

Alberto Rico Alvariño

CONTACT INFORMATION

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RESEARCH

My main research interest is the application of PHY abstraction methods to communication design problems, mainly link adaptation and cooperative cognitive radio networks. I am also interested in general problems involving signal processing for communications, specially those related to precoding, training and channel estimation in multiuser and multiantenna networks.

EDUCATION

University of Vigo, Vigo, Galicia, Spain

Ph.D. Signal Theory and Communications, June 2014. *Summa cum laude*

M.S. Signal Processing Applications in Communications, June 2012. GPA: 9.49/10

B.E. Telecommunication Engineering, June 2010. GPA: 8.85/10

HONORS AND AWARDS

Best Paper Award ASMS/SPSC. Livorno, Italy, 2014.

Best Professional Paper Award 30th AIAA ICSSC. Ottawa, Canada, 2012.

Highest GPA in Telecommunication Engineering in the University of Vigo and the state of Galicia, year 2010 (*Premio Extraordinario de Fin de Carrera*)

Second Highest GPA in Telecommunication Engineering in Spain, year 2010. (*Premio Nacional de Fin de Carrera*)

Pedro Barrié de la Maza Scholarship for graduate studies, 2011.

Galician Government Fellowship for Excellent Students October 2009 - June 2010.

EXPERIENCE

Corporate R&D, Qualcomm Inc. (San Diego, CA)

Senior Systems Engineer

October 2014 - present

Research focused on different aspects of 3GPP LTE-A

Signal Processing for Communications Group, University of Vigo (Vigo, Galicia, Spain)

Research Assistant

September, 2010 - September 2014

Research activities focused on overlay cognitive radio networks, link adaptation for mobile satellite communications and signal processing. Supervisor: Prof. Carlos Mosquera

Corporate R&D, Qualcomm Inc. (San Diego, CA)

Intern

June 2013 - August 2013

Research focused on advanced receiver algorithms in 3GPP LTE-A.

Wireless Networking and Communications Group, University of Texas at Austin (Austin, TX)

Visiting scholar

September 2012 - June 2013

Research focused on link adaptation algorithms for multiple user multiple input multiple output OFDM (MU-MIMO-OFDM) wireless networks, especially for IEEE 802.11ac standard.

Supervisor: Prof. Robert W. Heath Jr.

Antennas, Radar and Optics Group, University of Vigo (Vigo, Galicia, Spain)

System Verification of picosatellite XaTcobeo

September, 2009 - June 2010

Verification of the power subsystem of picosatellite XaTcobeo. Test procedure design following ECSS standards and testbench software development.

LANGUAGES

Galician, Spanish Native

English Fluent

PUBLICATIONS

1. Alberto Rico-Alvariño, Jesús Arnau, and Carlos Mosquera “Balancing Closed and Open Loop CSI in Mobile Satellite Link Adaptation”. *Proc. ASMS/SPSC 2014*, September 2014.
2. Alberto Rico-Alvariño, Robert W. Heath Jr. and Carlos Mosquera “FER Prediction with Variable Codeword Length”. *Proc. ICASSP 2014*, May 2014.
3. Alberto Rico-Alvariño and Robert W. Heath Jr. “Learning-Based Adaptive Transmission for Limited Feedback Multiuser MIMO-OFDM”. *IEEE Transactions on Wireless Communications*, 2014
4. Alberto Rico-Alvariño, Jesús Arnau, and Carlos Mosquera “Statistical Cross Layer Adaptation in Fast Fading Mobile Satellite Channels”. *Proc. IEEE GLOBECOM 2013*, December 2013.
5. Alberto Rico-Alvariño and Robert W. Heath Jr. “Link Adaptation in MIMO-OFDM with Practical Impairments”. *Proc. Asilomar Conference on Signals, Systems, and Computers*, Nov. 2013.
6. Alberto Rico-Alvariño, Jesús Arnau, and Carlos Mosquera “Cross Layer Link Adaptation in Time Varying Mobile Satellite Channels with Statistical and Outdated CSIT”. *Proc. Asilomar Conference on Signals, Systems, and Computers*, Nov. 2013.
7. Alberto Rico-Alvariño and Robert W. Heath Jr. “A machine learning approach to link adaptation in multiuser MIMO-OFDM”. *Proc. EUSIPCO 2013*, September 2013.
8. Alberto Rico-Alvariño and Carlos Mosquera. “Analytical characterization of the single frequency network gain using effective SNR metrics”. *Proc. ISWCS 2013*, August 2013.
9. Alberto Rico-Alvariño, Carlos Mosquera, and Fernando Pérez-González. “Overlay cognitive transmission in a multicarrier broadcast network with dominant line of sight reception”. *IEEE Transactions on Wireless Communications*, November 2012.
10. Alberto Rico-Alvariño and Carlos Mosquera. “Optimum training for CSI acquisition in cognitive radio channels”. In *Proc. Asilomar Conference on Signals, Systems, and Computers*, November 2012.
11. Alberto Rico-Alvariño and Carlos Mosquera. “Overlay spectrum reuse in a broadcast network: Covering the whole grayscale of spaces”. In *Proc. IEEE DySPAN*, October 2012.
12. Jesús Arnau, Alberto Rico-Alvariño, and Carlos Mosquera. “Adaptive transmission techniques for mobile satellite systems”. In *Proc. AIAA ICSSC*, September 2012.
13. Alberto Rico-Alvariño and Carlos Mosquera. “On the effect of echoes in hybrid Terrestrial-Satellite single frequency networks: Analysis and countermeasures”. In *Proc. ASMS/SPSC*, September 2012.
14. Alberto Rico-Alvariño, Carlos Mosquera, and Fernando Pérez-González. “Overlay spectrum reuse in a multicarrier broadcast network: Single receiver analysis”. In *Proc. IEEE SPAWC*, June 2012.
15. Alberto Rico-Alvariño, Carlos Mosquera, and Fernando Pérez-González. “Overlay spectrum reuse in a multicarrier broadcast network: Coverage analysis”. In *Proc. IEEE SPAWC*, June 2012.
16. Alberto Rico-Alvariño and Carlos Mosquera. “Overlay cognitive transmission in OFDM point to point systems exploiting primary feedback”. In *Proc. CIP*, May 2012.
17. Alberto Rico-Alvariño, Carlos Mosquera, and Fernando Pérez-González. “On the co-existence of primary and secondary transmitters in a broadcast network”. In *Proc. International Conference on Cognitive Radio and Advanced Spectrum Management*, 2011.

COMPUTER SKILLS **Programming Languages:** C, C++, MATLAB, Python, Java, web technologies (HTML, ASP, PHP, JSP, Javascript, AJAX, MySQL)

REFEREE SERVICES **Conferences:** DSP 2011, EUSIPCO 2011, CIP 2012, ISWCS 2012, ICC 2013, ISWCS 2013, SoCPaR 2013, ASMS/SPSC 2014, WCNC 2014, ICCACI 2014.

Journals: Science China Information Sciences, International Journal of Communication Systems, IEEE Transactions on Broadcasting, IEEE Communication Letters, IEEE Transactions on Wireless Communications, IEEE Transactions on Vehicular Technology

PROFESSIONAL MEMBERSHIP Member of IEEE, IEEE Signal Processing Society, and IEEE Communications Society

OTHER PROJECTS Co-founder of *Diodro Web Solutions*, a small technology company focused on the design and implementation of web-based management and communication software for educational centers.