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GENERAL INFORMATION

RESEARCH INTERESTS

Adaptive Signal Processing - Signal Processing for Networks and Graphs - Cognitive Radio - Resource Allocation for Wireless Systems - Nonlinear Optimization (Duality Theory and Dynamic Programming) - Signal Processing for Cardiac Signals

EDUCATION

Ph. D. in Telecommunications Eng. 2007
 Carlos III University of Madrid, Spain
 Thesis: Power-Efficient Wireless Communications based on Quantized CSI
 Advisors: G. B. Giannakis (Univ. of Minnesota), F. J. Ramos (Carlos III Univ.)

M. Sc. in Telecommunications Eng. 2004
 Carlos III University of Madrid, Spain

B. Sc. in Telecommunications Eng. 2003
 Carlos III University of Madrid, Spain

ACADEMIC CAREER

Full-time positions

King Juan Carlos University *Fuenlabrada, Madrid, Spain*
 Associate Professor *June, 2012 - present*
 Dept. of Signal Theory and Communications

King Juan Carlos University *Fuenlabrada, Madrid, Spain*
 Assistant Professor *September, 2007 - June, 2012*
 Dept. of Signal Theory and Communications

Visiting Positions

University of Pennsylvania *Philadelphia, PA, USA*
 Visiting Research Faculty *November-March 2015, and 2016*
 Dept. of Electrical and Systems Eng.

University of Minnesota *Minneapolis, MN, USA*
 Visiting Research Faculty *May-September of 2008, 2009, 2010, 2012, and 2015*
 Digital Technology Center

University of Minnesota *Minneapolis, MN, USA*
 Visiting Researcher *March-September of 2005, 2006, and 2007*
 Dept. of Electrical and Computer Eng.

HONORS

Best 1997-2002 Telecommunications Eng. Student award (graduated with highest honors).
 Best 2007-08 Ph. D. Thesis award (graduated with highest honors).
 Best (student) paper awards: IEEE SAM 2016, IEEE SSP 2016, Asilomar 2015, IEEE ICASSP 2007 (finalist).

RESEARCH

Brief overview

The core of my research work is the application of adaptive (stochastic) signal processing and non-linear optimization, mostly duality theory and dynamic programming, to the fields of cognitive radio and (cross-layer) resource allocation for wireless networks. Nowadays, I have a growing interest in understating the relationship between signal processing and graph and network theory. Development of signal processing algorithms tailored to graphs and networks will have a great impact into the emerging fields of power networks and smart grids, vehicular networks and social networks. In the last year, as a result of the collaboration with some of my department colleagues, I am also working on the application of the previous tools to the analysis of cardiac signals.

I have written 28 journal papers, 59 conference papers and two book chapters. Each of my journal papers gets an average of 6 citations per year.

