

MARCO F. DUARTE

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RESEARCH INTERESTS

Signal, image, and data processing using sparse, compressible, and manifold signal models
Multi-signal compression, acquisition, and recovery; collaborative and distributed signal processing
Approximation theory and computational harmonic analysis; sparse approximation algorithms

EDUCATION

2009	Ph.D., Electrical Engineering Thesis: "Compressive Sensing for Signal Ensembles" Advisor: Dr. Richard G. Baraniuk	Rice University
2004	M.Sc., Electrical Engineering Thesis: "Vehicle Classification in Distributed Wireless Sensor Networks" Advisor: Dr. Yu-Hen Hu	University of Wisconsin – Madison
2002	B.Sc., Computer Engineering (With Distinction)	University of Wisconsin – Madison

POSITIONS

2011–Present	Department of Electrical and Computer Engineering University of Massachusetts – Amherst	Assistant Professor
2010–2011	Department of Computer Science, Duke University	IPAM Postdoctoral Fellow
2009–2010	Program in Applied and Computational Mathematics Princeton University	IPAM Postdoctoral Fellow
2005–2009	Department of Electrical and Computer Engineering Rice University	Research Assistant
2006	Ricoh Innovations, Inc.	Summer Intern
2003–2004	Department of Electrical and Computer Engineering University of Wisconsin – Madison	Teaching Assistant
2001–2003	Department of Electrical and Computer Engineering University of Wisconsin – Madison	Project Assistant

HONORS and AWARDS

2017	Signal Processing Society Overview Paper Award (with Y. C. Eldar)	IEEE
2009-2011	Mathematical Sciences Research Institutes Postdoctoral Fellowship	NSF/IPAM
2009	Best Student Paper Award (with C. Hegde and V. Cevher)	SPARS Workshop
2007	Hershel M. Rich Invention Award	Rice University
2004–2009	Distinguished Graduate Fellowship	Texas Instruments
2004–2009	Presidential Fellowship	Rice University
2003	ECE Undergraduate Scholarship	University of Wisconsin – Madison

RESEARCH SUPPORT

2017–2020	NSF	CPS: Synergy: Image-Based Indoor Navigation for Visually Impaired Users	(PI)
2016–2019	NSF	High Dynamic Range Wideband Reconfigurable Receivers	(Co-PI)
2013–2017	NSF	Wavelet-Based Representations for Hyperspectral Data Processing and Interpretation	(PI)
2012–2016	NSF	Robust Compressive Sensing: Circuits and Algorithms	(Co-PI)
2012–2015	NSF	CPS: Synergy: SensEye: An Architecture for Ubiquitous, Real-Time Visual Context Sensing and Inference	(Co-PI)

PROFESSIONAL ACTIVITIES

Member: Institute of Electrical and Electronics Engineers (IEEE), Senior Member
Tau Beta Pi

Associate Editor: *IEEE Signal Processing Letters, 2016-2018*

Technical Committees: *IEEE Signal Processing Society Technical Committee on Signal Processing Theory and Methods, 2014-2016*

Program Committees: *Asilomar Conf. Signals, Systems, and Computers, 2013, 2017*
Conf. Neural Info. Processing Systems (NIPS), 2017
Int. Conf. Machine Learning (ICML), 2016, 2017
ACM/IEEE Info. Processing in Sensor Networks (IPSN), 2013, 2014, 2017
Sensor Signal Processing for Defence Workshop (SSPD), 2014
IEEE GlobalSIP Symposium on Low-Dimensional Models and Optimization in Signal Processing, 2013

Reviewer: *IEEE Transactions on Signal Processing*
IEEE Signal Processing Magazine
IEEE Journal on Special Topics in Signal Processing
IEEE Signal Processing Letters
IEEE Transactions on Information Theory
IEEE Transactions on Image Processing
IEEE Transactions on Computational Imaging
IEEE Transactions on Pattern Analysis and Machine Intelligence
IEEE Transactions on Communications
ACM Transactions on Sensor Networks
SIAM Journal on Imaging Science
SIAM Journal on Scientific Computing
Proc. National Academy of Sciences
Applied and Computational Harmonic Analysis

