Kush R. Varshney

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Education:

Massachusetts Institute of Technology, Cambridge, MA, USA
Doctor of Philosophy in Electrical Engineering and Computer Science, 2010
Thesis: Frugal Hypothesis Testing and Classification
Committee: Alan S. Willsky (advisor), John W. Fisher, III, Polina Golland, and Joshua B. Tenenbaum
Minor: linguistics

Electrical Engineer, 2010

Master of Science in Electrical Engineering and Computer Science, 2006
Thesis: Joint Anisotropy Characterization and Image Formation in Wide-Angle Synthetic Aperture Radar
Advisors: Müjdat Çetin and John W. Fisher, III
Cumulative GPA 5.00 (A = 5.00)

Cornell University, Ithaca, NY, USA
Bachelor of Science (magna cum laude) in Electrical and Computer Engineering, 2004
Honors Project: Greedy Postprocessing for Spatial Error Concealment in MPEG Video
Advisor: Sheila S. Hemami
Minor: computer science
Cumulative GPA 3.93 (A = 4.00)

Research Interests:

Signal processing: sparse signal representation, decision theory, quantization, graphical models

Machine learning: margin-based classification, dimensionality reduction, ensemble methods

Image processing: image formation, image segmentation, level set methods

Applications: business analytics, sensor networks, public affairs, olfaction, medical imaging, radar

Honors:

Best Paper Award, IEEE International Conference on Service Operations and Logistics, and Informatics, 2013.

Contributor to WellPoint Team, Gerstner Award for Client Excellence (most prestigious internal award at IBM), 2013.

IBM Research Outstanding Technical Accomplishment, GMU Proactive Retention, 2013.

IBM Research Division Award
- Analytics-Driven Proactive Retention in GMU, 2013;
- Business Impact of Outsourcing Analytics, 2012.

IBM Research Technical Accomplishment
- WellPoint Health Insurance Exchanges Analytics, 2013;
- Computational Creativity for Culinary Recipes, 2013;
- Analytics-Driven Proactive Retention in the Growth Markets Unit, 2012;
- Business Impact of Outsourcing Analytics, 2011;
- Software Group Sales Analytics, 2011.

IBM Eminence and Excellence Award, WellPoint/IBM Healthcare Predictive Analytics Project, 2012.

IBM Outstanding Technical Achievement Award, Contributions to Salesforce Analytics, 2012.

Best Student Paper Travel Award, International Conference on Information Fusion, 2009.

National Science Foundation Graduate Research Fellow, 2004–2009.

John McMullen Dean's Scholar, 2000–2004.

Eta Kappa Nu (electrical and computer engineering honor society), inducted 2003.

Tau Beta Pi (engineering honor society), inducted 2003.

Lockheed Martin Award for Academic Excellence (awarded to five outstanding sophomores in School of Electrical and Computer Engineering, Cornell University), 2002.

Rensselaer Medal, 1999.

Research and Industry Experience:

Research staff member, Mathematical Sciences and Analytics Department (formerly Business Analytics and Mathematical Sciences Department), *IBM Thomas J. Watson Research Center*, Yorktown Heights, NY, USA, since November 2010.

Data ambassador, *DataKind DataCorps*, Brooklyn, NY, USA, since August 2013.

Post doctoral researcher, Business Analytics and Mathematical Sciences Department, *IBM Thomas J. Watson Research Center*, Yorktown Heights, NY, USA, April–November 2010.

Research assistant, Laboratory for Information and Decision Systems, *Massachusetts Institute of Technology*, Cambridge, MA, USA, October 2004–February 2010.

Intern, Systems and Decision Sciences Section, National Security Engineering Division, *Lawrence Livermore National Laboratory*, Livermore, CA, USA, May–August 2009. (Department of Energy P Clearance.)

Visiting researcher, Laboratoire de Mathématiques Appliquées aux Systèmes, *École Centrale Paris*, Châtenay-Malabry, France, May–August 2006.

Co-op intern, Enterprise Server Products Group, *Sun Microsystems*, Burlington, MA, USA, September 2002–January 2003 and May–August 2003.

Intern, Air Traffic Systems Division, *Sensis Corporation*, DeWitt, NY, USA, May–August 2001.

Summer research volunteer, Nuclear Medicine Division, *State University of New York Health Science Center*, Syracuse, NY, USA, June–September 1998.

