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EDUCATION

University of Illinois at Urbana-Champaign, Ph.D. in *Electrical Engineering*, October, 1992

Dissertation: *Topics in Decentralized Detection*

Advisors: Prof. H. Vincent Poor and Prof. Tamer Başar

Carnegie-Mellon University, Pittsburgh, PA, M.S. in *Electrical Engineering*, May, 1987

Thesis: *Detection of Digital Signals in Erased Magnetic Disks*

Indian Institute of Technology, Bombay, B. Tech. (B.S.) in *Electrical Engineering*, May, 1985

PROFESSIONAL EXPERIENCE

Professor, (2005-present), Department of ECE, **Research Professor**, Coordinated Science Laboratory, *University of Illinois at Urbana-Champaign*, and **Director**, *Illinois Center for Wireless Systems*.

Program Director, (2003-2005), CISE/CCF/TF, *National Science Foundation*, Arlington, VA

Associate Professor, (2000-2005), Department of ECE, and **Research Associate Professor**, Coordinated Science Laboratory, *University of Illinois at Urbana-Champaign*

Visiting Professor, Spring 2009, *IISc Bangalore, India*; Fall 2008, *MIT, Cambridge, MA*; Summer 2002, *Swiss Federal Institute of Technology (ETH), Zurich, Switzerland*.

Assistant Professor, (1996-2000), School of Electrical Engineering, *Cornell University*. (Also member of graduate fields of Applied Mathematics and Statistical Science.)

Visiting Assistant Professor, (1994-1996), ECE Department, *Rice University*

Assistant Professor, (1993-1994), EE Department, *City College and Graduate School, CUNY*

Postdoctoral Fellow, (1992-1993), Division of Applied Sciences, *Harvard University*

AWARDS AND HONORS

IEEE Signal Processing Society Distinguished Lecturer, 2010-2011.

List of Teachers Ranked as Excellent by their Students, University of Illinois, Spring 2007, Fall 2007, Spring 2010, Fall 2010 (two courses).

IEEE Signal Processing Society Young Author Best Paper Award, 2006 (with Jean-Francois Chamberland) for "Decentralized Detection in Sensor Networks," (see publication [J27]).

Fellow of the IEEE, 2006, "for contributions to wireless communications and sensor networks."

Xerox Award for Faculty Research, College of Engineering, Illinois, 2003.

Beckman Associate of the Center for Advanced Study, Illinois, 2002-2003.

Michael Tien Excellence in Teaching Award, College of Engineering, Cornell University, 1999.

PECASE (Presidential Early Career Award for Scientists and Engineers), 1999, to recognize outstanding research in wireless communications and for innovations in teaching. This is “the highest honor bestowed by the U.S. government on outstanding new scientists and engineers who are in the early stages of establishing their independent research careers.”

CAREER Award, National Science Foundation, 1998.

IEEE Browder J. Thompson Prize Award, 1996, an award given to an outstanding paper by authors under the age of 30 selected from all the publications of the IEEE. The award winning paper: “A Sequential Procedure for Multihypothesis Testing” (see publication [J9]).

Institute Silver Medal, IIT, Bombay, 1985.

J. N. Tata Scholarship for overseas education, Bombay, 1985.

MEMBERSHIPS

Fellow, *IEEE*, and *IEEE Information Theory, Communications, Signal Processing* societies.

Past Chair of the Ithaca Section of the IEEE.

SERVICE ACTIVITIES

General Chair, *IEEE International Symposium on Information Theory*, Honolulu, Hawaii, June 2014.

Technical Program Chair, *IEEE Communication Theory Workshop*, Maui, Hawaii, May 2012.

Member of the SPTM Technical Committee of the *IEEE Signal Processing Society*, 2011 - .

Member of the Board of Governors of the *IEEE Information Theory Society*, 2004-2007.

Guest Editor, *EURASIP Journal on Advances in Signal Processing (JASP) on Wireless Location Estimation and Tracking*, May 2008.

Guest Editor, *IEEE Signal Processing Magazine, Special Issue on Resource-Constrained Signal Processing, Communications, and Networking*, May 2007.

Associate Editor, Detection & Estimation for *IEEE Transactions on Information Theory*, 2000-2004

Associate Editor for *IEEE Transactions on Wireless Communications*, 2000-2001

Editorial Board Member for *Journal of Statistical Theory and Practice*, 2007-2011

Editorial Board Member for *Journal of Advances in Information Fusion*, 2003-2008.

Editorial Board Member for *Communications in Information and Systems (CIS)*, 2001-present

Chair, IEEE Ithaca Section, 1999 – 2000

Coorganizer of the *National Academy of Engineering*, 2001 Frontiers of Engineering Conference

Invited Participant in the *National Academy of Engineering*, Frontiers of Engineering Conference, Irvine, CA, September 2000

Coorganizer of *NSF/ONR Workshop* on Future Directions in Systems and Control Research in Communication Networks, Airlie, VA, November 1998

Invited Speaker at the NSF planning workshop on “Critical Infrastructures,” Arlington, VA, Nov 2006.

Invited Speaker at the NSF planning working on “Cognitive Networks”, Los Angeles, CA, Nov 2009.

Panelist at *DOE/ONR/NSF Workshop* on Foundations of Information/Decision Fusion and Applications to Engineering, Washington D.C., August 1996

Member of NSF review panel to evaluate the CENS STC at UCLA, June 2006

Member of NSF CAREER External Advisory Committee (COV), October 2006.

General Co-Chair for *2003, 2004 Allerton Conference on Communication, Control, and Computing*

Tutorial Chair for *IEEE ISIT 2004*, Chicago, IL, June-July, 2004

Technical Program committee member/session organizer for several conferences, including *Allerton, IEEE ISIT, IEEE Asilomar, IEEE SPAWC, IEEE SSPW, IEEE Fusion, IASTED CIIT, IEEE RAWNET, IEEE MILCOM*.

RESEARCH ACTIVITIES

Summary: Veeravalli conducts research in sensor networks, wireless communications, detection and estimation theory, and information theory. The broad goals of his research program are: (i) to develop techniques for optimizing the quality and capacity of wireless communication systems; and (ii) to develop a system-theoretic framework for the design, analysis and application of wireless sensor networks.

