# Marco F. Duarte

Department of Electrical and Computer Engineering
University of Massachusetts - Amherst
215I Marcus Hall, 100 Natural Resources Road
Amherst, MA 01003

Phone: (413) 545-8583
Fax: (413) 545-4624
Email: mduarte@ecs.umass.edu
Web: www.ecs.umass.edu/∼mduarte

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

## POSITIONS

| | | |
|---|---|---|
| 2017–Present | Department of Electrical and Computer Engineering<br>University of Massachusetts – Amherst | Associate Professor |
| 2019 | Department of Electrical and Computer Engineering<br>Georgia Institute of Technology | Visiting Lecturer |
| 2011–2017 | Department of Electrical and Computer Engineering<br>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<br>Princeton University | IPAM Postdoctoral Fellow |
| 2005–2009 | Department of Electrical and Computer Engineering<br>Rice University | Research Assistant |
| 2006 | Ricoh Innovations, Inc. | Summer Intern |
| 2003–2004 | Department of Electrical and Computer Engineering<br>University of Wisconsin – Madison | Teaching Assistant |
| 2001–2003 | Department of Electrical and Computer Engineering<br>University of Wisconsin – Madison | Project Assistant |

## HONORS and AWARDS

| | | |
|---|---|---|
| 2020 | Signal Processing Magazine Best Paper Award (with M. A. Davenport, D. Takhar, J. N. Laska, T. Sun, K. F. Kelly and R. G. Baraniuk) | IEEE |
| 2019 | Top Reviewer Award | NeurIPS |

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|---|---|---|
| 2018 | Senior Fellow (Science at Extreme Scales) | IPAM |
| 2017 | Best Reviewer Award | NeurIPS |
| 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 |
| 2002 | Outstanding Initiate of the Year | Tau Beta Pi, Chapter WI–A |

## RESEARCH SUPPORT

| | | | |
|---|---|---|---|
| 2017–2022 | NSF | CPS: Synergy: Image-Based Indoor Navigation for Visually Impaired Users | (PI) |
| 2016–2020 | 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 Transactions on Signal Processing, 2020-2024*
*IEEE Signal Processing Letters, 2016-2019*

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

Program Committees: *Asilomar Conf. Signals, Systems, and Computers, General Chair, 2023*
*Asilomar Conf. Signals, Systems, and Computers, Technical Chair, 2020*
*Asilomar Conf. Signals, Systems, and Computers, Technical Area Chair, 2013, 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*
*Conf. Neural Info. Processing Systems (NeurIPS), 2017–2023*
*Int. Conf. Machine Learning (ICML), 2016–2023*
*Int. Conf. Learning Representations (ICLR), 2019–2023*

Participant:

IPAM Long Program *Science at Extreme Scales: Where Big Data Meets Large-Scale Computing*, 2018
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 565 | Digital Signal Processing | (S'20, F'20-23) |
| | ECE 315 | Signal Processing Methods | (F'19-23) |
| | ECE 213 | Continuous-Time Signals and Systems (Discus.) | (S'20) |
| | ECE 697 SL | Statistical Models for Learning | (S'18) |
| | ECE 313 | Signals and Systems (Discussions) | (F'12, F'16, F'17) |
| | ECE 564/645 | Digital Communications | (S'16, S'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) |
| Lecturer (GA Tech): | ECE 2026 | Intro. to Signal Processing (Recitations) | (S'19) |

## STUDENTS

Ph.D. Students:

Hamid Dadkhahi (2016, now at IBM Research)
Dian Mo (2018, now at Microsoft Research)