Teaching and Mentoring Experience:

Mentor to Shaobo Han, Ph.D. candidate, *Duke University,* Summer 2014.

Mentor to Jinfeng Yi, Ph.D. candidate, *Michigan State University*, Expertise Assessment Recommendation, Summer 2013.

Mentor to Alex Gittens, Ph.D. candidate, *California Institute of Technology*, Voluntary Attrition Modeling, Summer 2012.

Mentor to Gautam K. Bhat, M.Sc. candidate, *Karnataka State Open University*, Deconvolving the Productivity of Salespeople, Fall 2011–Summer 2012.

Mentor to John Z. Sun, Ph.D. candidate, *Massachusetts Institute of Technology*, Dynamic Matrix Factorization and Collaborative Filtering based on the Kalman Filter, Summer 2011.

Mentor to Ankan Saha, Ph.D. candidate, *University of Chicago*, Semi-Supervised Multi-Task Learning with Task-Dependent Regularization, Summer 2010.

Teaching assistant, 6.972 Algorithms for Estimation and Inference, *Massachusetts Institute of Technology*, Fall 2006.

Group tutor, ECE 310 Introduction to Probability and Random Phenomena, *Cornell University*, Spring 2004.

Guest instructor, How Television Works, *Tompkins Seneca Tioga BOCES Community (alternative) School*, Spring 2004.

Publications:

Journal and Magazine Articles

Collaborative Kalman Filtering for Dynamic Matrix Factorization. John Z. Sun, Dhruv Parthasarathy, and Kush R. Varshney. *IEEE Transactions on Signal Processing*, accepted.

Bounded Confidence Opinion Dynamics in a Social Network of Bayesian Decision Makers. Kush R. Varshney. *IEEE Journal of Selected Topics in Signal Processing*, vol. 8, no. 4, August 2014.

Sparsity-Driven Synthetic Aperture Radar Imaging. Müjdat Çetin, Ivana Stojanović, N. Özben Önhon, Kush R. Varshney, Sadegh Samadi, W. Clem Karl, and Alan S. Willsky. *IEEE Signal Processing Magazine*, vol. 31, no. 4, July 2014.

Practical Ensemble Classification Error Bounds for Different Operating Points. Kush R. Varshney, Ryan J. Prenger, Tracy L. Marlatt, Barry Y. Chen, and William G. Hanley. *IEEE Transactions on Knowledge and Data Engineering*, vol. 25, no. 11, p. 2590–2601, November 2013.

Sales-Force Performance Analytics and Optimization. Moritz Baier, Jorge E. Carballo, Alice J. Chang, Yingdong Lu, Aleksandra Mojsilović, M. Jonathan Richard, Moninder Singh, Mark S. Squillante, and Kush R. Varshney. *IBM Journal of Research and Development*, vol. 56, no. 6, November/December 2012.

Generalization Error of Linear Discriminant Analysis in Spatially-Correlated Sensor Networks. Kush R. Varshney. *IEEE Transactions on Signal Processing*, vol. 60, no. 6, p. 3295-3301, June 2012.

Bayes Risk Error is a Bregman Divergence. Kush R. Varshney. *IEEE Transactions on Signal Processing*, vol. 59, no. 9, p. 4470–4472, September 2011.

Business Analytics Based on Financial Time Series. Kush R. Varshney and Aleksandra Mojsilović. *IEEE Signal Processing Magazine*, vol. 28, no. 5, p. 83–93, September 2011.

Linear Dimensionality Reduction for Margin-Based Classification: High-Dimensional Data and Sensor Networks. Kush R. Varshney and Alan S. Willsky. *IEEE Transactions on Signal Processing*, vol. 59, no. 6, p. 2496–2512, June 2011.

Classification Using Geometric Level Sets. Kush R. Varshney and Alan S. Willsky. *Journal of Machine Learning Research*, vol. 11, p. 491–516, February 2010.

Postarthroplasty Examination Using X-Ray Images. Kush R. Varshney, Nikos Paragios, Jean-François Deux, Alain Kulski, Rémy Raymond, Phillipe Hernigou, and Alain Rahmouni. *IEEE Transactions on Medical Imaging*, vol. 28, no. 3, p. 469–474, March 2009.