Current Research Topics

- Interference management techniques with transmitter/receiver cooperation
- Signal detection and channel selection for cognitive radio
- Quickest change detection with distributed sensors and applications
- Controlled and event-driven sensing and communication
- Stochastic distributed optimization methods and applications to estimation in sensor networks
- Robust hypothesis testing and classification

PUBLICATIONS

Note: *Many of these publications are available on* <http://www.ifp.uiuc.edu/~vvv>

Books and Book Chapters

[B7] V.V. Veeravalli. "Fundamentals of Detection Theory." In *Mathematical Foundations for Signal Processing, Communications and Networking*, T. Chen, D. Rajan, and E. Serpedin (Eds.), Cambridge University Press, 2011.

[B6] S. Sundhar Ram, V. V. Veeravalli and A. Nedic, "Distributed and Recursive Estimation." In *Sensor Networks: When Theory meets Practice*, G. Ferrari, (Ed.), Springer 2010.

[B5] J. Fuemmeler and V.V. Veeravalli. "Smart Sleeping Policies for Energy-Efficient Tracking in Sensor Networks." In *Networked Sensing Information and Control*, V. Saligrama, (Ed.), Springer 2008.

[B4] V.V. Veeravalli and J.-F. Chamberland. "Detection in Sensor Networks." In *Wireless Sensor Networks. Signal Processing and Communications Perspectives*, A. Swami et al (Eds.), Wiley, 2007.

[B3] C. Pandit, J. Huang, S. Meyn, M. Medard, and V.V. Veeravalli, "Entropy, Inference, and Channel Coding." *Wireless Communications, The IMA Volumes in Mathematics and its Applications*, P. Agrawal et al (Eds.), Springer, 2007.

[B2] A.G. Tartakovsky and V.V. Veeravalli. "Change-Point Detection in Multichannel and Distributed Systems With Applications." In *Applied Sequential Methodologies: An Edited Volume*, N. Mukhopadhyay, S. Datta, and S. Chattopadhyay (Eds.), Marcel-Dekker, 2004.

[B1] V.V. Veeravalli, T. Başar and H.V. Poor. “Decentralized Sequential Detection with a Fusion Center Performing the Sequential Test.” *IEEE Transactions on Information Theory*, 39(2): 433-442, March 1993. Reprinted as pages 186–195 in “Selected Papers on Sensor and Data Fusion,” F. A. Sadjadi (Edt.), *SPIE Milestone Series, Volume MS 124, SPIE Engineering Press, 1996*.

Journal Papers Under Review

[P3] V.S. Annapureddy, A. ElGamal and V.V. Veeravalli. “Degrees of Freedom of Interference Channels with CoMP Transmission and Reception.” Submitted to *IEEE Transactions on Information Theory*, September 2011.

[P2] T. Banerjee and V.V. Veeravalli. “Data Efficient Quickest Change Detection with On-Off Observation Control.” Submitted to *Sequential Analysis*, May 2011.

[P1] V. Raghavan and V.V. Veeravalli. “Statistical Beamforming on the Grassmann Manifold for the Two-User Broadcast Channel.” Submitted to *IEEE Transactions on Information Theory*, April 2011.

Journal Publications

[J66] V.V. Veeravalli and P.K. Varshney, “Distributed Inference in Wireless Sensor Networks.” *Philosophical Transactions of the Royal Society A*. To appear.

[J65] G.K. Atia, V.V. Veeravalli and J.A. Fuemmeler. “Sensor Scheduling for Energy-Efficient Target Tracking in Sensor Networks.” *IEEE Transactions on Signal Processing*, 59(10): 4923 - 4937, October 2011.

[J64] J.A. Fuemmeler, G.K. Atia and V.V. Veeravalli. “Sleep Control for Tracking in Sensor Networks.” *IEEE Transactions on Signal Processing*, 59(9): 4354 - 4366, September 2011.

[J63] S. Sundhar Ram, A. Nedich, V. V. Veeravalli. “A New Class of Distributed Optimization Algorithms: Application to Regression of Distributed Data.” *Optimization Methods and Software*, July 2011.

[J62] V.S. Annapureddy and V.V. Veeravalli. “Sum Capacity of MIMO Interference Channels in the Low Interference Regime.” *IEEE Transactions on Information Theory*, 57(5): 2565 - 2581, May 2011.

[J61] R. Tandra, A. Sahai, and V.V. Veeravalli. “Unified Space-Time Metrics to Evaluate Spectrum Sensing.” *IEEE Communications Magazine*, 49(3): 54 - 61, March 2011

[J60] J. Unnikrishnan, D. Huang, S.P. Meyn, A. Surana and V.V. Veeravalli. “Universal and Composite Hypothesis Testing via Mismatched Divergence.” *IEEE Transactions on Information Theory*, 57(3): . 1587-1603, March 2011.

[J59] V. Raghavan, A.M. Sayeed, and V.V. Veeravalli. “Semiunitary Precoding for Spatially Correlated MIMO Channels.” *IEEE Transactions on Information Theory*, 57(3): 1284-1298, March 2011.

[J58] J. Unnikrishnan, V.V. Veeravalli and S.P. Meyn. “Minimax Robust Quickest Change Detection.” *IEEE Transactions on Information Theory*, 57(3): 1604-1614, March 2011.

[J57] C. Lin, V.V. Veeravalli and S.P. Meyn. “A Random Search Framework for Convergence Analysis of Distributed Beamforming with Feedback.” *IEEE Transactions on Information Theory*, 56(12): 6133-6141, December 2010.

[J56] S. Sundhar Ram, A Nedic and V. V. Veeravalli. “Distributed Stochastic Subgradient Projection Algorithms for Convex Optimization.” *Journal of Optimization Theory and Applications*, 147(3):516-545, July 2010.

[J55] J. Fuemmeler and V.V. Veeravalli. “Energy Efficient Multi-Object Tracking in Sensor Networks.” *IEEE Transactions on Signal Processing*, 58(7): 3742-3750, July 2010.

[J54] V. Raghavan and V.V. Veeravalli. “Quickest Change Detection of a Markov Process Across a Sensor Array.” *IEEE Transactions on Information Theory*, 56(4): 1961-1981, April 2010.

[J53] S. Sundhar Ram, V. V. Veeravalli and A. Nedic. “Distributed and Recursive Parameter Estimation in Parametrized Linear State-Space Models.” *IEEE Transactions on Automatic Control*, 55(2): 488-492,

February 2010.