Participant: IPAM Workshop *Computational Photography and Intelligent Cameras*, 2015
 ICERM Workshop *Approximation, Integration, and Optimization*, 2014
 IPAM Workshop *Translating Cancer Data and Models to Clinical Practice*, 2014
 SAMSI Workshop *Massive Datasets*, 2012
 IMA Workshop *High Dimensional Phenomena*, 2011
 IPAM Workshop *Machine Reasoning I-II*, 2010
 IAS/PCMI Research Program in Mathematics *Image Processing*, 2010
 AIM Workshop *Careers in Academia*, 2009
 IMA Workshop *Multi-Manifold Data Modeling and Applications*, 2008
 IPAM Short Course *Sparse Representations and High Dimensional Geometry*, 2007
 IPAM Workshop *Mathematical Challenges and Opportunities in Sensor Networking*, 2007
 IMA Workshop *Natural Images*, 2006
 IMA Workshop *Integrated Sensing and Processing*, 2005

TEACHING

Lecturer (UMass):	ECE 564/645	Digital Communications	(S'16, S'17)
	ECE 313	Signals and Systems (Discussions)	(F'12, F'16, F'17)
	ECE 313	Signals and Systems (Lectures)	(F'13, F'14, F'15)
	ECE 697 CS	Introduction to Compressive Sensing	(F'11, S'15)
	ECE 746	Statistical Signal Processing	(S'14)
	ECE 608	Signal Theory	(S'12, S'13)
Guest Lecturer (Duke):	CS 296.1	Error Correcting Codes	(S'11)
Guest Lecturer (Princeton):	ELE 539B	Intro. to Coding Theory	(S'10)
Teaching Assistant (Wisconsin):	ECE 351	Intro. to Microprocessor Systems	(F'03, S'04)
Course Assistant (Rice):	ELEC 241	Fundamentals of Electrical Engineering	(F'07)
Grader (Rice):	ELEC 301	Signals and Systems	(F'05, F'06)
	ELEC 542	Digital A/V Systems Design	(S'05, S'06)

STUDENTS

Ph.D. Students: Hamid Dadkhahi (2012-2016)
 Shermin Hamzehei (2013-present)
 Dian Mo (2014-present)
 Siwei Feng (2015-present)

M.Sc. Students: Dian Mo (2012-2013)
 Siwei Feng (2013-2014)

Undergraduate Students: Kevin Eykholt (Summer 2013)
 Mark Wagner (2013-2014)
 Ping Fung (Summer 2014)
 Lubin Jian (Summer 2015)
 Derek Foster (2015-2016)

Visiting Students: Karsten Fyhn, Ph.D. Student, Aalborg University, Denmark (Fall 2012)

UNIVERSITY SERVICE

2016–2017 Interim Director of the 5-Year B.S./M.S. Program, ECE Department,
University of Massachusetts
2014–2016 Department Seminar Committee, ECE Department, University of Massachusetts
2012–2013 Department Personnel Committee, ECE Department, University of Massachusetts
2005–2007 Graduate Student Council, ECE Department, Rice University