Quantization of Prior Probabilities for Hypothesis Testing. Kush R. Varshney and Lav R. Varshney. *IEEE Transactions on Signal Processing*, vol. 56, no. 10, p. 4553–4562, October 2008.

Sparse Representation in Structured Dictionaries with Application to Synthetic Aperture Radar. Kush R. Varshney, Müjdat Çetin, John W. Fisher, III, and Alan S. Willsky. *IEEE Transactions on Signal Processing*, vol. 56, no. 8, p. 3548–3561, August 2008.

Conference Papers

Targeting Direct Cash Transfers to the Extremely Poor. Brian Abelson, Kush R. Varshney, and Joy Sun. *ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, New York, NY, August 2014.

Predicting Employee Expertise for Talent Management in the Enterprise. Kush R. Varshney, Vijil Chenthamarakshan, Scott W. Fancher, Jun Wang, Dongping Fang, and Aleksandra Mojsilović. *ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, New York, NY, August 2014.

Computing Persistent Homology Under Random Projection. Karthikeyan Natesan Ramamurthy, Kush R. Varshney, and Jayaraman J. Thiagarajan. *IEEE International Workshop on Statistical Signal Processing*, Gold Coast, Australia, June–July 2014.

Food Steganography with Olfactory White. Kush R. Varshney and Lav R. Varshney. *IEEE International Workshop on Statistical Signal Processing*, Gold Coast, Australia, June–July 2014.

Active Odor Cancellation. Kush R. Varshney and Lav R. Varshney. *IEEE International Workshop on Statistical Signal Processing*, Gold Coast, Australia, June–July 2014.

Screening for Learning Classification Rules via Boolean Compressed Sensing. Sanjeeb Dash, Dmitry M. Malioutov, and Kush R. Varshney. *IEEE International Conference on Acoustics, Speech, and Signal Processing*, Florence, Italy, May 2014.

Prescriptive Analytics for Allocating Sales Teams to Opportunities. Ban Kawas, Mark S. Squillante, Dharmashankar Subramanian, and Kush R. Varshney. *IEEE International Conference on Data Mining Workshops*, Dallas, TX, p. 211–218, December 2013.

Quantifying and Recommending Expertise When New Skills Emerge. Dongping Fang, Kush R. Varshney, Jun Wang, Karthikeyan Natesan Ramamurthy, Aleksandra Mojsilović, and John H. Bauer. *IEEE International Conference on Data Mining Workshops*, Dallas, TX, p. 672–679, December 2013.

Quantile Regression for Workforce Analytics. Karthikeyan Natesan Ramamurthy, Kush R. Varshney, and Moninder Singh. *IEEE Global Conference on Signal and Information Processing*, Austin, TX, p. 1134, December 2013.

Flavor Pairing in Medieval European Cuisine: A Study in Cooking with Dirty Data. Kush R. Varshney, Lav R. Varshney, Jun Wang, and Daniel Meyers. *International Joint Conference on Artificial Intelligence Workshop on Cooking with Computers*, Beijing, China, p. 3–12, August 2013.

Balancing Lifetime and Classification Accuracy of Wireless Sensor Networks. Kush R. Varshney and Peter M. van de Ven. *ACM International Symposium on Mobile Ad Hoc Networking and Computing*, Bengaluru, India, p. 31–38, July–August 2013.

Expertise Assessment with Multi-Cue Semantic Information. Jun Wang, Kush R. Varshney, Aleksandra Mojsilović, Dongping Fang, and John H. Bauer. *IEEE International Conference on Service Operations and Logistics, and Informatics*, Dongguan, China, p. 534–539, July 2013. *(Best Paper Award)*

Dose-Response Signal Estimation and Optimization for Salesforce Management. Kush R. Varshney and Moninder Singh. *IEEE International Conference on Service Operations and Logistics, and Informatics*, Dongguan, China, p. 328–333, July 2013.

Cognition as a Part of Computational Creativity. Lav R. Varshney, Florian Pinel, Kush R. Varshney, Angela Schörgendorfer, and Yi-Min Chee. *IEEE International Conference on Cognitive Informatics and Cognitive Computing*, New York, NY, p. 36–43, July 2013.

Predicting and Recommending Skills in the Social Enterprise. Kush R. Varshney, Jun Wang, Aleksandra Mojsilović, Dongping Fang, and John H. Bauer. *International AAAI Conference on Weblogs and Social Media Workshop on Social Computing for Workforce 2.0*, Cambridge, MA, p. 20–23, July 2013.

