Matthew Nokleby

Wayne State University
Electrical and Computer Engineering

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Detroit, MI 48202

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RESEARCH INTERESTS	Information theory, Machine Learning, Statistical signal processing, Wireless Networks, Game and decision theory

EDUCATION

Rice University, Houston, Texas USA

Ph.D., Electrical and Computer Engineering, December 2012
Thesis Title: "Cooperative Strategies for Near-Optimal Computation in Wireless Networks"
Advisor: Behnaam Aazhang

Brigham Young University, Provo, Utah USA

M.S., Electrical and Computer Engineering, August 2008
Thesis Title: "Satisficing Theory and Non-cooperative Games"
Advisors: Wynn Stirling and A. Lee Swindlehurst

B.S., Electrical and Computer Engineering *(cum laude)*, August 2006

POSITIONS HELD

Assistant Professor, Department of ECE, Wayne State University, 2015 – present
Post-doctoral Associate, Information Initiative at Duke (iiD), Duke University, 2013 – 2015
Visiting Researcher, Boston University, Visiting Researcher, March 2012
Visiting Researcher, Duke University, April – August 2011
Research Assistant, Center for Multimedia Communications, Rice University, 2008 – 2012
Research Assistant, Brigham Young University, 2005-2008

TEACHING EXPERIENCE

Wayne State University, Detroit, MI, USA

Instructor, ECE 7995: Information Theory	Fall 2015

Rice University, Houston, Texas USA

Coordinator, MOOC version of ELEC 241: Fundamentals of Electrical Engineering	Fall 2012
Coordinator/co-instructor, Network Information Theory Short Course	Summer 2012
Teaching Fellow, ELEC 241: Fundamentals of Electrical Engineering	Fall 2011

Brigham Young University, Provo, Utah USA

Instructor, ECE 380: Signals and Systems	Spring 2008
Teaching assistant, ECE 380: Signals and Systems	Spring 2007

PROFESSIONAL SERVICE

Served on Technical Program Committee, IEEE Globecom 2015.

Reviewed for the following journals: IEEE Journal of Special Topics in Communication, IEEE Journal of Selected Topics in Signal Processing, IEEE Transactions on Vehicular Technology, IEEE Transactions on Communications, IEEE Communications Letters, IEEE Transactions on Signal Processing, IEEE Wireless Communications Letters, EURASIP Journal on Wireless Communications and Networking

AWARDS

Best Dissertation Award, Rice ECE Department, 2012
Texas Instruments Distinguished Fellowship, 2008–2012
AUVSI Student UAV competition, 2nd place, 2006

Nokia/BYU Research Seminar, 2nd place, 2006

JOURNAL
PUBLICATIONS

N. Ferdinand, B. Kurkoski, **M. Nokleby**, B. Aazhang, "Low-Dimensional Shaping for High-Dimensional Lattice Codes," submitted to IEEE Transactions on Wireless Communications, Oct. 2015.

M. Nokleby, B. Aazhang, "Cooperative Compute-and-Forward," to appear in IEEE Transactions on Wireless Communications.

M. Nokleby, M. R. D. Rodrigues, R. Calderbank, "Discrimination on the Grassmann Manifold: Fundamental Limits of Subspace Classifiers," IEEE Transactions on Information Theory, April 2015.

N. S. Ferdinand, **M. Nokleby**, B. Aazhang, "Low-Density Lattice Codes for Relay Channels," IEEE Transactions on Wireless Communications, April 2015.

M. Nokleby, W. U. Bajwa, R. Calderbank, B. Aazhang, "Toward Resource-Optimal Consensus over the Wireless Medium," IEEE Journal of Special Topics in Signal Processing, April 2013.

M. Nokleby, W. Stirling, "Attitude Adaptation in Satisficing Games," IEEE Transactions on Systems, Man, and Cybernetics, Part B, vol. 39, no. 6, December 2009.

M. Nokleby, A. L. Swindlehurst, "Bargaining and the MISO Interference Channel," EURASIP Journal on Advances in Signal Processing, vol. 2009.

W. C. Stirling, **M. S. Nokleby**, "Satisficing Coordination and Social Welfare for Robotic Societies," International Journal of Social Robotics, vol. 1, no. 1, January 2009.

CONFERENCE
PUBLICATIONS

N. Michelusi, **M. Nokleby**, U. Mitra, R. Calderbank, "Dynamic Spectrum Estimation with Minimal Overhead via Multiscale Information Exchange," IEEE GLOBECOM, San Diego, CA, Dec. 2015.

M. Nokleby, A. Beirami, R. Calderbank, "A Rate-distortion Framework for Supervised Learning," IEEE Machine Learning for Signal Processing Workshop, Boston, MA, Sept. 2015.

N. Ferdinand, **M. Nokleby**, B. Kurkoski, B. Aazhang, "MMSE Scaling Enhances Performance in Practical Lattice Codes," Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, November 2014.

M. Nokleby, M. R. D. Rodrigues, R. Calderbank, "Discrimination on the Grassmann Manifold: Fundamental Limits of Subspace Classifiers,"IEEE International Symposium on Information Theory, Honolulu, Hawaii, July 2014.