INVITED PRESENTATIONS

- “Structured Sparsity and Compressive Sensing,” *Philips Lighting Research North America*, Cambridge, MA, April 2017.
- “Eye Gaze Tracking with Manifold Models,” *Worcester Polytechnic Institute Electrical and Computer Engineering Department Seminar*, Worcester, MA, September 2016.
- “Parameter Estimation in Compressive Sensing,”
University of Massachusetts Dartmouth Electrical and Computer Engineering Department Seminar, Dartmouth, MA, October 2015.
WPI Workshop on Systems of Lines: Applications of Algebraic Combinatorics, Worcester, MA, August 2015.
- “Beyond Randomness: Sparse Signal Processing in Practice,” *Tutorial for the IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, Melbourne, Australia, April 2015 (co-organized with Waheed Bajwa).
- “Parameter Estimation in Compressive Sensing: The Delay/Doppler Case,”
Tufts University Electrical and Computer Engineering Department Colloquium, Medford, MA, September 2014.
CSIRO Queensland Center for Advanced Technologies Seminar, Pullenvale, Australia, July 2014.
Keynote Presentation at the *Compressive Sensing Radar Workshop*, Bonn, Germany, September 2013.
- “Compressive Parameter Estimation via Approximate Message Passing,” *SIAM Conf. Computational Science and Engineering*, Salt Lake City, UT, March 2015.
- “Measurement Bounds for Sparse Signal Ensembles via Graphical Models,” *PITTCON Conf. & Expo Session on Orthogonal and Risk-Based Sensing Systems for Homeland Security Applications*, Chicago, IL, March 2014.
- “Non-Homogeneous Hidden Markov Chain Models for Wavelet-Based Hyperspectral Image Processing,” *Asilomar Conf. Signals, Systems, and Computation*, Pacific Grove, CA, November 2013
- “Compressive Parameter Estimation with Manifolds in Cyber-Physical Systems,” **Plenary Talk** at the *Int. Workshop on Compressive Sensing in Cyber-Physical Systems, IEEE Int. Conf. Mobile Ad-Hoc and Sensor Systems (MASS)*, Hangzhou, China, October 2013.
- “Compressive Parameter Estimation,” *Shanghai Jiaotong University Institute for Sensing and Navigation Seminar*, Shanghai, China, October 2013.
- “Manifold Models, Compressive Sensing, and Subsampling,” *Dropcam Tech Talk Series*, San Francisco, CA, August 2013.

- “Spectral Compressive Sensing,” *MIT CSAIL Workshop on Sparse Fourier Transforms Etc.*, Cambridge, MA, February 2013.
- “Line Spectral Estimation from Compressive Measurements,” *Worcester Polytechnic Institute Electrical and Computer Engineering Department Seminar*, Worcester, MA, January 2013.
- “Adquisición Compresiva para Señales de Dispersidad Estructurada,”
Universidad Industrial de Santander, Escuela de Ingeniería Eléctrica, Electrónica y de Telecomunicaciones, Bucaramanga, Colombia, August 2012.
Universidad de los Andes, Seminario de Optimización del Departamento de Matemáticas, Bogotá, Colombia, August 2012.
Pontificia Universidad Javeriana, Departamento de Ingeniería Electrónica, Bogotá, Colombia, August 2012.
- “Structured Compressive Sensing,” *JASON Advisory Panel Summer Study on Compressed Sensing*, La Jolla, CA, June 2012.
- “Recovery of Frequency-Sparse Signals from Compressive Measurements,”
Massachusetts Institute of Technology Imaging and Computing Seminar, Cambridge, MA, November 2011.
University of Massachusetts Electrical and Computer Engineering Department Seminar, Amherst, MA, November 2011.
- “Compressive Sensing for Signal Ensembles,” *Ohio State University Electrical and Computer Engineering Colloquium*, Columbus, OH, May 2011.
- “Signal Recovery from Randomized Measurements Using Structured Sparsity Models,”
University of Massachusetts Electrical and Computer Engineering Department Seminar, Amherst, MA, April 2011.
Northwestern University Electrical Engineering and Computer Science Department Seminar, Chicago, IL, March 2011.
University of Iowa Electrical and Computer Engineering Department Seminar, Iowa City, IA, March 2011.
Columbia University Electrical Engineering Department Seminar, New York, NY, March 2011.
University of Southern California Electrical and Computer Engineering Department Seminar, Los Angeles, CA, February 2011.
Center for Imaging Sciences Seminar, Johns Hopkins University, Baltimore, MD, October 2010.
University of Minnesota Electrical and Computer Engineering Department Seminar, Minneapolis, MN, March 2010.
University of Florida Electrical and Computer Engineering Department Seminar, Gainesville, FL, February 2010.
Washington University at Saint Louis Electrical and Systems Engineering Department Seminar, Saint Louis, MO, April 2009.
Princeton University IDEAS Seminar (Program in Applied and Computational Mathematics), Princeton, NJ, April 2009.
Massachusetts Institute of Technology Stochastic Systems Group Seminar, Cambridge, MA, February 2009.
- “Imaging Architectures for Compressive Sensing,”
DISP Group Computational Imaging Seminar, Duke University, Durham, NC, February 2011.
Park City Mathematics Institute Summer Research Program in Mathematics, Park City, UT, July 2010.