- [J52] J. Unnikrishnan and V.V. Veeravalli. "Algorithms for Dynamic Spectrum Access with Learning for Cognitive Radio." *IEEE Transactions on Signal Processing*, 58 (2):750-760, February 2010.
- [J51] V. S. Annapureddy and V.V. Veeravalli. "Gaussian Interference Networks: Sum Capacity in the Low Interference Regime and New Outer Bounds on the Capacity Region." *IEEE Transactions on Information Theory*, 55(7): 3032–3050, July 2009.
- [J50] S. Sundhar Ram, A. Nedic and V.V. Veeravalli. "Incremental Stochastic Subgradient Algorithms for Convex Optimization." *SIAM Journal on Optimization*, 20 (2): 691-717, February 2009.
- [J49] V. Raghavan, V.V. Veeravalli and A.M. Sayeed. "Quantized Multimode Precoding in Spatially Correlated Multi-Antenna Channels." *IEEE Transactions on Signal Processing*, 56(12): 6017-6030, December 2008.
- [J48] A.G. Tartakovsky and V.V. Veeravalli. "Asymptotically Optimal Quickest Change Detection in Distributed Sensor Systems." *Sequential Analysis*, 27(4): 441-475, October 2008.
- [J47] C. Lin, V. Raghavan and V.V. Veeravalli. "To Code or Not To Code Across Time: Space-Time Coding with Feedback." *IEEE JSAC Special Issue on Limited Feedback*, 26(8):1558-1598, October 2008.
- [J46] J. Fuemmeler and V.V. Veeravalli. "Smart Sleeping Policies for Energy Efficient Tracking in Sensor Networks." *IEEE Transactions on Signal Processing*, 56(5): 2091-2102, May 2008.
- [J45] S. Appadwedula, V.V. Veeravalli and D.L. Jones. "Decentralized Detection With Censoring Sensors." *IEEE Transactions on Signal Processing*, 56(4): 1362-1373, April 2008.
- [J44] J. Unnikrishnan and V.V. Veeravalli. "Cooperative Sensing for Primary Detection in Cognitive Radio." *IEEE Journal on Selected Topics in Signal Processing, Special Issue on Dynamic Spectrum Access*, 2(1): 18-27, February 2008.
- [J43] C. Lin and V.V. Veeravalli. "Optimal Linear Dispersion Codes for Correlated MIMO Channels." *IEEE Transactions on Wireless Communications*, 7(2): 657-666, February 2008.
- [J42] J. Chen and V.V. Veeravalli. "Capacity Results for Block-Stationary Gaussian Fading Channels with a Peak Power Constraint." *IEEE Transactions on Information Theory*, 53 (12): 4498-4520, December 2007.
- [J41] Y. Liang, V.V. Veeravalli and H.V. Poor "Resource Allocation for Wireless Fading Relay Channels: Max-Min Solution." *IEEE Transactions on Information Theory, Special Issue on Models, Theory and Codes for Relaying and Cooperation in Communication Networks*, 53(10): 3432-3453, October 2007 .
- [J40] J.-F. Chamberland and V.V. Veeravalli. "Wireless Sensors in Distributed Detection Applications." *IEEE Signal Processing Magazine Special Issue on Resource-Constrained Signal Processing, Communications, and Networking*, 24(3): 16-25, May 2007.
- [J39] Y. Liang and V.V. Veeravalli. "Cooperative Relay Broadcast Channels." *IEEE Transactions on Information Theory*, 53(3): 900-928, March 2007.
- [J38] R. Prakash and V.V. Veeravalli. "Centralized Wireless Data Systems with User Arrivals and Departures." *IEEE Transactions on Information Theory*, 53(2): 695-713, February 2007.
- [J37] J.-F. Chamberland and V.V. Veeravalli."How Dense Should a Sensor Network be for Decentralized Detection with Correlated Observations?." *IEEE Transactions on Information Theory*, 52(11):5099-5106, November 2006.
- [J36] Y. Liang and V.V. Veeravalli. "Gaussian Orthogonal Relay Channels: Optimal Resource Allocation." *IEEE Transactions on Information Theory*, 51(9):3284 - 3289, Sept 2005.
- [J35] V.V. Veeravalli, Y. Liang and A.M. Sayeed. "Correlated MIMO wireless channels: capacity, optimal signaling, and asymptotics." *IEEE Transactions on Information Theory*, 51(6):2058-2072, June 2005.
- [J34] S. Appadwedula, V.V. Veeravalli, and D.L. Jones. "Energy Efficient Detection in Sensor Networks." *IEEE JSAC Special Issue on Sensor Networks*, 23(4): 693-702, April 2005.