M. Nokleby, M. R. D. Rodrigues, R. Calderbank, "Information-Theoretic Criteria for the Design of Compressive Subspace Classifiers," IEEE International Conference on Acoustics, Speech, and Signal Processing, Florence, Italy, May 2014.

M. Nokleby, W. U. Bajwa, "Resource Tradeoffs in Distributed Subspace Tracking over the Wireless Medium,"' IEEE Global Conference on Signal and Information Processing, Austin, TX, December 2013.

M. Nokleby M. R. D. Rodrigues, R. Calderbank, "Information-theoretic Limits on the Classication of Gaussian Mixtures: Classication on the Grassmann Manifold," IEEE Information Theory Workshop, Seville, Spain, September 2013.

M. Nokleby, B. Nazer, "Amplify-and-Compute: Function Computation in Layered Networks," IEEE International Symposium on Information Theory, Istanbul, Turkey, July 2013.

N. S. Ferdinand, **M. Nokleby**, B. Aazhang, "Low-Density Lattice Codes for the Relay Channel," IEEE International Conference on Communications, Budapest, Hungary, June 2013.

M. Nokleby, W. U. Bajwa, R. Calderbank, B. Aazhang, "Toward Resource-Optimal Averaging Consensus over the Wireless Medium," Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, November 2012.

M. Nokleby, B. Nazer, B. Aazhang, "Relay Computation: Managing Interference with Structure and Cooperation," Allerton Conference, Monticello, IL, October 2012.

M. Nokleby, B. Nazer, B. Aazhang, N. Devroye, "Relays that Cooperate to Compute," International Symposium on Wireless Communication Systems, Paris, France, August 2012.

M. Nokleby, W. U. Bajwa, R. Calderbank, B. Aazhang, "Hierarchical Averaging over Wireless Sensor Networks," International Conference on Acoustics, Speech, and Signal Processing, Kyoto, Japan, March 2012.

M. Nokleby, B. Aazhang, "Unchaining from the Channel: Cooperative Computation over Multiple-access Channels," IEEE Information Theory Workshop, Paraty, Brazil, October 2011.

M. Nokleby, W. U. Bajwa, R. Calderbank, B. Aazhang, "Gossiping in Groups: Distributed Averaging over the Wireless Medium," Allerton Conference, Monticello, IL, September 2011.

M. Nokleby, B. Aazhang, "Cooperative Computation in Wireless Networks," IEEE International Symposium on Information Theory, St. Petersburg, Russia, July 2011.

M. Nokleby, B. Aazhang, "Lattice Coding over the Relay Channel," IEEE International Conference on Communications, Kyoto, Japan, June 2011.

M. Nokleby, B. Aazhang, "User Cooperation for Energy-efficient Cellular Communications," IEEE International Conference on Communications, Cape Town, South Africa, May 2010.

M. Nokleby, A. L. Swindlehurst, "Bargaining and Multi-user Detection in MIMO Interference Networks," International Conference on Computer Communications and Networks, St. Thomas, US Virgin Islands, Aug. 2008.

M. Nokleby, A. L. Swindlehurst, Y. Rong, Y. Hua, "Cooperative Power Scheduling for Wireless MIMO Networks," IEEE GLOBECOM, Washington, DC, Nov. 2007.

M. S. Nokleby, W. C. Stirling, "Attitude Adaptation in Satisficing Games," IEEE Symposium on Foundations of Computational Intelligence, Honolulu, HI, Apr. 2007.

W. Stirling, R. Frost, **M. Nokleby**, Y. Luo, "Multicriterion Decision Making with Dependent Preferences," IEEE Symposium on Computational Intelligence in Multicriteria Decision Making, Honolulu, HI, Apr. 2007.

M. S. Nokleby, W. C. Stirling, "Satisficing Learning Dynamics in the Stag Hunt," IEEE Mountain Workshop on Adaptive and Learning Systems, Logan, UT, Jul. 2006.

M. S. Nokleby, W. C. Stirling, "The Stag Hunt: A Vehicle for Evolutionary Cooperation," IEEE World Congress on Computational Intelligence, Vancouver, BC, Jul. 2006.

J. C. Hill, **M. S. Nokleby**, J. K. Archibald, R. L. Frost, W. C. Stirling, "Cooperative Graph Search by a System of Autonomous Agents," IEEE International Conference on Systems, Man, and Cybernetics, Oct. 2005.

BOOK CHAPTERS   M. Rodrigues, **M. Nokleby**, F. Renna, R. Calderbank, "Compressive Classification: Where Wireless Communications Meets Machine Learning," in *Compressed Sensing and its Applications*, Springer, 2015.

M. Nokleby, G. Middleton, B. Aazhang, "Cross-Layer Cooperative Communication in Wireless Networks," in Jerry Gibson (Ed.) *Mobile Communications Handbook*, CRC Press, Boca Raton, FL., 2011.

COMPUTER SKILLS   Operating systems: Unix/Linux, Mac, Windows
Languages: C/C++, Assembly, MATLAB, Java, Verilog, Python, PHP, HTML, LaTeX

HOBBIES /   Amateur musician: Play cello and electric bass, have written a few "classical" compositions.
PERSONAL   Distance runner: Completed one marathon, three half marathons, and many shorter races.