- “Model-Based Compressive Imaging,” *SIAM Conf. Imaging Science*, Chicago, IL, April 2010.
- “Kronecker Compressive Sensing,” *SIAM Conf. Imaging Science*, Chicago, IL, April 2010.
- “Compressive Sensing for Signal Ensembles,” *University of Delaware, Department of Electrical and Computer Engineering, Signal Processing and Communications Seminar*, Newark, DE, March 2010.
- “Applications of Sparse Signal Representations to Signal Acquisition and Processing,” *Schlumberger Data Compression and Transmission Workshop*, Houston, TX, November 2008.
- “Sparse Signal Recovery via Graphical Models,” *SIAM Conf. Imaging Science*, San Diego, CA, July 2008.
- “Compressive Hyperspectral Imaging and Signal Processing,” *DARPA MONTAGE Program Review Meeting*, San Diego, CA, January 2008.
- “Distributed Compressed Sensing,” *Sparse Approximation Workshop*, Princeton, NJ, November 2006.
- “Compressive Sensing for Imaging Applications,” *Lockheed Martin Workshop on Computational/Compressed Imaging*, Orlando, FL, September 2006.
- “Compressed Sensing: A New Framework for Computational Signal Processing,” *Ricoh Innovations Summer Speaker Series*, Menlo Park, CA, July 2006.
- “Collaborative and Compressive Processing for Sensor Networks,” *Los Alamos National Laboratory Data Driven Modelling and Analysis Speaker Series*, Los Alamos, NM, June 2006.
- “Fast Reconstruction of Piecewise Smooth Signals from Incoherent Projections,” *Texas Instruments DSP Leadership Meeting*, Dallas, TX, September 2005.

BOOKS AND BOOK CHAPTERS

1. M. F. Duarte, “Signal Theory,” Connexions e-textbook, 2013.
2. M. A. Davenport, M. F. Duarte, Y. C. Eldar, and G. Kutyniok, “An Introduction to Compressed Sensing,” in *Compressed Sensing: Theory and Applications*, Y. C. Eldar and G. Kutyniok, eds., Cambridge University Press, 2012.
3. D. G. Stork, J. Collins, M. F. Duarte, Y. Furuichi, D. Kale, A. Kulkarni, M. D. Robinson, C. W. Tyler, S. Schechener, and N. Williams, “Did Early Renaissance Painters Trace Optically Projected Images? The Conclusion of Independent Scientists, Art Historians and Artists,” in *Digital Imaging for Cultural Heritage Preservation: Analysis, Restoration, and Reconstruction of Ancient Artworks*, F. Stanco, S. Battiato, and G. Gallo, eds., CRC Press, 2011.
4. R. G. Baraniuk, M. A. Davenport, M. F. Duarte, and C. Hegde, “An Introduction to Compressive Sensing,” Connexions e-textbook, 2011.

JOURNAL and MAGAZINE PUBLICATIONS

5. H. Dadkhahi, M. F. Duarte, and B. Marlin, “Isomap Out-of-Sample Extension for Noisy Time Series Data,” submitted to *IEEE Transactions on Image Processing*; revised, 2017.
6. D. Mo and M. F. Duarte, “Compressive Parameter Estimation with Earth Mover’s Distance via K -Median Clustering,” submitted to *Elsevier Signal Processing*, 2017.
7. A. C. Polak, M. Wagner, M. F. Duarte, D. L. Goeckel, and R. W. Jackson, “Mitigation of Spectral Leakage for Single Carrier, Block-Processing Cognitive Radio Receivers,” to appear in *Digital Communications and Networks*, 2017.

