Post Graduate School, “Reliable Networks for Homeland Security,” P. Mantey (PI), J. Musacchio and K. Obraczka (Co-PIs), 2008-2009.

UCSC/NASA University Affiliated Research Center, “Market Mechanisms for Near-Real-Time Landing and Takeoff Slot Allocation,” J. Musacchio (PI), P. Mantey (Co-PI), 2009-2010.