PUBLICATIONS

Journal papers

1. F. Gama, A. G. Marques, G. Mateos, and A. Ribeiro, "Rethinking Sketching as Sampling: A Graph Signal Processing Approach", *IEEE Trans. Signal Process.* (submitted).
2. S. Segarra, A. G. Marques, G. Mateos, and A. Ribeiro, "Network Topology Inference from Spectral Templates", *IEEE Trans. Signal Process.* (submitted).
3. L. M. Lopez-Ramos, V. Kekatos, A. G. Marques, and G. B. Giannakis, "Two-Timescale Stochastic Dispatch of Smart Distribution Grids", *IEEE Trans. Smart Grids.* (submitted).
4. S. Segarra, G. Mateos, A. G. Marques, and A. Ribeiro, "Blind Identification of Graph Filters", *IEEE Trans. Signal Process.* (submitted).
5. A. G. Marques, C. Figuera, and E. Morgado "Cognitive Radios with Ergodic Capacity Guarantees for Primary Users", *IEEE Trans. on Wireless Commun.*, (submitted).
6. A. G. Marques, S. Segarra, G. Leus, and A. Ribeiro, "Stationary Graph Processes and Spectral Estimation", *IEEE Trans. Signal Process.* (submitted).
7. S. Segarra, A. G. Marques, and A. Ribeiro, "Distributed Linear Network Operators using Graph Filters", *IEEE Trans. Signal Process.* (submitted).
8. T. Chen, A. G. Marques, and G. B. Giannakis, "DGLB: Distributed Stochastic Geographical Load Balancing with Incentive Payment", *IEEE Trans. Parallel and Distributed Systems.* (accepted).
9. S. Segarra, A. G. Marques, G. Leus, and A. Ribeiro, "Reconstruction of Graph Signals through Percolation from Seeding Nodes", *IEEE Trans. Signal Process.*, vol. 64, no. 16, pp. 4363 - 4378, Aug. 2016.
10. A. G. Marques, S. Segarra, G. Leus, and A. Ribeiro, "Sampling of Graph Signals with Successive Local Aggregations", *IEEE Trans. Signal Process.*, vol. 64, no. 7, pp. 1832 - 1843, Apr. 2016.
11. J. Fernandez-Bes, J. Cid-Sueiro, and A. G. Marques, "Battery-Aware Selective Communications in Energy-Harvesting Sensor Networks: A Sequential Decision Approach", *IEEE J. Sel. Areas in Commun.*, vol. 33, no. 8, pp. 1717-1729, Aug. 2015.
12. L. M. Lopez-Ramos, A. G. Marques, and J. Ramos, "Jointly Optimal Sensing and Resource Allocation for Multiuser Interweave Cognitive Radios", *IEEE Trans. on Wireless Commun.*, vol. 13, no. 11, pp. 5954-5967, Nov. 2014.
13. A. G. Marques, E. Dall'Annese, and G. B. Giannakis, "Cross-Layer Optimization and Receiver Localization for Cognitive Networks Using Interference Tweets", *IEEE J. Sel. Areas in Commun.*, vol. 32, no. 3, pp. 641-653, Mar. 2014.
14. J. Requena-Carrion, F. Beltran-Molina, and A. G. Marques, "Relating the Spectrum of Cardiac Signals to the Spatiotemporal Dynamics of Cardiac Sources", *Biomedical Signal Process. and Control (Elsevier)*, vol. 8, no. 6, pp. 935-944, Nov. 2013.
15. A. G. Marques, C. Figuera, C. Rey-Moreno, and J. Simo-Reigadas, "Optimal Cross-Layer Schemes for Relay Networks with Short-Term and Long-Term Constraints", *IEEE Trans. on Wireless Commun.*, vol. 12, no. 1, pp. 333-345, Jan. 2013.
16. A. G. Marques, G. B. Giannakis, L. M. Lopez-Ramos, and J. Ramos, "Resource Allocation for Interweave and Underlay CRs under Probability-of-Interference Constraints", *IEEE J. Sel. Areas in Commun.*, vol. 30, no. 10, pp. 1922-1933, Nov. 2012.

17. A. G. Marques, L. M. Lopez-Ramos, G. B. Giannakis, J. Ramos, and A. Caamaño, "Optimal Cross-Layer Resource Allocation in Cellular Networks Using Channel and Queue State Information", *IEEE Trans. on Vehic. Tech.*, vol. 61, no. 6, pp. 2789 - 2807, Jul. 2012.
18. A. G. Marques, G. B. Giannakis, and J. Ramos, "Optimizing Orthogonal Multiple Access based on Quantized Channel State Information", *IEEE Trans. on Signal Processing*, vol. 59, no. 10, pp. 5023 - 5038, Oct. 2011.
19. R. Arroyo-Valles, A. G. Marques, and J. Cid-Sueiro, "Optimal Selective Forwarding for Energy Saving in Wireless Sensor Networks", *IEEE Trans. on Wireless Commun.*, vol. 10, no. 1, pp. 164 - 175, Jan. 2011.
20. A. G. Marques, A. B. Rodriguez-Gonzalez, J. L. Rojo-Alvarez, J. Requena-Carrion, and J. Ramos, "Optimizing Average Performance of OFDM Systems Using Limited-Rate Feedback", *IEEE Trans. on Wireless on Commun.*, vol. 9, no. 10, pp. 3130 - 3143, Oct. 2010.
21. N. Gatsis, A. G. Marques, and G. B. Giannakis, "Power Control for Cooperative Dynamic Spectrum Access Networks with Diverse QoS Constraints", *IEEE Trans. on Commun.*, vol. 58, no. 3, pp. 933-944, Mar. 2010.
22. R. Arroyo-Valles, A. G. Marques, and J. Cid-Sueiro, "Optimal Selective Transmission under Energy Constraints in Sensor Networks", *IEEE Trans. on Mobile Computing*, vol. 8, no. 11, pp. 1524-1538, Nov. 2009.
23. A. G. Marques, X. Wang, and G. B. Giannakis, "Dynamic Resource Management for Cognitive Radios using Limited-Rate Feedback", *IEEE Trans. on Signal Processing*, vol. 57, no. 9, pp. 3651-3666, Sep. 2009.
24. A. G. Marques, X. Wang, and G. B. Giannakis, "Minimizing Transmit-Power for Coherent Communications in Wireless Sensor Networks with Finite-Rate Feedback", *IEEE Trans. on Signal Processing*, vol. 56, no. 8, pp. 4446-4457, Sep. 2008.
25. X. Wang, A. G. Marques, and G. B. Giannakis, "Power-Efficient Resource Allocation and Quantization for TDMA Using Adaptive Transmission and Limited-Rate Feedback", *IEEE Trans. on Signal Processing* vol. 56, no. 8, pp. 4470-4485, Sep. 2008.
26. A. G. Marques, G. B. Giannakis, F. F. Digham, and F. J. Ramos, "Power Efficient Wireless OFDMA using Limited-Rate Feedback", *IEEE Trans. on Wireless Commun.*, vol. 7, no. 2, pp. 685-696, Feb. 2008.
27. X. Wang, G. B. Giannakis, and A. G. Marques, "A Unified Approach to QoS-Guaranteed Scheduling for Channel-Adaptive Wireless Networks", *Proceedings of the IEEE*, vol. 95, no. 12, pp. 2410-2431, Dec. 2007.
28. A. G. Marques, F. F. Digham, and G. B. Giannakis, "Optimizing Power Efficiency of OFDM Using Quantized Channel State Information", *IEEE J. Sel. Areas in Commun.*, vol. 24, no. 8, pp.1581 - 1592, Aug. 2006.