A Salesforce Control Theory Analysis of Enterprise Microblog Posts. Kush R. Varshney and N. Sadat Shami. *International AAAI Conference on Weblogs and Social Media Workshop on Social Computing for Workforce 2.0*, Cambridge, MA, p. 16–19, July 2013.

Exact Rule Learning via Boolean Compressed Sensing. Dmitry M. Malioutov and Kush R. Varshney. *International Conference on Machine Learning*, Atlanta, GA, p. 765–773, June 2013.

Opinion Dynamics with Bounded Confidence in the Bayes Risk Error Divergence Sense. Kush R. Varshney. *IEEE International Conference on Acoustics, Speech, and Signal Processing*, Vancouver, Canada, p. 6600–6604, May 2013.

Interactive Visual Salesforce Analytics. Kush R. Varshney, Jamie C. Rasmussen, Aleksandra Mojsilović, Moninder Singh, and Joan M. DiMicco. *International Conference on Information Systems*, Orlando, FL, December 2012.

An Analytics Approach for Proactively Combating Voluntary Attrition of Employees. Moninder Singh, Kush R. Varshney, Jun Wang, Aleksandra Mojsilović, Alisia R. Gill, Patricia I. Faur, and Raphael Ezry. *IEEE International Conference on Data Mining Workshops*, Brussels, Belgium, p. 317–323, December 2012.

Deconvolving the Productivity of Salespeople via Constrained Quadratic Programming. Gautam K. Bhat and Kush R. Varshney. *National Systems Conference*, Annamalainagar, India, December 2012.

Decision Trees for Heterogeneous Dose-Response Signal Analysis. Kush R. Varshney, Moninder Singh, and Jun Wang. *IEEE International Workshop on Statistical Signal Processing*, Ann Arbor, MI, p. 916–919, August 2012.

Does Selection Bias Blind Performance Diagnostics of Business Decision Models? A Case Study in Salesforce Optimization. Jun Wang, Moninder Singh, and Kush R. Varshney. *IEEE International Conference on Service Operations and Logistics, and Informatics*. Suzhou, China, p. 416–421, July 2012.

Legislative Prediction via Random Walks over a Heterogeneous Graph. Jun Wang, Kush R. Varshney, and Aleksandra Mojsilović. *SIAM International Conference on Data Mining*, Anaheim, CA, p. 1095–1106, April 2012.

Dynamic Matrix Factorization: A State Space Approach. John Z. Sun, Kush R. Varshney, and Karthik Subbian. *IEEE International Conference on Acoustics, Speech, and Signal Processing*, Kyoto, Japan, p. 1897–1900, March 2012.

Estimating Post-Event Seller Productivity Profiles in Dynamic Sales Organizations. Kush R. Varshney, Moninder Singh, Mayank Sharma, and Aleksandra Mojsilović. *IEEE International Conference on Data Mining Workshops*, Vancouver, BC, p. 1191–1198, December 2011.

A Risk Bound for Ensemble Classification with a Reject Option. Kush R. Varshney. *IEEE International Workshop on Statistical Signal Processing*, Nice, France, p. 773–776, June 2011.

Multilevel Minimax Hypothesis Testing. Kush R. Varshney and Lav R. Varshney. *IEEE International Workshop on Statistical Signal Processing*, Nice, France, p.109–112, June 2011.

MCMC Inference of the Shape and Variability of Time-Response Signals. Dmitriy A. Katz-Rogozhnikov, Kush R. Varshney, Aleksandra Mojsilović, and Moninder Singh. *IEEE International Conference on Acoustics, Speech, and Signal Processing*, p. 3956–3959, Prague, Czech Rebublic, May 2011.

Spatially-Correlated Sensor Discriminant Analysis. Kush R. Varshney. *IEEE International Conference on Acoustics, Speech, and Signal Processing*, p. 3680–3683, Prague, Czech Rebublic, May 2011.

Categorical Decision Making by People, Committees, and Crowds. Lav R. Varshney, Joong Bum Rhim, Kush R. Varshney, and Vivek K Goyal. *Information Theory and Applications Workshop*, La Jolla, CA, February 2011.