8. P. Misra, W. Hu, M. Yang, M. F. Duarte, and S. Jha, "Sparsity-Based Efficient Cross-Correlation Techniques in Sensor Networks," to appear in *IEEE Transactions on Mobile Computing*, 2017.
9. Y. Itoh, S. Feng, M. F. Duarte, and M. Parente, "Semisupervised Endmember Identification in Non-linear Spectral Mixtures via Semantic Representation," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 55 No. 6, pp. 3272–3286, 2017.
10. S. Feng, Y. Itoh, M. Parente, and M. F. Duarte, "Hyperspectral Band Selection from Statistical Wavelet Models," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 55 No. 4, pp. 2111–2123, 2017.
11. Y. Itoh, M. F. Duarte, and M. Parente, "Perfect Recovery Conditions for Non-Negative Sparse Modeling," *IEEE Transactions on Signal Processing*, Vol. 65 No. 1, pp. 69–80, 2017.
12. H. Dadkhahi and M. F. Duarte, "Masking Strategies for Image Manifolds," *IEEE Transactions on Image Processing*, Vol. 25 No. 9, pp. 4060–4079, 2016.
13. W. U. Bajwa, M. F. Duarte, and R. Calderbank, "Conditioning of Random Block Subdictionaries with Applications to Block-Sparse Recovery and Regression," *IEEE Transactions on Information Theory*, Vol. 61 No. 7, pp. 4060–4079, 2015.
14. A. C. Polak, M. F. Duarte, and D. L. Goeckel, "Performance Bounds for Grouped Incoherent Measurements in Compressive Sensing," *IEEE Transactions on Signal Processing*, Vol. 63 No. 11, pp. 2877–2887, 2015.
15. J. Zhu, D. Baron, and M. F. Duarte, "Complexity-Matching Universal Signal Estimation in Compressed Sensing," *IEEE Transactions on Signal Processing*, Vol. 63 No. 6, pp. 1512–1527, 2015.
16. K. Fyhn, M. F. Duarte, and S. H. Jensen, "Compressive Parameter Estimation for Sparse Translation-Invariant Signals Using Polar Interpolation," *IEEE Transactions on Signal Processing*, Vol. 63 No. 4, pp. 870–881, 2015.
17. R. Willett, M. F. Duarte, M. A. Davenport, and R. G. Baraniuk, "Sparsity and Structure in Hyperspectral Imaging: Sensing, Reconstruction, and Target Detection," in *IEEE Signal Processing Magazine*, Vol. 31 No. 1, pp. 116–126, 2014.
18. M. F. Duarte, M. B. Wakin, D. Baron, S. Sarvotham, and R. G. Baraniuk, "Measurement Bounds for Sparse Signal Ensembles via Graphical Models," *IEEE Transactions on Information Theory*, Vol. 59 No. 7, pp. 4280–4289, 2013.
19. M. F. Duarte and R. G. Baraniuk, "Spectral Compressive Sensing," *Applied and Computational Harmonic Analysis*, Vol. 35 No. 1, pp. 111–129, 2013.
20. M. F. Duarte, S. Jafarpour, and R. Calderbank, "Performance of the Delsarte-Goethals Frame on Clustered Sparse Vectors," *IEEE Transactions on Signal Processing*, Vol. 61 No. 8, pp. 1998–2008, 2013.
21. A. Anitha, A. Brasoveanu, M. F. Duarte, S. M. Hughes, I. Daubechies, J. Dik, K. Janssens, and M. Alfeld, "Restoration of X-ray Fluorescence Images of Underpaintings," *Elsevier Signal Processing*, Vol. 93 No. 3, pp. 592–604, 2013.
22. L. Applebaum, W. U. Bajwa, M. F. Duarte, and R. Calderbank, "Asynchronous Code-Division Random Access Using Convex Optimization," *Elsevier Physical Communication*, Vol. 5 No. 2, pp. 129–147, 2012.
23. M. F. Duarte and R. G. Baraniuk, "Kronecker Compressive Sensing," *IEEE Transactions on Image Processing*, Vol. 21 No. 2, pp. 494–504, 2012.