Conference papers

1. R. Shafipour, S. Segarra, A. G. Marques, and G. Mateos "Network Topology Inference from Non-Stationary Graph Signals", *Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process.*, New Orleans, USA, March 5-9, 2017.
2. D. Ramirez, A. G. Marques, and S. Segarra "Graph-Signal Reconstruction and Blind Deconvolution for Diffused Sparse Inputs", *Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process.*, New Orleans, USA, March 5-9, 2017.
3. S. Segarra, A. G. Marques, G. Leus, and A. Ribeiro, "Stationary Graph Processes: Parametric Power Spectral Estimation", *Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process.*, New Orleans, USA, March 5-9, 2017.
4. S. Segarra, A. G. Marques, G. Mateos, and A. Ribeiro, "Robust Network Topology Inference", *Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process.*, New Orleans, USA, March 5-9, 2017.
5. F. Gama, A. G. Marques, G. Mateos, and A. Ribeiro, "Rethinking Sketching as Sampling: Efficient Approximate Solution to Linear Inverse Problems", *Proc. of IEEE of Global Conf. on Signal and Info. Process.*, Washington DC, Dec. 7-9, 2016.
6. S. Segarra, A. G. Marques, G. Arce, and A. Ribeiro, "Center-weighted Median Graph Filters", *Proc. of IEEE of Global Conf. on Signal and Info. Process.*, Washington DC, Dec. 7-9, 2016.
7. F. Gama, A. G. Marques, G. Mateos, and A. Ribeiro, "Rethinking Sketching as Sampling: Linear Transforms of Graph Signals", *Proc. of 50th Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 6-9, 2016.
8. S. Segarra, A. G. Marques, G. Mateos, and A. Ribeiro, "Network Topology Identification from Imperfect Spectral Templates", *Proc. of 50th Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 6-9, 2016.