Class-Specific Error Bounds for Ensemble Classifiers. Ryan J. Prenger, Tracy D. Lemmond, Kush R. Varshney, Barry Y. Chen, and William G. Hanley. *ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, p. 843–852, Arlington, VA, July 2010.

Learning Dimensionality-Reduced Classifiers for Information Fusion. Kush R. Varshney and Alan S. Willsky. *International Conference on Information Fusion*, p. 1881–1888, Seattle, WA, July 2009. *(Best Student Paper Travel Award)*

Supervised Learning of Classifiers via Level Set Segmentation. Kush R. Varshney and Alan S. Willsky. *IEEE Workshop on Machine Learning for Signal Processing*, p. 115–120, Cancún, Mexico, October 2008.

Minimum Mean Bayes Risk Error Quantization of Prior Probabilities. Kush R. Varshney and Lav R. Varshney. *IEEE International Conference on Acoustics, Speech, and Signal Processing*, p. 3445–3448, Las Vegas, NV, April 2008.

Geniş Açılı Radarda Görüntü Oluşturma ve Yönbağımlılık Tespiti için Seyrek Sinyal Temsiline Dayalı bir Yaklaşım (A Sparse Signal Representation-Based Approach to Image Formation and Anisotropy Determination in Wide-Angle Radar). Kush R. Varshney, Müjdat Çetin, John W. Fisher, III, and Alan S. Willsky. *IEEE Signal Processing and Communication Applications Conference*, Eskişehir, Turkey, June 2007.

Multi-View Stereo Reconstruction of Total Knee Replacement from X-Rays. Kush R. Varshney, Nikos Paragios, Alain Kulski, Remy Raymond, Phillipe Hernigou, and Alain Rahmouni. *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, p. 1148–1151, Arlington, VA, April 2007.

Wide-Angle SAR Image Formation with Migratory Scattering Centers and Regularization in Hough Space. Kush R. Varshney, Müjdat Çetin, John W. Fisher, III, and Alan S. Willsky. *Annual Workshop on Adaptive Sensor Array Processing*, Lexington, MA, June 2006.

Joint Image Formation and Anisotropy Characterization in Wide-Angle SAR. Kush R. Varshney, Müjdat Çetin, John W. Fisher, III, and Alan S. Willsky. *SPIE Defense and Security Symposium, Algorithms for Synthetic Aperture Radar Imagery XIII*, Orlando (Kissimmee), FL, April 2006.

Conference Presentations (Abstracts Published)

Personalization of Product Novelty Assessment via Bayesian Surprise. Nan Shao, Kush R. Varshney, Lav R. Varshney, Florian Pinel, Anshul Sheopuri, and Pavankumar Murali. *Joint Statistical Meetings*, Boston, MA, August 2014.

Talent Analytics to Predict Employee Job Roles and Skill Sets Using Diverse Data Sources. Kush R. Varshney, Vijil Chenthamarakshan, Jun Wang, Dongping Fang, and Aleksandra Mojsilović. *International Symposium on Business and Industrial Statistics / Conference of the ASA Section on Statistical Learning and Data Mining*, Durham, NC, June 2014.

Sales Team Effort Allocation Analytics. Ban Kawas, Mark S. Squillante, Dharmashankar Subramanian, and Kush R. Varshney. *INFORMS Annual Meeting*, Minneapolis, MN, October 2013.

Dynamic Factor Modeling via Robust Subspace Tracking. Aleksandr Y. Aravkin, Kush R. Varshney, and Dmitry M. Malioutov. *Industrial-Academic Workshop on Optimization in Finance and Risk Management*, Toronto, Canada, September 2013.

More Contentious Issues Lead to More Factions: Bounded Confidence Opinion Dynamics of Bayesian Decision Makers. Kush R. Varshney. *Interdisciplinary Workshop on Information and Decision in Social Networks*, Cambridge, MA, November 2012.

Proactive Retention. Yingdong Lu, Aleksandra Mojsilović, Moninder Singh, Mark S. Squillante, Kush R. Varshney, and Jun Wang. *INFORMS Annual Meeting*, Phoenix, AZ, October 2012.

Heterogeneous Graphs in Social Business. Kush R. Varshney, Jun Wang, and Aleksandra Mojsilović. *Graph Exploitation Symposium*, Dedham, MA, April, 2012.