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| | Siwei Feng (2019, now Assistant Professor at Soochow University.) |
| M.Sc. Students: | Dian Mo (2013)<br>Siwei Feng (2014)<br>Shermin Hamzehei (2019, now at Bose)<br>Byoungdoo Kong (2020, now at Korea Electric Power Co.)<br>Yuanzhe Gu (2022)<br>Sushma Suresh Babu (2022) |
| Undergrauate Students: | Kevin Eykholt (Summer 2013)<br>Mark Wagner (2013-2014)<br>Ping Fung (Summer 2014)<br>Lubin Jian (Summer 2015)<br>Derek Foster (2015-2016)<br>Michael Shliselberg (Summer 2017)<br>Maxwell Rapier (2020-2021)<br>Sarah Jowett (2023-2024) |
| Visiting Students: | Karsten Fyhn, Ph.D. Student, Aalborg University, Denmark (Fall 2012) |

## UNIVERSITY SERVICE

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|---|---|
| 2023–2024 | Department Personnel Committee, ECE Department, University of Massachusetts |
| 2022–2024 | Instructional Development Committee, ECE Department, University of Massachusetts |
| 2021–2023 | Graduate Program Committee, ECE Department, University of Massachusetts |
| 2021–2022 | Diversity, Equity, and Inclusion Committee, ECE Department, University of Massachusetts |
| 2020–2021 | Department Personnel Committee, ECE Department, University of Massachusetts |
| 2020–2021 | ADVANCE Faculty Fellow, ECE Department, University of Massachusetts |
| 2018, 2020 | PhD Poster Session Organizer, ECE Department, University of Massachusetts |
| 2017–2018 | Department Personnel Committee, ECE Department, University of Massachusetts |
| 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 |

## INVITED PRESENTATIONS

"Explainable Machine Learning (Short Course),"
*IRDTA 8th International School on Deep Learning (DeepLearn '23 Winter)*, Bournemouth, United Kingdom, January 2023.

"The Single Pixel Camera: Compressed Sensing in Action,"
*Washington State University Department of Mathematics iSciMath Seminar*, Pullman, WA, May 2021.

"Graph and Autoencoder-Based Unsupervised Feature Selection,"
*Georgia Institute of Technology Center for Signal and Information Processing Seminar*, Atlanta, GA, January 2019.
*University of California Riverside Electrical and Computer Engineering Department Seminar*, River-

side, CA, December 2018.
*IPAM Long Program on Science at Extreme Scales: Where Big Data Meets Large-Scale Computing*, Los Angeles, CA, October 2018.

"Structured Sparsity and Compressive Sensing," *Philips Lighting Research North America*, Cambdrige, 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. Dong, S. Suresh Babu, M. F. Duarte, and A. Ganz, "PERCEPT-V: Vision-Based Indoor Localization and Navigation via 3D Spatial Map Generation," submitted to *IEEE Access*, 2022.
6. D. Mo and M. F. Duarte, "Design of Spectrally Shaped Binary Sequences via Randomized Convex Relaxations," submitted to *Elsevier Signal Processing*, 2018.
7. H. Bai, M. F. Duarte, and R. Janaswamy, "Cramér-Rao Bounds for DoA Estimation of Sparse Bayesian Learning with Laplace Prior," *MDPI Sensors*, Vol. 23, No. 1, 2022.
8. D. Mo and M. F. Duarte, "Binary Sequence Set Design for Interferer Rejection in Multi-Branch Modulation," *IEEE Transactions on Signal Processing*, Vol. 68, pp. 3769–3778, 2020.
9. S. Feng, H. Yu, and M. F. Duarte, "Autoencoder Based Sample Selection for Self-Taught Learning," *Knowledge-Based Systems*, Vol. 192, 2020.
10. R. Roscher, B. Bohn, M. F. Duarte, and J. Garcke, "Explainable Machine Learning for Scientific Insights and Discoveries," *IEEE Access*, Vol. 8, No. 1, pp. 42200–42216, 2020.
11. S. Feng and M. F. Duarte, "Few-Shot Learning-Based Human Activity Recognition," *Expert Systems with Applications*, Vol. 138, Dec. 2019.