- [J33] Y. Liang and V.V. Veeravalli. "Capacity of Noncoherent Time-Selective Block Fading Channels." *IEEE Transactions on Information Theory*, 50(12):3095-3110, December 2004.
- [J32] A.G. Tartakovsky and V.V. Veeravalli. "General Asymptotic Bayesian Theory of Quickest Change Detection." *SIAM: Theory of Probability and its Applications*, 49(3):458-497, 2004.
- [J31] J.-F. Chamberland and V.V. Veeravalli. "Asymptotic Results for Decentralized Detection in Power Constrained Wireless Sensor Networks." *IEEE JSAC Special Issue on Fundamental Performance Limits of Wireless Sensor Networks*. 22(6):1007-1015, August 2004.
- [J30] J.-F. Chamberland and V.V. Veeravalli. "Decentralized Dynamic Power Control for Cellular CDMA Systems." *IEEE Transactions on Wireless Communications*, 2(3): 549-559, May 2003.
- [J29] A. Mantravadi, V.V. Veeravalli and H. Viswanathan. "Spectral Efficiency of MIMO Multiaccess Systems with Single-user decoding." *IEEE Journal on Selected areas in Communications: Special Issue on MIMO Systems and Applications*, 21(3): 382-394, April 2003.
- [J28] R. Prakash and V.V. Veeravalli. "Locally Optimal Soft Handoff Algorithms." *IEEE Transactions on Vehicular Technology*, 52(2): 347-356, March 2003.
- [J27] J.-F. Chamberland and V.V. Veeravalli. "Decentralized Detection in Sensor Networks." *IEEE Transactions on Signal Processing*, 51(2): 407-416, February 2003. (**IEEE Signal Processing Society 2006 Young Author Best Paper Award.**)
- [J26] A. Mantravadi and V.V. Veeravalli. "MMSE detection in asynchronous CDMA systems: An equivalence result." *IEEE Transactions on Information theory*, 48(12): 3128-38, December 2002.
- [J25] V.V. Veeravalli and A. Mantravadi. "The Coding-Spreading Tradeoff in CDMA Systems." *IEEE JSAC Special Issue on Multiuser Detection Techniques*, 20(2): 396-408, February 2002.
- [J24] V.V. Veeravalli. "On Performance Analysis for Signaling on Correlated Fading Channels." *IEEE Transactions on Communications*. 49(11): 1879-85, November 2001.
- [J23] A. Mantravadi and V.V. Veeravalli. "Chip-Matched Filtering and Discrete Sufficient Statistics for Asynchronous Band-limited CDMA Systems." *IEEE Transactions on Communications*. 49(8): 1457-67, August 2001.
- [J22] D.R. Brown, M. Motani, V.V. Veeravalli, H.V. Poor and C.R. Johnson. "On the Performance of Linear Parallel Interference Cancellation." *IEEE Transactions on Information Theory*. 47(5): 1957-70, July 2001.
- [J21] V.V. Veeravalli. "Decentralized Quickest Change Detection." *IEEE Transactions on Information Theory*. 47(4): 1657-65, May 2001.
- [J20] R. Prakash and V.V. Veeravalli. "Adaptive Hard Handoff Algorithms." *IEEE Journal on Selected Areas in Communications - Wireless Communication Series*. 18(11): 2456 -2464, November 2000.
- [J19] V. Dragalin, A.G. Tartakovsky and V.V. Veeravalli. "Multihypothesis Sequential Probability Ratio Tests, Part II: Accurate Expansions for the Expected Sample Size." *IEEE Transactions on Information Theory*. 46(4): 1366-1383, July 2000.
- [J18] V. Tripathi, A. Mantravadi and V.V. Veeravalli. "Channel Acquisition for Wideband CDMA Signals." *IEEE JSAC special issue on Wideband CDMA*. 18(8): 1483-1494, August 2000.
- [J17] A. Mantravadi and V.V. Veeravalli. "Multiple-Access Interference Resistant Acquisition for Band-limited CDMA Systems with Random Sequences." *IEEE Journal on Selected Areas in Communications - Wireless Communication Series*. 18(7): 1203-1213, July 2000.
- [J16] V. Dragalin, A.G. Tartakovsky and V.V. Veeravalli. "Multihypothesis Sequential Probability Ratio Tests, Part I: Asymptotic Optimality." *IEEE Transactions on Information Theory*. 45(7): 2448-2462, November 1999.
- [J15] V.V. Veeravalli and A. Sendonaris. "The Coverage-Capacity Tradeoff in Cellular CDMA Systems." *IEEE Transactions on Vehicular Technology*. 48(5):1443-1451, September 1999.

- [J14] A. Sendonaris, V.V. Veeravalli and B. Aazhang. “Joint Signaling Strategies for Approaching the Capacity of Twisted Pair Channels.” *IEEE Transactions on Communications*. 46(5): 673-685, May 1998. (This work was used in the standardization of HDSL2 second-generation high-bit-rate digital subscriber lines.)
- [J13] V.V. Veeravalli. “Sequential Decision Fusion: Theory and Applications.” *Journal of the Franklin Institute*. 336(2): 301-322, February 1999. (**Invited.**)
- [J12] V.V. Veeravalli and O.E. Kelly. “A Locally Optimal Handoff Algorithm for Cellular Communications.” *IEEE Transactions on Vehicular Technology*. 46(3): 603-610, August 1997.
- [J11] V.V. Veeravalli and C.W. Baum. “Hybrid Acquisition of Direct Sequence CDMA Signals.” *International Journal of Wireless Information Networks*, 3(1): 55-65, January, 1996.
- [J10] V.V. Veeravalli and C.W. Baum. “Asymptotic Efficiency of a Sequential Multihypothesis Test.” *IEEE Transactions on Information Theory*, 41(6): 1994-1997, November 1995.
- [J9] C.W. Baum and V.V. Veeravalli. “A Sequential Procedure for Multihypothesis Testing.” *IEEE Transactions on Information Theory*, 40(6): 1994-2007, November 1994. (**1996 IEEE Browder J. Thompson Award.**)
- [J8] V.V. Veeravalli, T. Başar and H.V. Poor. “Decentralized Sequential Detection with Sensors Performing Sequential Tests.” *Journal on Mathematics of Control Signals and Systems*, 7(4): 292-305, December 1994.
- [J7] V.V. Veeravalli, T. Başar and H.V. Poor. “Minimax Robust Decentralized Detection.” *IEEE Transactions on Information Theory*, 40(1): 35-40, January 1994.
- [J6] V.V. Veeravalli, T. Başar and H.V. Poor. “Decentralized Sequential Detection with a Fusion Center Performing the Sequential Test.” *IEEE Transactions on Information Theory*, 39(2): 433-442, March 1993.
- [J5] V.V. Veeravalli. “Comments on Decentralized Sequential Detection.” *IEEE Transactions on Information Theory*, 38(4):1428-1429, July 1992.
- [J4] V.V. Veeravalli and H.V. Poor. “Quadratic Detection of Signals with Drifting Phase.” *Journal of the Acoustical Society of America*, 89(2): 811-819, February 1991.
- [J3] R.R. Katti, V.V. Veeravalli, B.V.K. Vijaya Kumar and M.H. Kryder. “Model for Demagnetization-Induced Noise in Thin-Film Magnetic Recording Media.” *IEEE Transactions on Magnetics*, 24(4): 2150-2158, July 1988.
- [J2] V.V. Veeravalli, R.R. Katti, B.V.K. Vijaya Kumar and M.H. Kryder. “Time-domain Model for Noise from Particulate Recording Media.” *Journal of Applied Physics*, 61(8-IIB): 4034-4036, April 1987.
- [J1] B.V.K. Vijaya Kumar and V.V. Veeravalli. “Approximate Lower Bound for the SNR of Matched Filters.” *Journal of the Franklin Institute*, 324(1): 139-147, January 1987.