9. T. Chen, A. G. Marques, and G. B. Giannakis, "Space-Time Scheduling For Green Data Center Networks", Proc. of 50th Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA, Nov. 6-9, 2016.
10. A. G. Marques, G. Mateos, and Y. Eldar, "SIGIBE: Solving Random Bilinear Equations via Gradient Descent with Spectral Initialization", Proc. of European Signal Process. Conf., Budapest, Hungary, Aug. 29 - Sep. 2, 2016.
11. S. Segarra, A. G. Marques, G. Leus, and A. Ribeiro, "Stationary Graph Processes: Nonparametric Power Spectral Estimation", Proc. of IEEE Sensor Array and Multichannel Signal Process. Wrksp., Rio de Janeiro, Brazil, July 10-13, 2016.
12. S. Segarra, A. G. Marques, G. Mateos, and A. Ribeiro, "Network Topology Identification from Spectral Templates", Proc. of IEEE Intl. Wrksp. on Statistical Signal Process., Palma de Mallorca, Spain, June 26-29, 2016.
13. S. Segarra, A. G. Marques, G. Mateos, and A. Ribeiro, "Blind Identification of Graph Filters with Multiple Sparse Inputs", Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process., Shanghai, China, March 20-25, 2016.
14. S. Segarra, A. G. Marques, G. Leus, and A. Ribeiro, "Space-Shift Sampling of Graph Signals", Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process., Shanghai, China, March 20-25, 2016.
15. S. Segarra, A. G. Marques, and A. Ribeiro, "Linear Network Operators Using Node-Variant Graph Filters", Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process., Shanghai, China, March 20-25, 2016.
16. S. Segarra, G. Mateos, A. G. Marques, and A. Ribeiro, "Blind Identification of Graph Filters with Sparse Inputs", Proc. of IEEE Intl. Wrksp. on Computational Advances in Multi-Sensor Adaptive Processing, Cancun, Mexico, Dec. 13-16, 2015.
17. S. Segarra, A. G. Marques, G. Leus and A. Ribeiro, "Aggregation Sampling of Graph Signals in the Presence of Noise", Proc. of IEEE Intl. Wrksp. on Computational Advances in Multi-Sensor Adaptive Processing, Cancun, Mexico, Dec. 13-16, 2015.
18. L. M. Lopez-Ramos, V. Kekatos, A. G. Marques, and G. B. Giannakis, "Microgrid Dispatch and Price of Reliability Using Stochastic Approximation", Proc. of IEEE of Global Conf. on Signal and Info. Process., Orlando, FL, Dec. 14-16, 2015.
19. S. Segarra, A. G. Marques, G. Leus, and A. Ribeiro, "Reconstruction of Graph Signals: Percolation from a Single Seeding Node", Proc. of IEEE of Global Conf. on Signal and Info. Process., Orlando, FL, Dec. 14-16, 2015.
20. S. Segarra, A. G. Marques, G. Leus, and A. Ribeiro, "Sampling of Graph Signals: Successive Local Aggregations at a Single Node", Proc. of 49th Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA, Nov. 8-11, 2015.
21. S. Segarra, G. Mateos, A. G. Marques, and A. Ribeiro, "Blind Identification of Graph Filters with Sparse Inputs", Proc. of Workshop on Information in Networks, New York City, NY, Oct. 2-3, 2015 .
22. S. Segarra, A. G. Marques, and A. Ribeiro, "Distributed Implementation of Network Linear Operators using Graph Filters", Proc. of 53rd Allerton Conf. on Commun. Control and Computing, Univ. of Illinois at U-C, Monticello, IL, Sept. 30- Oct. 2, 2015.
23. S. Segarra, A. G. Marques, G. Leus, and A. Ribeiro, "Interpolation of Graph Signals Using Shift-Invariant Graph Filters", Proc. of European Signal Process. Conf., Nice, France, Aug. 31-Sep. 4, 2015.
24. A. G. Marques, S. Molinero and G. B. Giannakis, "Underlay Multi-Hop Cognitive Networks with Orthogonal Access", Proc. of IEEE CORAL 2015 at IEEE Intl. Symp. World of Wireless, Mobile and Multimedia Networks, Boston, USA, June. 14- 17, 2015.
25. A. G. Marques, L. Cadarso, E. Morgado and C. Figuera, "A Decomposition Method for Optimal User Assignment in Cellular Networks with Orthogonal Transmissions", Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process., Brisbane, Australia, April 19-24.
26. N. Gatsis and A. G. Marques, "A Stochastic Approximation Approach to Load Shedding in Power Networks", Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process., Florence, Italy, May 4-9, 2014.
27. L. M. Lopez-Ramos, A. G. Marques, and J. Ramos, "Joint Sensing and Resource Allocation for Underlay Cognitive Radios", Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process., Florence, Italy, May 4-9, 2014.
28. C. Gandarillas, C. Martín-Engeños, H. López Pombo, and A. G. Marques, "Dynamic Transmit-Power Control for WiFi Access Points Based on Wireless Link Occupancy", Proc. of IEEE Wireless and Commun. and Networking Conf., Istanbul, Turkey, Apr. 6-9, 2014.