12. H. Bai, M. F. Duarte, and R. Janaswamy, "Direction of Arrival Estimation for Complex Sources through $\ell_1$-Norm Sparse Bayesian Learning," *IEEE Signal Processing Letters*, Vol. 26, No. 5, pp. 765–769, 2019.

13. S. Feng and M. F. Duarte, "Graph Autoencoder-Based Unsupervised Feature Selection with Broad and Local Data Structure Preservation," *Elsevier Neurocomputing*, Vol. 312, pp. 310–323, 2018.

14. 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," *Digital Communications and Networks*, Vol. 4, No. 2, pp. 106–110, 2018.

15. H. Dadkhahi, M. F. Duarte, and B. Marlin, "Out-of-Sample Extension for Dimensionality Reduction of Noisy Time Series," *IEEE Transactions on Image Processing*, Vol. 26, No. 11, pp. 5435–5446, 2017.

16. D. Mo and M. F. Duarte, "Compressive Parameter Estimation with Earth Mover's Distance via $K$-Median Clustering," *Elsevier Signal Processing*, Vol. 142, pp. 36–52, 2017.

17. P. Misra, W. Hu, M. Yang, M. F. Duarte, and S. Jha, "Sparsity-Based Efficient Cross-Correlation Techniques in Sensor Networks," *IEEE Transactions on Mobile Computing*, Vol. 16, No. 7, pp. 2037–2050, 2017.

18. Y. Itoh, S. Feng, M. F. Duarte, and M. Parente, "Semisupervised Endmember Identification in Nonlinear Spectral Mixtures via Semantic Representation," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 55 No. 6, pp. 3272–3286, 2017.

19. 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.

20. 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.

21. H. Dadkhahi and M. F. Duarte, "Masking Strategies for Image Manifolds," *IEEE Transactions on Image Processing*; Vol. 25 No. 9, pp. 4060–4079, 2016.

22. 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.

23. 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.

24. 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.

25. 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.

26. 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.

27. 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.

28. M. F. Duarte and R. G. Baraniuk, "Spectral Compressive Sensing," *Applied and Computational Harmonic Analysis*, Vol. 35 No. 1, pp. 111–129, 2013.

29. 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.

30. 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.

31. 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.

32. M. F. Duarte and R. G. Baraniuk, "Kronecker Compressive Sensing," *IEEE Transactions on Image Processing*, Vol. 21 No. 2, pp. 494–504, 2012.

33. 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.

34. 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.

35. 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.

36. 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.

37. 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.

38. 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.

39. 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.

40. D. G. Stork and M. F. Duarte, "Revisiting Computer Image Analysis and Art," *IEEE Multimedia Magazine,* Vol. 14 No. 3, pp. 108–109, 2007.

41. 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.

42. 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.

43. 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**

44. R. Roscher, B. Bohn, M. F. Duarte, and J. Garcke, "Explain It To Me - Facing Remote Sensing Challenges in the Bio- and Geosciences with Explainable Machine Learning," in *Int. Society for Photogrammetry and Remote Sensing Congress (SPRS)*, Nice, France, June 2020.

45. S. Feng, and M. F. Duarte, "Graph Autoencoder-Based Unsupervised Feature Selection," in *Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 2018.

46. D. Mo and M. F. Duarte, "Multi-Branch Binary Modulation Sequences for Interferer Rejection," in *IEEE Statistical Signal Processing Workshop (SSP)*, Freiburg, Germany, June 2018, pp. 288–292.

47. Z. Yang, M. F. Duarte, and A. Ganz, "A Novel Crowd-Resilient Visual Localization Algorithm via Robust PCA Background Extraction," in *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Calgary, AB, April 2018, pp. 1922–1926.

48. 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.

49. 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.

50. 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.

51. 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.

52. 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.

53. 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" (EARTHVISION) at the Computer Vision and Pattern Recognition Conf. (CVPR),* Boston, MA, June 2015.

54. 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.

55. 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.

56. 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.

57. 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.

58. 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.

59. 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.

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