Conference Publications and Presentations

- [C145] V.V. Veeravalli. “Sensor Control for Information Collection and Fusion.” *International Workshop on Information Fusion*, Xi’an, China, August 2011. (**Plenary Lecture**).
- [C144] C. Wilson and V.V. Veeravalli. “A Convergent Version of Max SINR for the MIMO Interference Channel.” In *Proc. ISIT 2011*, St. Petersburg, Russia, August 2011.
- [C143] V.S. Annapureddy, A. El Gamal and V. V. Veeravalli. “Degrees of Freedom of Cooperative Interference Networks.” In *Proc. ISIT 2011*, St. Petersburg, Russia, August 2011.
- [C142] V.V. Veeravalli and T. Banerjee. “Quickest Change Detection with On-Off Observation Control.” *International Workshop in Sequential Methodologies*, Palo Alto, CA, June 2011. (**Invited.**)
- [C141] G. Atia and V.V. Veeravalli. “Sensor management for energy-efficient tracking in cluttered environments.” In *Proc. ITA workshop, UCSD*, San Diego, CA, February 2011. (**Invited.**)
- [C140] T. Banerjee and V.V. Veeravalli. “Bayesian Quickest Change Detection Under Energy Constraints.” In *Proc. ITA workshop, UCSD*, San Diego, CA, February 2011. (**Invited.**)

- [C139] G.K. Atia, V.V. Veeravalli and J.A. Fuemmeler. “Sensor scheduling for energy-efficient target tracking in sensor networks.” In *Proc. IEEE Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, November 2010.
- [C138] K. Premkumar, A. Kumar and V.V. Veeravalli. “Bayesian Quickest Transient Change Detection.” In *Proc. International Workshop on Applied Probability*, Madrid, Spain, July 2010. **(Invited.)**
- [C137] J. Unnikrishnan, S. Meyn and V.V. Veeravalli. “On Thresholds for Robust Goodness-of-Fit Tests. In *Proc. Information Theory Workshop*, Dublin, Ireland, August 2010.
- [C136] V.S. Annapureddy, A. El Gamal and V. V. Veeravalli. “Degrees of freedom of the K-user interference channel with transmitter cooperation.” In *Proc. IEEE ISIT*, Austin, Texas, June 2010.
- [C135] V. Ragahavan, V.V. Veeravalli and S. Hanly. “Linear Beamforming for the Spatially Correlated MISO broadcast channel.” In *Proc. IEEE ISIT*, Austin, Texas, June 2010.
- [C134] R. Tandra, A. Sahai and V.V. Veeravalli. “Space-Time Metrics for Spectrum Sensing.” In *Proc. IEEE DYSpan*, Singapore, April 2010.
- [C133] S.S. Ram, V.V. Veeravalli and A. Nedic. “Distributed stochastic optimization and its application to estimation in sensor networks.” In *Proc. ITA workshop, UCSD*, San Diego, CA, February 2010. **(Invited.)**
- [C132] J. Unnikrishnan, V.V. Veeravalli and S.P. Meyn. “Minimax robust quickest change detection.” In *Proc. ITA workshop, UCSD*, San Diego, CA, February 2010. **(Invited.)**
- [C131] V.S. Annapureddy and V. V. Veeravalli. “Sum Capacity of MISO and SIMO Interference Channels.” In *Proc. IEEE ITW*, Cairo, Egypt, January 2010. **(Invited.)**
- [C130] S. S. Ram, A Nedic and V. V. Veeravalli, “Asynchronous Gossip Algorithms for Stochastic Optimization.” In *Proc. IEEE Conference on Decision and Control (CDC)*, Shanghai, China, December 2009. **(Invited.)**
- [C129] V. Ragahavan, M.L. Honig and V.V. Veeravalli. “Performance analysis of RVQ-based limited feedback beamforming codebooks.” In *Proc. IEEE ISIT*, Seoul, South Korea, August 2009.
- [C128] V. Ragahavan and V.V. Veeravalli. “Bayesian quickest change process detection.” In *Proc. IEEE ISIT*, Seoul, South Korea, August 2009.
- [C127] J. Unnikrishnan, V.V. Veeravalli and S.P. Meyn. “Least favorable distributions for robust quickest change detection.” In *Proc. IEEE ISIT*, Seoul, South Korea, August 2009.
- [C126] D. Huang, J. Unnikrishnan, S.P. Meyn and V.V. Veeravalli and A. Surana. “Statistical SVMs for robust detection, supervised learning, and universal classification.” In *Proc. IEEE ITW*, Volos, Greece, June 2009. **(Invited.)**
- [C125] V.S. Annapureddy, V. V. Veeravalli and S. Vishwanath. “Sum Capacity of Gaussian MIMO Interference Channels in the Low Interference Regime.” *IEEE Communication Theory Workshop*, Napa, CA, May 2009. **(Invited.)**
- [C124] S. S. Ram, A Nedic and V. V. Veeravalli, “Asynchronous Gossip Algorithms for Stochastic Optimization.” In *Proc. IEEE GamesNets*, Istanbul, Turkey, May 2009
- [C123] S. S. Ram, A Nedic and V. V. Veeravalli, “Distributed subgradient projection algorithm for convex optimization.” In *Proc. IEEE ICASSP*, Taipei, Taiwan, April 2009.
- [C122] S. S. Ram, V. V. Veeravalli and A. Nedic, Distributed Non-Autonomous Power Control through Distributed Convex Optimization,” In *Proc. IEEE INFOCOM*, Rio de Janeiro, April 2009
- [C121] V.S. Annapureddy, V. V. Veeravalli and S. Vishwanath. “Sum capacity of MIMO interference channels in the low interference regime.” In *Proc. ITA workshop, UCSD*, San Diego, CA, February 2009. **(Invited.)**
- [C120] D. Huang, J. Unnikrishnan, S.P. Meyn and V.V. Veeravalli and A. Surana. “Statistical SVMs for robust detection and universal classification.” In *Proc. ITA workshop, UCSD*, San Diego, CA, February

2009. **(Invited.)**

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EXTERNAL RESEARCH FUNDING

Current Research Funding

- “CIF: Large: Collaborative Research: Controlled Sensing, and Distributed Signal Processing and Decision-Making in Networked Systems.” Funded by the *National Science Foundation*, August 15, 2011 – August 15, 2016. (Collaborative proposal led by D. Teneketsis at U. Michigan and V.V. Veeravalli at U. Illinois.)
- “Nonlinear Filtering and Change-point Detection Methods for Course of Action Analysis.” Funded by the *Defense Threat Reduction Agency*, August 15, 2010 – August 14, 2015. (With A. Tartakovsky and A. Galstyan, USC.)
- “Dynamic Information Collection and Fusion.” Funded by the *Air Force Office of Scientific Research*, August 15, 2010 – August 14, 2015. (Led by Veeravalli, with P. Ishwar, BU, and B. Chen, P. Varshney, Syracuse.)
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- “MIMO Interference Networks: Capacity and Adaptive Signaling Strategies.” Funded by Intel Corporation, September 2008 – .
- “MIMO Links in Wireless Edge Networks: Cross-Layer Protocol Design.” Funded by the *National Science Foundation*, August 16, 2008 – August 15, 2012. (With N. Vaidya, Illinois).
- “Collaborative Research: Optimal Changepoint Detection and Identification Algorithms with Applications.” Funded by the *National Science Foundation*, August 1, 2008 – July 31, 2012. (With A. Tartakovsky, USC.)
- “Robust Inference and Communication: Theory Algorithms and Performance Analysis.” Funded by the *National Science Foundation*, October 1, 2007 – September 30, 2011 . (With S. Meyn, Illinois.)
Total funding: \$380K.