24. M. F. Duarte, G. Shen, A. Ortega, and R. G. Baraniuk, "Signal Compression in Wireless Sensor Networks," *Philosophical Transactions of the Royal Society A*, Vol. 370 No. 1958, pp. 118–135, 2012.
25. M. F. Duarte and Y. C. Eldar, "Structured Compressed Sensing: From Theory to Applications," *IEEE Transactions on Signal Processing*, Vol. 59 No. 9, pp. 4053–4085, 2011.
26. M. A. Davenport, C. Hegde, M. F. Duarte, and R. G. Baraniuk, "A Theoretical Analysis of Joint Manifolds," *IEEE Transactions on Image Processing*, Vol. 19 No. 10, pp. 2580–2594, 2010.
27. R. G. Baraniuk, V. Cevher, M. F. Duarte, and C. Hegde, "Model-based Compressive Sensing," *IEEE Transactions on Information Theory*, Vol. 56 No. 4, pp. 1982–2001, 2010.
28. M. F. Duarte and D. G. Stork, "Image Contour Fidelity Analysis of Mechanically Aided Enlargements of Jan van Eyck's Albergati Portrait," *Leonardo*, Vol. 43 No. 1, pp. 20, 43–50, 2010.
29. J. A. Tropp, J. N. Laska, M. F. Duarte, J. K. Romberg, and R. G. Baraniuk, "Beyond Nyquist: Efficient Sampling of Sparse Bandlimited Signals," *IEEE Transactions on Information Theory*, Vol. 56 No. 1, pp. 520–544, 2010.
30. M. F. Duarte, M. A. Davenport, D. Takhar, J. N. Laska, T. Sun, K. F. Kelly and R. G. Baraniuk, "Single-Pixel Imaging via Compressive Sampling," *IEEE Signal Processing Magazine*, Vol. 25 No. 2, pp. 83–91, 2008.
31. D. G. Stork and M. F. Duarte, "Revisiting Computer Image Analysis and Art," *IEEE Multimedia Magazine*, Vol. 14 No. 3, pp. 108–109, 2007.
32. D. G. Stork and M. F. Duarte, "Computer Vision, Image Analysis and Art, Part III," *IEEE Multimedia Magazine*, Vol. 14 No. 1, pp. 14–18, 2007.
33. M. F. Duarte and Y.-H. Hu, "Vehicle Classification in Distributed Sensor Networks," *Journal of Parallel and Distributed Computing*, Vol. 64 No. 7, pp. 826–838, 2004.
34. M. F. Duarte and Y.-H. Hu, "Distance Based Decision Fusion in Distributed Wireless Sensor Networks," *Telecommunication Systems*, Vol. 26 No. 2-4, pp. 339–350, 2004.

CONFERENCE PUBLICATIONS

35. S. Hamzehei and M. F. Duarte, "Compressive Direction-of-Arrival Estimation Off The Grid," in *Asilomar Conf. Signals, Systems, and Computers*, Pacific Grove, CA, November 2016, pp. 1081–1085.
36. S. Feng, Y. Itoh, M. F. Duarte, and M. Parente, "Band Selection from Statistical Wavelet Models," in *IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*, Los Angeles, CA, August 2016.
37. D. Mo and M. F. Duarte, "Compressive Line Spectrum Estimation with Clustering and Interpolation," in *Conf. Information Sciences and Systems (CISS)*, Princeton, NJ, March 2016, pp. 572–577.
38. D. Mo and M. F. Duarte, "Design of Spectrally Shaped Binary Sequences via Randomized Convex Relaxations," in *Asilomar Conf. Signals, Systems, and Computers*, Pacific Grove, CA, November 2015, pp. 164–168.
39. H. Dadkhahi, M. F. Duarte, and B. Marlin, "Isomap Out-of-Sample Extension for Noisy Time Series Data," in *IEEE Int. Workshop on Machine Learning for Signal Processing (MLSP)*, Boston, MA, September 2015.