Map of the Marketplace: Visualizing the Relationships in the IT Services Marketplace. Aleksandra Mojsilović, Kush R. Varshney, and Jun Wang. *INFORMS Annual Meeting*, Charlotte, NC, November 2011.

Identifying Optimal Sales Team Composition for Business Opportunities. Aleksandra Mojsilović, Moninder Singh, Kush R. Varshney, and Jun Wang. *INFORMS Annual Meeting*, Charlotte, NC, November 2011.

Classification of IT Service Tickets for Defect Prevention. Kush R. Varshney, Dongping Fang, Aliza R. Heching, Aleksandra Mojsilović, and Moninder Singh. *INFORMS Annual Meeting*, Charlotte, NC, November 2011.

A Framework for Sales Force Productivity Profile Estimation. Mayank Sharma, Aleksandra Mojsilović, Moninder Singh, and Kush R. Varshney. *INFORMS Annual Meeting*, Austin, TX, November 2010.

Book Chapters

Legislative Prediction with Political and Social Network Analysis. Jun Wang, Kush R. Varshney, and Aleksandra Mojsilović. *Encyclopedia of Social Network Analysis and Mining*. Reda S. Alhajj and Jon G. Rokne, editors. Heidelberg, Germany: Springer, 2014.

Automatic Fingerprint Matching Systems. Kush R. Varshney. *Glimpses of Systems Theory and Novel Applications: Felicitation Volume in Honour of Professor Raj Kumar Varshney*, p. 149–164. Harjinder Singh Sekhon et al., editors. Aligarh, India: Navin Press, 2005.

Theses and Technical Reports

Frugal Hypothesis Testing and Classification. Kush R. Varshney. *Ph.D. Thesis*. Massachusetts Institute of Technology, Cambridge, MA, February 2010.

The Feature Analysis of Flow-Based Statistics for Network Traffic Classification. Kelley B. Herndon Ford, Kush R. Varshney, Tracy D. Lemmond, William G. Hanley, Barry Y. Chen, and William C. Kallander. *Technical Report.* Lawrence Livermore National Laboratory, Livermore, CA, September 2009.

Surface Evolution for 3-D Shape Reconstruction of Knee Joint Prosthetics and Bones. Kush R. Varshney and Nikos Paragios. *Technical Report 0703*. Laboratoire de Mathématiques Appliquées aux Systèmes, École Centrale Paris, Châtenay-Malabry, France, February 2007.

Joint Anisotropy Characterization and Image Formation in Wide-Angle Synthetic Aperture Radar. Kush R. Varshney. *Master's Thesis*. Massachusetts Institute of Technology, Cambridge, MA, May 2006.

Letters
Statistical Analysis of Serving and Breaking First in Tennis. Kush Varshney. *Jon Wertheim's Tennis Mailbag* (http://sportsillustrated.cnn.com/tennis/news/20131030/serena-williams-mailbag), 30 October 2013.

Patent Applications:

Method, System and Computer Program Product for Automating Expertise Management Using Social and Enterprise Data. John H. Bauer, Dongping Fang, Aleksandra Mojsilović, Karthikeyan Natesan Ramamurthy, Kush R. Varshney, and Jun Wang. 14/266970, filed May 1, 2014.

Active Odor Cancellation. Kush R. Varshney and Lav R. Varshney. 14/186645, filed February 21, 2014.

Food Steganography. Kush R. Varshney and Lav R. Varshney. 14/011421, filed August 28, 2013.

Predictive and Descriptive Analysis on Relations Graphs with Heterogeneous Entities. Aleksandra Mojsilović, Kush R. Varshney, and Jun Wang. 13/868644, filed April 23, 2013.

Tutorials, Talks, Demonstrations, and Posters:

Tutorials
Introduction to Business Analytics.
- IEEE International Conference on Acoustics, Speech, and Signal Processing, Kyoto, Japan, March 25, 2012.

Invited Talks
Learning Classification Rules via Boolean Compressed Sensing with Application to Workforce Analytics.
- Interdisciplinary Distinguished Seminar Series, Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, NC, October 4, 2013.

Proactive Retention among IBM Growth Market Employees.
- Using Analytics to Optimize Your Workforce Seminar, Analytics Solutions Center, Washington, DC, March 12, 2013.