Past Research Funding

- “Spatial-Temporal Nonlinear Filtering with Applications to Information Assurance and Counter Terrorism”. Funded by the *ARO FY06 MURI Program on Spatial-Temporal Event Pattern Recognition*, May 2006 – August 2011. (Led by B. Rozovsky, Brown University.)
- “Adaptive Space-Time Codes for Interference Channels” Funded by *Texas Instruments*, 2007 – 2008.
- “Adaptive Space-Time Codes for General MIMO Channels.” Funded by *Texas Instruments*, 2006 – 2007.
- “Wireless Wind Tunnel: A Testbed for Experimental Evaluation of Wireless Networks.” Funded by the *National Science Foundation*, September, 2004 – August, 2009. (With Profs. N. Vaidya, J. Bernhard, R. Iyer, and P.R. Kumar, Illinois.)
- “Communication over Dispersive Wireless Channels: Theory and Methods Based on Physical Principles.” Funded by the *National Science Foundation*, September, 2004 – August, 2008. (With Prof. A. Sayeed, U. Wisconsin.)
- Played a lead role in obtaining a **\$3.4 million** award from the *Vodafone-US Foundation* to fund graduate and undergraduate fellowships in wireless communications at the University of Illinois from 2003-2008.
- “Design and Analysis of Sensor Networks for Statistical Inference Applications.” Funded by the *Motorola Communications Center*, Illinois. September, 2005 – August 2008.

- “New Techniques for Optimizing the Quality and Capacity of Wireless Communication Systems.” Funded by *National Science Foundation CAREER program and PECASE award*, July 1, 1998 – June 30, 2006.
- “Signal Design for Broadband Multiantenna Wireless CDMA Systems.” Funded by *Lucent Technologies*. June 2002 – .
- “An Integrated Exploration of Wireless Network Communication.” Funded by the *National Science Foundation* through the ITR program, August 1, 1999 – December 31, 2004. (With several CSL, Illinois faculty.)
- “Design Principles for Wideband Wireless Communications.” Funded by the *National Science Foundation*, March 1, 2000 – August 31, 2003. (With Prof. T. Berger).
- “Research at the Frontiers of the Physical Layer.” Funded by *National Science Foundation*, September 1, 1998 – August 31, 2002. (With Prof. C. Heegard.)
- “Decentralized Dynamic Decision Making and its Applications to Wireless Communications.” Funded by the *Office of Naval Research*. June 1, 1997 – August 31, 2000.
- “New Sequential Techniques for Code Acquisition in Wireless CDMA Systems.” Funded by the *National Science Foundation*. January 1, 1997 – December 31, 2000.
- “Wideband Multimedia Wireless Communications.” Funded by *Lockheed Martin Co.*, May 20, 1999 – August 31, 2000.
- “Radio Resource Management for Third Generation CDMA Systems.” Funded by *Nortel External Research*. April 20, 1998 – July 25, 2000.
- “Capacity, Coverage and Soft Handoff Analysis for Cellular CDMA Systems.” Funded by *Nortel External Research*. December 10, 1996 – December 10, 1997.

Equipment Grants and Donations

- “Drive Test Products for Illinois Center for Wireless Systems (ICWS) Lab.” *Agilent Technologies*, 2009.
- Wireless LAN equipment for the Cornell ROBOCUP project. *Raytheon*, 2000.
- “Companion 200 pico-cellular communication system testbed for WiSE laboratory.” *Nortel External Research*, 1998.
- “Arbitrary Waveform Generator and High Speed Digitizing Oscilloscope.” *Tektronix Foundation*, 1999.
- “Equipment grant for WiSE laboratory” *AT&T Foundation*, 1996.

ADVISING

Postdoctoral Associates

- **Sirin Nitinawarat**, Ph.D. University of Maryland, January 2011 - present.
- **George Atia**, Ph.D. Boston University, September 2009 - present.
- **Vasanthan Raghavan**, Ph.D. U. Wisconsin, Madison, August 2006 - August 2009. Now with USC.
- **Jun Chen**, Ph.D. Cornell University. September 2005 - July 2006. Now with McMaster University.
- **Wei Zha**, Ph.D. Queens University. December 2003 - January 2005. Now with Schlumberger.

Ph.D. Students

- **Yun Li**. Currently working on Ph.D. thesis. Expected completion date: August 2014.
- **Taposh Banerjee**. Currently working on Ph.D. thesis. Expected completion date: August 2013.
- **Aly ElGamal**. Currently working on Ph.D. thesis. Expected completion date: August 2013.
- **V. Sreekanth Annapureddy**. Ph.D., September 2011. Thesis title: “Interference Management in Wireless Networks.” Now with Polycom (formerly ViVu), Pleasanton, CA.
- **Jayakrishnan Unnikrishnan**. Ph.D., August 2010. Thesis title: “Decision-Making Under Statistical Uncertainty.” Now with EPFL, Switzerland.
- **S. Sundhar Ram**. Ph.D., December 2009. Thesis title: “Distributed Optimization in Multi-Agent Systems: Applications to Distributed Regression.” Now with Goldman Sachs.
- **Jason Fuemmeler**. Ph.D., October 2008. Thesis title: “Energy-Efficient Tracking in Sensor Networks.” Now with Rockwell Collins.
- **Che Lin**. Ph.D., August 2008. Thesis title: “Multiantenna Communication in the Presence of Feedback.” Now with National Tsing Hua University, Taiwan.
- **Yingbin (Grace) Liang**. Ph.D., August 2005. Thesis title: “Multiuser Communications with Relaying and User Cooperation.” Now with Syracuse University.
- **Jean-Francois Chamberland**. Ph.D., August 2004. Ph.D. thesis title: “Design of Sensor Networks for Detection Applications via Large Deviation Theory.” Now with Texas A&M University.
- **Rajat Prakash**. Ph.D., October 2003. Ph.D. thesis title: “Centralized Wireless Systems with User Arrivals and Departures.” Now with Qualcomm, San Diego, CA.
- **Swaroop Appadwedulla**. Ph.D., May 2003. (Co-advised with Douglas Jones.) Thesis title: “Energy-Efficient Sensor Networks for Detection Applications.” Now with Lincoln Labs, Boston, MA.
- **Ashok Mantravadi**. Ph.D., January, 2002, Cornell University. Ph.D. thesis title: “Analysis and Design of Wideband Multiantenna CDMA Systems.” Now with Qualcomm, Inc.
- **Mehul Motani**. Ph.D., August 2000, Cornell University. (Co-advised with Chris Heegard.) Thesis title: “Information Theory and Coding for CDMA Systems.” Now with National University of Singapore.