29. E. Dall'Anese, A. G. Marques, and G. B. Giannakis, "Primary Receiver Localization Using Sparsity and Interference Tweets", Proc. of Intl. Wrksp. on Computational Advances in Multi-Sensor Adaptive Processing, Saint Martin, Dec. 15- 18, 2013.
30. J. Fernandez-Bes, A. G. Marques, and J. Cid-Sueiro, "Battery-Aware Selective Communications in Energy-Harvesting Sensor Networks: Optimal Solution and Stochastic Dual Approximation", Proc. of 10th Intl. Symposium on Wireless Commun. Systems, Ilmenau, Germany, Aug. 27- 30, 2013.
31. E. Dall'Anese, A. G. Marques, and G. B. Giannakis, "Hierarchical Spectrum Sharing Using Interference Tweets", Proc. of IEEE Wrksp. on Signal Process. Advances in Wireless Commun., Darmstadt, Germany, June. 16- 19, 2013.
32. L. M. Lopez-Ramos, A. G. Marques, and J. Ramos, "Soft-Decision Sequential Sensing for Optimization of Interweave Cognitive Radio Networks", Proc. of IEEE Wrksp. on Signal Process. Advances in Wireless Commun., Darmstadt, Germany, June. 16- 19, 2013.
33. A. G. Marques, E. Dall'Anese, and G. B. Giannakis, "Joint Resource Allocation and Primary User Localization in Underlay Cognitive Radios", Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Process., Vancouver, Canada, May. 26- 31, 2013.
34. A. G. Marques, J. Ramos, C. Figuera, and E. Morgado, "Underlay Cognitive Radios with Finite Transmission Modes and Capacity Guarantees for Primary Users," Proc. of 46th Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA, Nov. 4-7, 2012.
35. A. G. Marques, L. M. Lopez-Ramos, and J. Ramos, "Cognitive Radios with Ergodic Capacity Guarantees for Primary Users", Proc. of Intl. Conf. on Cognitive Radio Oriented Wireless Networks, Stockholm, Sweden, Jun. 18-20, 2012.
36. L. M. Lopez-Ramos, A. G. Marques, and J. Ramos, "Jointly Optimal Sensing and Resource Allocation for Multiuser Interweave Cognitive Radios", Proc. of Intl. Conf. on Cognitive Radio Oriented Wireless Networks, Stockholm, Sweden, Jun. 18-20, 2012.
37. A. G. Marques, L. M. Lopez-Ramos, G. B. Giannakis, and J. Ramos, "Adaptive Underlay Cognitive Radios with Imperfect CSI and Probabilistic Interference Constraints", IEEE Proc. of Intl. Wrksp. on Computational Advances in Multi-Sensor Adaptive Processing, San Juan, Puerto Rico, Dec. 13- 16, 2011.
38. A. G. Marques, G. B. Giannakis, L. M. Lopez-Ramos, and J. Ramos, "Stochastic Resource Allocation for Cognitive Radio Networks based on Imperfect State Information", IEEE Proc. of Intl. Conf. on Acoustics, Speech and Signal Processing, Prague, Czech Rep., May. 22- 27, 2011.
39. L. M. Lopez-Ramos, A. G. Marques, J. Ramos, and A. Caamaño, "Cross-Layer Resource Allocation for Downlink Access Using Instantaneous Fading and Queue Length Information", IEEE Proc. MCECN at Global Communications Conf., Miami, FL, Dec. 6-10, 2010.
40. A. B. Rodriguez-Gonzalez, L. M. Lopez-Ramos, A. G. Marques, J. Ramos, and A. Caamano, "Robust Worst-Case Design for Optimizing Average Performance in OFDM using Quantized CSI", IEEE Proc. MCECN at Global Communications Conf., Miami, FL, Dec. 6-10, 2010.
41. A. G. Marques and G. B. Giannakis, "Adaptive Cross-Layer Resource Allocation for Wireless Orthogonal-Access Networks", Proc. of European Wireless Conf., Lucca, Italy, Apr. 12-15, 2010 (invited).
42. A. G. Marques, G. B. Giannakis, and F. J. Ramos, "Stochastic Cross-Layer Resource Allocation for Wireless Networks Using Orthogonal Access: Optimality and Delay Analysis", IEEE Proc. of Intl. Conf. on Acoustics, Speech and Signal Processing, Dallas, TX, Mar. 14-19, 2010.
43. J. Requena-Carrion, A. B. Rodriguez-Gonzalez, A. G. Marques, and D. Gutierrez-Perez, "WIP: Implantation of a Collaborative Student-Centered Learning Environment in a Wireless Technology Course ", IEEE Proc. of Frontiers in Education, San Antonio, TX, Oct. 18-21, 2009.
44. A. G. Marques, G. B. Giannakis, and F. J. Ramos, "Stochastic Resource Allocation for Orthogonal Access Based on Quantized CSI: Optimality, Convergence and Delay Analysis", IEEE Proc. of Intl. Conf. on Acoustics, Speech and Signal Processing, Taipei, Taiwan, Apr. 19-24, 2009.
45. A. G. Marques, G. B. Giannakis, and F. J. Ramos, "Optimum Scheduling for Orthogonal Multiple Access over Fading Channels using Quantized Channel State Information", IEEE Proc. of Wrksp. on Signal Processing Advances in Wireless Communications, Recife, Brasil, Jul. 4-6, 2008.
46. R. Arroyo-Valles, A. G. Marques, and J. Cid-Sueiro, "Energy-efficient Selective Forwarding for Sensor Networks", IEEE Proc. of Wrksp. on Energy in Wireless Sensor Networks, in conjunction with DCOSS'08, Santorini, Greece, Jun. 14, 2008.