Margin-Based Classification and Dimensionality Reduction Using Geometric Level Sets.
- École Centrale Paris, Châtenay-Malabry, France, July 1, 2011.
- General Electric Global Research Center, Niskayuna, NY, January 21, 2010.
- MITRE Corporation, Bedford, MA, January 14, 2010.
- NASA Jet Propulsion Laboratory, Pasadena, CA, December 10, 2009.
- MIT Lincoln Laboratory, Lexington, MA, November 24, 2009.
- IBM Thomas J. Watson Research Center, Yorktown Heights, NY, November 16, 2009.
- Naval Research Laboratory, Washington, DC, November 10, 2009.
- National Institute of Standards and Technology, Gaithersburg, MD, November 9, 2009.
- Information, Systems and Networks Seminar, Cornell University, Ithaca, NY, November 6, 2009.
- Schlumberger-Doll Research Center, Cambridge, MA, November 2, 2009.

Supervised Classification in Sensor Networks.

- Communications, Networking, Signal and Image Processing Seminar, Purdue University, West Lafayette, IN, October 6, 2010.
- Business Analytics and Mathematical Sciences Department Seminar, IBM Thomas J. Watson Research Center, Yorktown Heights, NY, October 4, 2010.

Frugal Hypothesis Testing and Classification.

- Massachusetts Institute of Technology, Cambridge, MA, February 8, 2010.

Level Set Margin-Based Classification.

- National Security Engineering Division Seminar, Lawrence Livermore National Laboratory, Livermore, CA, August 11, 2009.
- Decision Modeling Research Initiative Seminar, MIT Lincoln Laboratory, Lexington, MA, January 16, 2009.
- Johns Hopkins University Applied Physics Laboratory, Laurel, MD, January 13, 2009.

Wide-Angle SAR Image Formation with Sparsifying Regularization.

- Decision Modeling Research Initiative Seminar, MIT Lincoln Laboratory, Lexington, MA, January 30, 2007.
- Dipartimento di Ingegneria dell'Informazione, Facoltà di Ingegneria, Università di Pisa, Italy, July 17, 2006.

Demonstrations

SellerScope: Interactive Salesforce Analytics.

- IBM Information on Demand EXPO, Las Vegas, NV, October 21–24, 2012.
- IBM Investor Briefing, Yorktown Heights, NY, May 9, 2012.
- IBM Innovation Lab, Lotusphere, Orlando, FL, January 15–19, 2012.

Posters

Random Forest Classifier Performance in Low False Alarm and Low Missed Detection Regimes. Lawrence Livermore National Laboratory Institutional Summer Student Poster Symposium, Livermore, CA, August 6, 2009.

Block-Segmentation and Classification of Grayscale Postal Images. Bits on our Mind Symposium, Ithaca, NY, March 3, 2004.

Internal Talks Open to the Public

Business Analytics. IBM T. J. Watson Research Center, Cambridge, MA, November 7, 2012.

Classification of IT Service Tickets. Worldwide Research Integrated Solutions Colloquium, IBM T. J. Watson Research Center, Yorktown Heights, NY, January 25, 2012.

Frugal Hypothesis Testing and Classification. Applied Probability for Lunch, IBM T. J. Watson Research Center, Yorktown Heights, NY, May 19, 2010.

Classification Using Geometric Level Sets. Machine Learning Tea, Cambridge, MA, February 15, 2010.

Distributed Dimensionality Reduction for Margin-Based Classification. LIDS Student Conference, Cambridge, MA, January 29, 2010.

Performance of Random Forests in the Low False Alarm and Low Missed Detection Regimes. Stochastic Systems Group, Massachusetts Institute of Technology, Cambridge, MA, October 14, 2009.

The Epsilon Entropy of Level Set Classifiers. LIDS Student Conference, Cambridge, MA, January 30, 2009.

Classification and Linear Dimensionality Reduction via Level Set Segmentation. Stochastic Systems Group, Massachusetts Institute of Technology, Cambridge, MA, October 8, 2008.

Bayesian Hypothesis Testing with Prototype Priors. Stochastic Systems Group, Massachusetts Institute of Technology, Cambridge, MA, October 3, 2007.

Discussion on Genomics. Stochastic Systems Group, Massachusetts Institute of Technology, Cambridge, MA, February 28, 2007.

From Different Angles. Stochastic Systems Group, Massachusetts Institute of Technology, Cambridge, MA, October 4, 2006.