M.S. Students

- **Craig Wilson**. Currently working on M.S. thesis. Expected completion date: June 2011.
- **V. Sreekanth Annapureddy**. M.S., August 2008. Thesis title: “Gaussian Interference Channel in the Low Interference Regime.”

- **Jayakrishnan Unnikrishnan.** M.S., October 2007. Thesis title: “Cooperative Sensing for Primary Detection in Cognitive Radio.”
- **Arun Visvanathan.** M.S., August 2005. Thesis title: “Sleeping Policies for Energy Efficient Tracking in Sensor Networks.” Now with Airvana, Boston, MA.
- **Jason Fuemmeler.** M.S., October, 2004. Thesis title: “Power Control for Ad Hoc Wireless Networks.” Now with Rockwell Collins.
- **Batu Sat.** M.S., October 2003. Thesis title: “Grouping Strategies for Cellular CDMA Systems.”
- **K. Chaitanya Reddy.** M.S., May, 2003. Thesis title: “Coding Spreading Tradeoff for Multiple Antenna Systems Using Convolutional Codes.” Now with Qualcomm, San Diego, CA.
- **Jean-Francois Chamberland.** M.S., August 2000, Cornell University. Thesis title: “Analysis and Design of Power Control Algorithms for CDMA Systems.” Now with Texas A&M University.
- **Rajat Prakash.** M.S., August 1999, Cornell University. Thesis title: “Analysis and Design of Handoff Algorithms.” Now with Qualcomm, San Diego, CA.
- **Ashok Mantravadi.** M.S., January, 1999, Cornell University. Thesis title: “On Acquisition and Detection in Asynchronous Band-limited CDMA Systems.” Now with Qualcomm, San Diego, CA.

Undergraduate Research Projects (last five years)

- **Manan Agarwal.** “Setting up ICWS Lab using Agilent Test Drive Equipment.” Spring 2010.
- **Jerome Han.** “Setting up ICWS Lab using Agilent Test Drive Equipment.” Spring 2010.
- **KyunkSik Choi.** “Setting up ICWS Lab using Agilent Test Drive Equipment.” Spring 2010.
- **Omar El Bassiouny.** “Deriving the Scaling laws for a Simplified Environment inside the Illinois Wireless Wind Tunnel.” Supported by NSF REU supplement, 2008.
- **Anirudh Talwar.** “Energy-Efficient Tracking in Sensor Networks.” Spring 2007.
- **Jason Chang.** “Detection of Primary Signal in Cognitive Radio Systems.” Supported by a Vodafone Scholarship, 2006-2007.
- **Jason Ching.** “Queuing Theory and its Applications in Cellular Network Analysis.” Supported by an NSF REU grant. Summer 2003.

TEACHING ACTIVITIES

University of Illinois

- ECE 562 (Fall 2010, 2011): Advanced Digital Communication
- ECE 534 (Spring 2008, Fall 2009): Random Processes
- ECE 559 (Fall 2007): Wireless Communication
- ECE 461 (Fall 2006): Communication Systems II
- ECE 563 (Fall 2005, Fall 2010): Information Theory
- ECE 459 (Spring 2003): Communication Systems I
- ECE 561 (Spring 2002, 2006, 2007, 2010): Detection and Estimation Theory
- ECE 471VV (Spring 2001): Wireless Communication Networks
- ECE 559 (Fall 2000): Communication Systems III

Cornell University

- EE 467 (Fall 1997, 1998, 1999): Communication Systems 1 (*Introduced by VVV*)
- EE 568 (Spring 1997, 1998, 1999): Mobile Communication Systems (*Introduced by VVV*)
- EE 564 (Fall 1996): Signal Detection and Estimation
- EE 311 (Spring 1998): EE Honors Seminar
- EE 595 (Fall 1996): Wireless Information Technology Seminar

Rice University

- Elec 630 (Spring 1996): Advanced Topics—Wireless Communications (*Introduced by VVV*)
- Elec 301 (Fall 1994, 1995): Introduction to Signals and Systems
- Elec 535 (Spring 1995): Information and Coding Theory
- Elec 697 (Spring 1995): Information-Theoretic Signal Processing—Graduate seminar course

Nortel Networks

- Summer 1995: Communication Theory—A detailed overview of information theory, coding theory and modulation, with emphasis on multiple-access communications

City University of New York

- EE 311 (Spring 1994): Communication Engineering I
- EE 5771 (Fall 1993): Statistical Communication Theory (*Introduced by VVV*)

University of Illinois

- ECE 461 (Spring 1992): Signal Detection and Estimation

INVITED TALKS AT UNIVERSITIES, CONFERENCES AND INDUSTRY (last five years)