47. A. G. Marques, X. Wang, and G. B. Giannakis, "Optimal stochastic dual resource allocation for cognitive radios based on quantized CSI", IEEE Proc. of Intl. Conf. on Acoustics, Speech and Signal Processing, Las Vegas, NV, Mar. 30 - Apr. 4, 2008.
48. N. Gatsis, A. G. Marques, and G. B. Giannakis, "Utility-based power control for peer-to-peer cognitive radio networks with heterogeneous QoS constraints", IEEE Proc. of Intl. Conf. on Acoustics, Speech and Signal Processing, Las Vegas, NV, Mar. 30 - Apr. 4, 2008.
49. R. Arroyo-Valles, A. G. Marques, and J. Cid-Sueiro, "Energy-aware Geographic Forwarding of Prioritized Messages in Wireless Sensor Networks", IEEE Proc. of 4th Intl. Conf. on Mobile Ad-hoc and Sensor Systems, Pisa, Italy, Oct. 8-11, 2007.
50. A. G. Marques, X. Wang, and G. B. Giannakis "Distributed Resource Allocation for Cognitive Radios based on Limited-Rate Feedback", IEEE Proc. of XV European Signal Processing Conf., Poznan, Poland, Sep. 3-7, 2007 (invited).
51. A. G. Marques, F. F. Digham, G. B. Giannakis, and F. J. Ramos, "Reduced-Complexity Power-Efficient Wireless OFDMA using an Equally Probable CSI Quantizer", IEEE Proc. of Intl. Conf. on Communications, Glasgow, Scotland, Jun. 24-28, 2007.
52. A. G. Marques, X. Wang, and G. B. Giannakis, "Optimizing Energy Efficient of TDMA with Finite Rate Feedback", IEEE Proc. of Intl. Conf. on Acoustics, Honolulu, HI, Apr. 15-20, 2007.
53. A. G. Marques, X. Wang, and G. B. Giannakis, "Minimizing Transmit-Power for Coherent Communications in Wireless Sensor Networks using Quantized Channel State Information", IEEE Proc. of Intl. Conf. on Acoustics, Honolulu, HI, Apr. 15-20, 2007.
54. A. G. Marques, G. B. Giannakis, F. F. Digham, and F. J. Ramos, "Minimizing Power in Wireless OFDMA with Limited Rate Feedback", IEEE Proc. of Wireless and Communications and Networking Conf., Hong Kong, Hong Kong, Mar. 11-15, 2007.
55. A. G. Marques, X. Wang, and G. B. Giannakis, "Energy Efficient MIMO Systems Using Adaptive Modulation and Coding," Proc. of 40th Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA, (invited), October 29-November 1, 2006.
56. A. G. Marques, X. Wang, and G. B. Giannakis, "Energy-Efficient TDMA with Quantized Channel State Information", Proc. of MILCOM Conf., Washington, DC, Oct. 23-25, 2006.
57. R. Arroyo-Valles, A. G. Marques, J.J. Vinagre, and J. Cid-Sueiro, "A Bayesian Decision Model for Intelligent Routing in Sensor Networks", 3rd International Symposium on Wireless Communication Systems, Valencia, Spain, Sep. 5-8 2006.
58. A. G. Marques, F. F. Digham, and G. B. Giannakis, "Power-Efficient OFDM via Quantized Channel State Information", IEEE Proc. of Intl. Conf. on Communications, Istanbul, Turkey, Jun. 11-15, 2006.
59. A. G. Marques, F. F. Digham, and G. B. Giannakis, "Power-Efficient OFDM with Reduced Complexity and Feedback Overhead", IEEE Proc. of Intl. Conf. on Acoustics, Speech and Signal Processing, Toulouse, France, May 16-20, 2006