40. S. Feng, M. F. Duarte, and M. Parente, “Performance Guarantees for Sparse Regression-Based Unmixing,” in *IEEE/ISPRS Workshop Looking from Above: When Earth Observation Meets Vision (EARTH-VISION) at the Computer Vision and Pattern Recognition Conf. (CVPR)*, Boston, MA, June 2015.
41. Y. Itoh, M. F. Duarte, and M. Parente, “Performance Guarantees for Sparse Regression-Based Unmixing,” to appear in *Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*, Tokyo, Japan, June 2015.
42. H. Dadkhahi and M. F. Duarte, “Image Masking Schemes for Local Manifold Learning Methods,” in *IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, Brisbane, Australia, April 2015, pp. 5768–5772.
43. S. Hamzehei and M. F. Duarte, “Compressive Parameter Estimation via Approximate Message Passing,” in *IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, Brisbane, Australia, April 2015, pp. 3327–3331.
44. S. Feng, Y. Itoh, M. Parente, and M. F. Duarte, “Tailoring Non-Homogeneous Markov Chain Models for Hyperspectral Signature Classification,” in *IEEE Int. Conf. Image Processing (ICIP)*, Paris, France, October 2014, pp. 5073–5077.
45. Y. Itoh, S. Feng, M. F. Duarte, and M. Parente, “Hyperspectral Unmixing via Semantic Spectral Representations,” in *IEEE Int. Midwest Symposium on Circuits and Systems (MWSCAS)*, College Station, TX, August 2014, pp. 149–152.
46. H. Dadkhahi and M. F. Duarte, “Masking Schemes for Image Manifolds,” in *IEEE Statistical Signal Processing Workshop (SSP)*, Gold Coast, Australia, July 2014, pp. 256–259.
47. J. Zhu, D. Baron, and M. F. Duarte, “Complexity-Adaptive Universal Signal Estimation for Compressed Sensing,” in *IEEE Statistical Signal Processing Workshop (SSP)*, Gold Coast, Australia, July 2014, pp. 396–399.
48. W. U. Bajwa, M. F. Duarte, and R. Calderbank, “Average Case Analysis of High-Dimensional Block-Sparse Recovery and Regression for Arbitrary Designs,” in *Int. Conf. Artificial Intelligence and Statistics (AISTATS)*, Reykjavik, Iceland, April 2014, pp. 57–67.
49. K. Eykholt and M. F. Duarte, “A Matlab Toolbox for Visualization of Image Manifolds,” invited to *IEEE Global Conf. Signal and Information Processing (GlobalSIP)*, Austin, TX, December 2013, p. 633.
50. K. Fyhn, M. F. Duarte, and S. H. Jensen, “Compressive Time Delay Estimation Using Interpolation,” invited to *IEEE Global Conf. Signal and Information Processing (GlobalSIP)*, Austin, TX, December 2013, p. 624.
51. M. F. Duarte and M. Parente, “Non-Homogeneous Hidden Markov Chain Models for Wavelet-Based Hyperspectral Image Processing,” in *Allerton Conf. Communication, Control, and Computing*, Monticello, IL, October 2013, pp. 154–159.
52. D. Mo and M. F. Duarte, “Compressive Parameter Estimation with Earth Mover’s Distance via K -Median Clustering,” invited to *Wavelets and Sparsity XV at SPIE Optical Engineering + Applications*, San Diego, CA, August 2013.
53. M. Parente and M. F. Duarte, “A New Semantic Wavelet-Based Spectral Representation,” in *Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*, Gainesville, FL, June 2013.