- “Sleep Control for Tracking in Sensor Networks”
 - **Harvard University**, SEAS Seminar, September 2011.
- “Sensor Control for Information Collection and Fusion”
 - **International Workshop on Information Fusion**, Xian, China, August 2011. *Plenary Lecture.*
- “Quickest Change Detection with On-Off Observation Control”
 - **International Workshop in Sequential Methodologies**, Palo Alto, CA June 2011.
- “Understanding and Managing Interference in Wireless Networks”
 - **Carnegie Mellon University**, SPS Distinguished Lecture, April 2011.
- “Degrees of Freedom of Interference Channels with CoMP Transmission and Reception”
 - **Motorola**, University Partnership Day, March 2011.
- “Bayesian Quickest Change Detection Under Energy Constraints.”
 - **UCSD ITA Workshop**, San Diego, CA, February 2011.
- “Tracking with Sleepy Sensors”
 - **Ain-Shams University**, Cairo, Egypt, SPS Distinguished Lecture, December 2010.
 - **Bogazici University**, Istanbul, Turkey, SPS Distinguished Lecture, December 2010.
- “Bayesian Quickest Transient Change Detection”
 - **International Workshop on Applied Probability**, Madrid, Spain, June 2010.
- “Understanding and Managing Interference in Wireless Networks”
 - **Boston University**, SPS Distinguished Lecture, April 2010.
 - **University of Wisconsin, Madison**, SPS Distinguished Lecture, April 2010.
 - **University of British Columbia**, SPS Distinguished Lecture, July 2010.
 - **Nile University, Cairo**, SPS Distinguished Lecture, December 2010.
- “Dynamic Spectrum Access with Learning for Cognitive Radio”
 - **Syracuse University**, SPS Distinguished Lecture, February 2010.
 - **Northwestern University**, SPS Distinguished Lecture, March 2010.
 - **University of Hawaii**, SPS Distinguished Lecture, March 2010.
- “Distributed Stochastic Optimization and its Application to Estimation in Sensor Networks”
 - **UCSD ITA Workshop**, San Diego, CA, February 2010.
- “Quickest Change Detection in Sensor Networks.”
 - **University of Illinois at Chicago** SPS Distinguished Lecture, January 2010.
- “Distributed Stochastic Optimization in Cognitive Networks.”
 - **NSF Workshop**, on Cognitive Networks, Los Angeles, CA, November 2009.
- “Capacity of Interference Channels in a Low Interference Regime.”
 - **University of Maryland**, ECE Department Seminar, October 2009.
- “Quickest Change Detection in Sensor Networks.”
 - **Yale University**, Statistics Seminar, New Haven, CT, October 2009.
- “Sum Capacity of Gaussian MIMO Interference Channels in the Low Interference Regime.”
 - **IEEE Communication Theory Workshop**, Napa, CA, May 2009.
- “Interference Management.”
 - **IISc, Bangalore**, Workshop on Cognitive Radio, Bangalore, India, March 2009.
- “Spectrum Sharing.”
 - **IISc, Bangalore**, Workshop on Cognitive Radio, Bangalore, India, March 2009.

- “Sum capacity of MIMO interference channels in the low interference regime.”
 - **UCSD ITA Workshop**, San Diego, CA, February 2009.
- “Quickest Change Detection in Sensor Networks.”
 - **IISc, Bangalore**, ECE Department Seminar, Bangalore, India, February 2009.
- “Capacity of Gaussian Interference Networks in the Low Interference Regime.”
 - **WISARD Workshop**, Bangalore, India, January 2009.
- “Dynamic Spectrum Access with Learning for Cognitive Radio.”
 - **Tata Institute for Fundamental Research (TIFR)**, Mumbai, India, December 2008.
- “Dynamic Spectrum Access Policies for Cognitive Radio.”
 - **IEEE CDC**, Cancun, Mexico, December 2008.
- “Tracking with Sleepy Sensors.”
 - **MIT, RLE/LIDS Seminar**, Cambridge, MA, November 2008.
- “Energy-Efficient Multi-Target Tracking Using Sensor Networks”
 - **Army Conference on Applied Statistics (ACAS)**, Lexington, VA, October 2008..
- “Incremental Recursive Prediction Error Algorithm for Parameter Estimation in Sensor Networks.”
 - **IEEE Fusion Conference**, Cologne, Germany, July 2008.
- “Quickest Detection of a Change Process Across a Sensor Array.”
 - **IEEE Fusion Conference**, Cologne, Germany, July 2008.
- “Understanding and Managing Interference in Wireless Networks.”
 - **TU Munich**, Institute for Communication Engineering Seminar, Munich, Germany, June 2008.
- “System-Theoretic Foundations for Wireless Sensor Networks.”
 - **TU Braunschweig**, Distinguished Seminar, Braunschweig, Germany, June 2008.
- “Design Principles for Next Generation Wireless Technologies.”
 - **Tech Mahindra**, Distinguished Seminar, Bangalore, India, June 2008.
- “System-Theoretic Foundations for Wireless Sensor Networks.”
 - **IISc Bangalore**, ECE Department Seminar, Bangalore, India, June 2008.
- “Interference Management in Wireless Networks.”
 - **Qualcomm Seminar**, San Diego, CA, February 2008.
- “Sum Capacity of the Gaussian Interference Channel in the Low Interference Regime.”
 - **UCSD ITA Workshop**, San Diego, CA, January 2008.
- “Incremental Robbins-Monro Gradient Algorithm for Estimation in Sensor Networks.”
 - **IEEE CAMSAP Workshop**, St. Thomas, US Virgin Islands, December 2007.
- “To Code or not to Code Across Time: Space-Time Codes with Feedback.”
 - **Intel Systems Seminar**, San Jose, CA, November 2007
- “Energy Efficient Nonlinear Filtering for Tracking in Sensor Networks.”
 - **56th Session of the International Statistical Institute**, Lisbon, Portugal, August 2007
- “Quickest Change Detection in Sensor Networks.”
 - **First International Workshop in Sequential Methodologies**, Auburn, AL, July 2007
- “Role of Experimental Research in Wireless Communications.”
 - **IEEE Communication Theory Workshop**, Sedona, AZ, May 2007. **(Panelist)**
- “System-Theoretic Foundations for Sensor Networks.”
 - **IEEE Communication Theory Workshop**, Sedona, AZ, May 2007. **(Keynote Lecture)**
 - **UC Davis**, ECE Department Colloquim, October 2006.
 - **IWWAN**, New York, NY, June 2006. **(Keynote Lecture.)**
- “Localization and Intensity Tracking of Diffusing Sources.”

- **Netted Sensors Workshop**, MITRE, McLean, VA, May 2007.
 - “Smart Sleeping Policies for Wireless Sensor Networks.”
 - **IPAM Workshop** on Mathematical Challenges and Opportunities in Sensor Networking, UCLA, January 2007.
 - **NSF Workshop** on Future Directions in Networked Sensing, Boston, MA, May 2006
 - “Applications of Quickest Change Detection in Critical Infrastructure Monitoring.”
 - **NSF Workshop** on Critical Infrastructure Monitoring, Arlington, VA, November 2006.
 - “Tracking with Sleepy Sensors.”
 - **ICASSP**, Toulouse, France, May 2006.
 - **Michigan Tech. University**, CISSIC Research Seminar, April 2006.
 - **Cornell University**, ECE Department Seminar, April 2006.
 - **McGill University**, Montreal, Canada, ECE Seminar, March 2006.
 - “Resource Allocation for Fading Orthogonal Relay Channels.”
 - **MSRI Workshop** on Mathematics of Relaying and Cooperation in Communication Networks, Berkeley, CA, April 2006
 - “Asymptotic Robust Hypothesis Testing Based on Moment Classes.”
 - **UCSD ITA Inaugural Workshop**, San Diego, CA, February 2006.
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PERSONAL

Married, US Citizen