Book chapters

1. A. G. Marques, N. Gatsis, and G. B. Giannakis, "Optimal Cross-Layer Design of Wireless Multihop Networks", in "Cross-Layer Designs in WLAN Systems, N. Zorba, C. Skianis, and C. Verikoukis, Editors, Troubador Publishing, Leicester, UK, 2011 (ISBN 978-184-876-227-5).
2. R. Arroyo-Valles, A. G. Marques, and J. Cid-Sueiro, "Energy-Aware Selective Communications on Sensor Networks", in "Emerging Communications for Wireless Sensor Networks, A. Foerster and A. Foerster, Editors, In-Tech, Rijeka, Croatia, 2010 (ISBN 978-953-307-082-7).

RESEARCH FUNDING

Public Funding: Co-PI of the following projects: Wireless Technologies for Isolated Rural Communities in Developing Countries based on Cellular 3G Femtocell Deployments (FP7, 2013-2015), Distributed Processing for Wireless Sensor Networks: Energy Efficiency and Health Monitoring (2010-2012), Multimedia Distributed Processing (2007-2009), Customizable Interactions with Resources on Ami-Enabled Mobile Dynamic Environments (2008-2010), Ad-Hoc Heterogeneous Wireless Networks with Cooperative Diversity: A Cross-Layer Approach (2006-2009), Signal and Information Processing over Irregular Biomedical Data (2017-2019); average funding 15,000 euros per project and year. PI of the following projects: Source Localization of Cardiac Arrhythmia (2010-2012); 15,000 euros per year. Robust Optimization and Monitoring of Dynamic Networks (2014-2018); 60,000 euros per year.

Private Funding: Co-PI of more than 20 R&D projects with ICT companies (aggregate funding more than 1,500,000 euros).

TEACHING

Brief overview

I believe that analyzing and adapting the methodologies and techniques used in the classroom is instrumental to be an effective teacher. For that reason, I participate in different research-oriented education projects, wrote a couple of papers on the topic of Education and Engineering, and served as TPC member of the IEEE Frontiers in Education Conference.

Regarding my teaching history, I have taught several courses for undergraduate and graduate Electrical Engineering students, mostly focused on the areas of Signal Processing and Communications. I have also taught short (Summer) courses for graduate Computer Science students. My average rating for undergraduate courses is 3.1/4 and for graduate courses is 3.4/4.

UNDERGRADUATE COURSES

Signals and Systems II (F07, F08, F09, F10, F11, F12, F13, F14, F15, F16).

Signal Processing for Communications (S08, S09, S10, S11, S12, S13, F14, F15, F16).

Fundamentals of Digital Communications (S08, S09, F15, F16).

Laboratory of Digital Communications (S12, S13).

GRADUATE COURSES

Optimization of Wireless Networks (F14, F15, F16).

Cross Layer Optimization of Wireless Networks (F08, F09, F10, F11, F12, F13).

Wireless Communications (F07, F08).

SEMINARS/INVITED TALKS

Carlos III University of Madrid, Stationary Graph Processes and Applications to Network Topology Inference (October 2016).

University of Minnesota, Stationary Graph Processes and Applications to Network Topology Inference (August 2016).

University of Rochester, Stationary Graph Processes and Applications to Network Topology Inference (August 2016).

University of Delft, An Overview of Graph Signal Processing (June 2016).

Graph Signal Processing Workshop (keynote), Graph Signal Processing in Distributed Network Processing (May 2016)

University of Minnesota, Distributed Linear Operators using Graph Filters (October 2015).

University of Minnesota - Digital Tech. Center, Signal Processing for Graphs (July 2015).