Wide-Angle SAR Imaging. Stochastic Systems Group, Massachusetts Institute of Technology, Cambridge, MA, April 5, 2006.

A Sparse Signal Representation Framework for Anisotropy Characterization in SAR Imaging. LIDS Student Conference, Cambridge, MA, February 2, 2006.

Anisotropy Characterization in Synthetic Aperture Radar using Sparse Signal Representation. Stochastic Systems Group, Massachusetts Institute of Technology, Cambridge, MA, October 5, 2005.

Service and Professional Activities:

Professional societies: IEEE, since 2000; ACM, since 2013; INFORMS, 2012; ISIF, 2009–2011; SIAM, 2006–2010; SPIE, 2006–2007; IEE/IET, 2005–2006.

Professional committee: IEEE Machine Learning for Signal Processing Technical Committee, since 2014.

Journal editorial board: Digital Signal Processing: A Review Journal, since 2013.

Journal reviewer: Computer Methods in Biomechanics and Biomedical Engineering; Digital Signal Processing; IBM Journal of Research and Development (2 articles); IEE Proceedings Vision, Image and Signal Processing; IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing; IEEE Journal of Selected Topics in Signal Processing (4 articles); IEEE Potentials Magazine (several articles); IEEE Signal Processing Letters; IEEE Signal Processing Magazine; IEEE Transactions on Aerospace and Electronic Systems; IEEE Transactions on Image Processing (2 articles); IEEE Transactions on Signal Processing (6 articles); Inverse Problems and Imaging; Journal of Machine Learning Research; Pattern Recognition; Remote Sensing Letters; Service Science (2 articles); Signal Processing (2 articles); Stochastic Models.

Conference program committee: Workshop on Compressed Sensing Theory and its Applications to Radar, Sonar and Remote Sensing, 2015; IEEE International Conference on Acoustics, Speech, and Signal Processing, 2014; IEEE GlobalSIP Symposium on Signal and Information Processing in Finance

and Economics, 2013; International Conference on Machine Learning, 2012–2014; IEEE International Workshop on Statistical Signal Processing, 2012; International Conference on Industrial, Engineering, and Other Applications of Applied Intelligent Systems, 2011.

Conference reviewer: IEEE Sensor Array and Multichannel Signal Processing Workshop, 2014; IEEE International Symposium on Information Theory, 2014; IEEE International Conference on Service Operations and Logistics, and Informatics, 2013; European Signal Processing Conference, 2009, 2012; IEEE International Workshop on Statistical Signal Processing, 2011.

Conference session chair: IEEE International Workshop on Statistical Signal Processing, 2012; INFORMS Annual Meeting, 2011.

Panelist: IEEE Spectrum Forecasters Panel, since 2013.

Writer: Information Ashvins Blog (http://informationashvins.wordpress.com), since 2010; LIDS-Blog (http://lidsblog.typepad.com), 2007–2010.

Summer intern coordinator, Business Analytics and Mathematical Sciences Department, IBM Thomas J. Watson Research Center, May–October 2013.

Organizing committee chair, Stochastic Systems Symposium in Honor of Alan Willsky on the Occasion of his Sixtieth Birthday, May 2008.

Organizer, Stochastic Systems Group Seminars, Fall 2007–Spring 2008.

Executive committee member, MIT EECS Graduate Students Association, 2006–2007.

Conference committee member, LIDS Student Conference, January 2005 and 2006.

Selected Coursework:

IBM Research: MicroMBA Program I & II.

Massive Open Online Courses: Quantitative Methods in Clinical and Public Health Research (HarvardX); The Challenges of Global Poverty (MITx).

Massachusetts Institute of Technology: Detection, Estimation, and Stochastic Processes; Discrete-Time Signal Processing; Optimization Methods; Machine Learning (listener); Representation and Modeling for Image Analysis; Computational Biology: Genomes, Networks, Evolution; Language and Its Structure II: Syntax; Language and Its Structure III: Semantics and Pragmatics.

Cornell University: Introduction to Computer Graphics; Signal Representation and Modeling; Digital Signal Processing; Telecommunications Systems I & II; Introduction to Scientific Computation; Geographic Information Systems; Introduction to Scanning Electron Microscopy; Computer Organization.

References:

Available upon request.