54. K. Fyhn, H. Dadkhahi, and M. F. Duarte, "Spectral Compressive Sensing with Polar Interpolation," in *IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, Vancouver, Canada, May 2013, pp. 6225-6229.
55. A. C. Polak, M. F. Duarte, R. W. Jackson, and D. L. Goeckel, "Recovery of Sparse Signals from Amplitude-Limited Sample Sets," in *IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, Vancouver, Canada, May 2013, pp. 4663-4667.
56. A. C. Polak, M. F. Duarte, and D. L. Goeckel, "Grouped Incoherent Measurements for Compressive Sensing," in *IEEE Statistical Signal Processing Workshop (SSP)*, Ann Arbor, MI, August 2012, pp. 732-735.
57. M. F. Duarte, "Localization and Bearing Estimation via Structured Sparsity Models," in *IEEE Statistical Signal Processing Workshop (SSP)*, Ann Arbor, MI, August 2012, pp. 333-336.
58. S. Jafarpour, M. F. Duarte, and R. Calderbank, "Beyond Worst-Case Reconstruction in Deterministic Compressed Sensing," in *IEEE Int. Symposium on Information Theory (ISIT)*, Cambridge, MA, July 2012, pp. 1852-1856.
59. M. F. Duarte, T. E. Matthews, W. S. Warren, and R. Calderbank. "Melanoma Classification from Hidden Markov Tree Features," in *IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, Kyoto, Japan, March 2012. pp. 685-688.
60. M. J. Simpson, J. W. Wilson, T. E. Matthews, M. F. Duarte, R. Calderbank, and W. S. Warren, "Imaging the Distribution of Melanin in Human Skin Lesions with Pump-probe Microscopy," *Laser Science*, San Jose, CA, October 2011.
61. D. Baron and M. F. Duarte, "Universal MAP Estimation in Compressed Sensing," in *Allerton Conf. Communication, Control, and Computing*, Monticello, IL, September 2011. pp. 768-775.
62. A. Anitha, A. Brasoveanu, M. F. Duarte, S. Hughes, I. Daubechies, J. Dik, and K. Janssens, "Virtual Underpainting Reconstruction from X-ray Fluorescence Imaging Data," in *European Signal Processing Conf. (EUSIPCO)*, Barcelona, Spain, August 2011. pp. 1239-1243.
63. M. F. Duarte and R. G. Baraniuk, "Compressive Sensing with Biorthogonal Wavelets via Structured Sparsity," in *Workshop on Signal Processing with Adaptive Sparse Representations (SPARS)*, Edinburgh, Scotland, June 2011.
64. V. Kostina, M. F. Duarte, S. Jafarpour, and R. Calderbank, "The Value of Redundant Measurement in Compressed Sensing," in *IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, Prague, Czech Republic, May 2011. pp. 3656-3659.
65. M. F. Duarte, S. Jafarpour, and R. Calderbank, "New Wavelet Coefficient Raster Scannings for Compressive Imaging," in *Int. Conf. Sampling Theory and Applications (SAMP TA)*, Singapore, May 2011.
66. M. F. Duarte, W. Bajwa, and R. Calderbank, "Regression Performance of Group Lasso for Arbitrary Design Matrices," in *Int. Conf. Sampling Theory and Applications (SAMP TA)*, Singapore, May 2011.
67. M. A. Davenport, C. Hegde, M. F. Duarte, and R. G. Baraniuk, "High-Dimensional Data Fusion via Joint Manifold Learning," in *AAAI Fall 2010 Symposium on Manifold Learning*, Arlington, VA, November 2010. pp. 20-27.
68. M. F. Duarte and R. G. Baraniuk, "Recovery of Frequency-Sparse Signals from Compressive Measurements," in *Allerton Conf. Communication, Control, and Computing*, Monticello, IL, September 2010. pp. 599-606.

69. L. Applebaum, W. U. Bajwa, M. F. Duarte, and R. Calderbank, "Multiuser Detection in Asynchronous On-Off Random Access Channels Using Lasso," in *Allerton Conf. Communication, Control, and Computing*, Monticello, IL, September 2010. pp. 130–137.
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