University of Texas, Optimization and Monitoring of Smart Networks (April 2015).

IMDEA Networks - Research Institute of Madrid, Optimization and Monitoring of Smart Networks (October 2013).

University of Minnesota, Adaptive Cognitive Radios with Long-term Guarantees for Primary Users (October 2012).

Carlos III University of Madrid, Cross Layer Design for Wireless Networks (May 2011).

Florida Atlantic University, Adaptive Cross-Layer Resource Allocation for Multihop Wireless Orthogonal-Access Networks (December 2010).

University of Minnesota, Social Networks (August 2010).

Telecommunications Technology Center of Catalunya, Adaptive Cross-Layer Resource Allocation for Multihop Wireless Orthogonal-Access Networks (May 2010).

European Wireless Conference, Adaptive Cross-Layer Resource Allocation for Wireless Orthogonal-Access Networks (April 2010).

University of Minnesota, Resource Allocation in Cognitive Radios (August 2008).

Asilomar Conference on Signals, Systems and Computers, Energy Efficient MISO using Adaptive Modulation and Coding (November 2006).

University of Minnesota, Energy Efficient Resource Allocation Based on Quantized CSI (September 2006).

TUTORIALS

Graph Signal Processing: Fundamentals and Applications to Diffusion Processes (3 hours), 2016 IEEE Global Signal and Info. Process. Conf.

Fundamentals and Applications of Graph Signal Processing (3 hours), 2016 IEEE European Signal Process. Conf.

Fundamentals and Applications of Graph Signal Processing (3 hours), 2016 IEEE Sensor Array and Multichannel Signal Process.

An Overview of Graph Signal Processing and Applications to Distributed Networking (4 hours), University of Minnesota.

An Overview of Graph Signal Processing and Applications to Distributed Networking (4 hours), 2015 King Juan Carlos University

Cognitive Radios: State of the Art, Challenges and Research Opportunities (3 hours), 2009 University of Minnesota.

SERVICE

Brief overview

Regarding research-related service, I have served as TPC of several conferences and as reviewer of different journals and conferences (mostly associated with IEEE). I have also served as external research proposal evaluator for the Spanish Government. Currently, I am an Associate Editor of the: IEEE Signal Processing Letters and Springer Eurasip Journal on Advances in Signal Processing.

Regarding academic (and institutional) service, I have participated in different University committees (Department, School and University level). I have also served as external evaluator for the Spanish National Agency of Education.

PROFESSIONAL AFFILIATION

IEEE (Senior Member, Signal Processing Society).

COIT, AEIT (Spain).

REVIEWER

Journals - *IEEE Transactions on Signal Processing, IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, IEEE Transactions on Vehicular Technology, IEEE Journal on Selected Areas in Communications, IEEE Journal on Selected Topics in Signal Processing, IEEE Transactions on Mobile Computing, Proceedings of the IEEE, IEEE Communication Letters, IEEE Wireless Communications Letters, IEEE Signal Processing Letters, Signal Processing (EURASIP/Elsevier).*

Conferences (only IEEE conferences are listed) - *IEEE INFOCOM, ICC, PIRC, ICASSP, WCNC, GLOBECOM, SPAWC, VTC, ISIT, GLOBALSIP, CAMSAP, SSP, SAM.*

TPC/OC MEMBER

TPC IEEE SAM (2016).

TPC IEEE SSP (2016).

TPC IEEE VTC-Spring (2016).

TPC IEEE CAMSAP (2015).

TPC IEEE Globalsip (2014,2016).

TPC IEEE GLOBECOM (2013,2014).

TPC IEEE GreenCOMM (2013).

TPC IEEE FIE (2012,2013).

TPC IEEE PIMRC (2010,2013,2014).

TPC IEEE VTC-Spring (2010).

TPC Software Defined Radio Conference (2009-2014).

OC/TPC Telecom I+D (2007,2008).

OC of several Summer Schools (2007-present).

OTHER SERVICES

Member of the Editorial Board of IEEE Signal Processing Letters and EURASIP Advances on Signal Processing.

IEEE Branch Counselor (2010-present).

Member of the University Senate (2010-present).

Member of several committees at Department/School/University level. Chairman of the Undergraduate Committee for Electrical Eng. (2008-2009). Chairman of the Committee for the B. Sc. Degree on Multimedia Eng. (2010-present).

Session chair and special session organizer in a number of IEEE conferences.