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RESEARCH AND WORK EXPERIENCE

Trinity College Dublin Dublin, Ireland
Professor of Telecommunications, personal chair (2014-present); Stokes Professor in
Telecommunications (2009-2014)
Electronic and Electrical Engineering
Director of Research, School of Engineering (2015-present)

Virginia Tech Arlington, VA
Adjunct Research Professor (2015-present); Professor (2011-2014); Associate Professor (2004-
2011); Assistant Professor (1998-2004)
The Bradley Department of Electrical and Computer Engineering

Information and Telecommunication Technology Center , University of Kansas Lawrence, KS
Research Assistant (1995-1998)

IBM Brazil Rio de Janeiro, Brazil
Systems Engineer (1989-1990); Marketing Support Representative (1991-1992); Product
Specialist (1993-1995)

Telecommunication and Information Sciences Laboratory, University of Kansas
Lawrence, KS
Research Assistant (1988-1989)

The University of Kansas Lawrence, KS
January 1986 - May 1987; August 1995 - May 1996
Teaching Assistant - Electrical Engineering and Computer Science Department

EDUCATION

The University of Kansas Lawrence, KS
1983-1988; 1995-1998
Major: Electrical Engineering
Ph.D., 1998; M.S., 1988; B.S., 1986
Ph.D. Dissertation: *Static Pricing in Multiple-service Networks: A Game-theoretic Analysis*

Advisor: Dr. David W. Petr

Master's Thesis: *A Class-oriented Voice Communication System for Packet-switched Networks: Description and Performance Study*

Advisor: Dr. Victor Frost

BOOKS

1. A. B. MacKenzie and L. A. DaSilva, *Game Theory for Wireless Engineers*, Morgan and Claypool Publishers, 2006.
2. L. Korowajczuk, B. Xavier, A. Moreira, L. Z. Ribeiro, C. Korowajczuk, and L. A. DaSilva, *Designing CDMA 2000 Systems*, Wiley, 2004.

PUBLICATIONS IN REFEREED JOURNALS

1. J. Kibiłda, N. Kaminski, and L. A. DaSilva, "Radio Access Network and Spectrum Sharing in Mobile Networks: A Stochastic Geometry Perspective," *IEEE Trans. on Wireless Communications*, 2017 (to appear).
2. C. Sexton, N. Kaminski, J. M. Marquez-Barja, N. Marchetti, and L. A. DaSilva, "5G: Adaptable Networks Enabled by Versatile Radio Access Technologies," *IEEE Communications Surveys and Tutorials*, 2017 (to appear).
3. P. Di Francesco, J. Kibiłda, F. Malandrino, N. Kaminski, and L. A. DaSilva, "Sensitivity Analysis on Service-Driven Network Planning," *IEEE/ACM Transactions on Networking*, 2017 (to appear).
4. I. Macaluso, H. Ahmadi, I. Gomez-Miguel, L. Doyle, and L. A. DaSilva, "Substitutability of Spectrum and Cloud-based Antennas in Virtualised Wireless Networks," *IEEE Wireless Communications Magazine*, 2017 (to appear).
5. G. Jourjon, J. M. Marquez-Barja, T. Rakotoarivelo, A. Mikroyannidis, K. Lampropoulos, S. Denazi, C. Tranoris, D. Pareit, J. Domingue, L. A. DaSilva, and M. Ott, "FORGE Toolkit: Leveraging Distributed Systems in eLearning Platforms," *IEEE Trans. on Emerging Topics in Computing*, 2017 (to appear).
6. A. Hess, F. Malandrino, N. Kaminski, T. K. Wijaya, and L. A. DaSilva, "Cognitive Radio Algorithms Coexisting in a Network: Performance and Parameter Sensitivity," *IEEE Trans. on Cognitive Communications and Networking*, vol. 2, no. 4, pp. 381-396, Dec. 2016.
7. J. Kibiłda, B. Galkin, and L. A. DaSilva, "Modelling Multi-Operator Base Station Deployment Patterns in Cellular Networks," *IEEE Trans. on Mobile Computing*, vol. 15, no. 12, pp. 3087-3099, Dec. 2016.

8. D. Finn, H. Ahmadi, A. F. Cattoni, and L. A. DaSilva, "Improved Spectral Efficiency through Multi-User MIMO across Small Cells," *IEEE Transactions on Vehicular Technology*, vol. 65, no. 9, pp. 7764-7768, Sept. 2016.
9. Z. Khan, J. Lehtomäki, R. Vuotoniemi, E. Hossain, and L. A. DaSilva, "On Opportunistic Spectrum Access in Radar Bands: Lessons Learned from Measurements of Weather Radar Signals," *IEEE Wireless Communications Magazine*, vol. 23, no. 13, pp. 40-48, June 2016.
10. A. S. Shafiq, B. Lorenzo, S. Glisic, J. Pérez-Romero, L. A. DaSilva, A. B. MacKenzie, and J. Röning, "A Framework for Dynamic Network Architecture and Topology Optimization," *IEEE/ACM Transactions on Networking*, vol. 24, no. 2, pp. 717-730, Apr. 2016.
11. J. M. Reed, A. S. Abdallah, M. S. Thompson, A. B. MacKenzie, and L. A. DaSilva, "The FINS Framework: Design and Implementation of the Flexible Internetwork Stack (FINS) Framework," *IEEE Transactions on Mobile Computing*, vol. 15, no. 2, pp. 489-502, Feb. 2016.
12. Y. Xiao, Z. Han, C. Yuen, and L. A. DaSilva, "Carrier Aggregation between Operators in Next Generation Cellular Networks: A Stable Roommate Market," *IEEE Transactions on Wireless Communications*, vol. 15, no. 1, pp. 633-650, Jan. 2016.
13. Z. Khan, J. J. Lehtomäki, L. A. DaSilva, E. Hossain, and M. Latva-aho, "Opportunistic Channel Selection by Cognitive Wireless Nodes under Imperfect Observations and Limited Memory: A Repeated Game Model," *IEEE Transactions on Mobile Computing*, vol. 15, no. 1, pp. 173-187, Jan. 2016.
14. Y. Xiao, D. Niyato, Z. Han, and L. A. DaSilva, "Dynamic Energy Trading for Energy Harvesting Communication Networks: A Stochastic Energy Trading Game," *IEEE Journal on Selected Areas in Communications*, vol. 33, no. 12, pp. 2718-2734, Dec. 2015.
15. J. M. Marquez-Barja, H. Ahmadi, S. M. Tornell, C. T. Calafate, J.-C. Cano, P. Manzoni, and L. A. DaSilva, "Breaking the Vehicular Wireless Communications Barriers: Vertical Handover Techniques within Heterogeneous Networks Context," *IEEE Transactions on Vehicular Technology*, vol. 64, no. 12, pp. 5878-5890, Dec. 2015.
16. Y. Xiao, K.-C. Chen, C. Yuen, Z. Han, and L. A. DaSilva, "A Bayesian Overlapping Coalition Formation Game for Device-to-Device Spectrum Sharing in Cellular Networks," *IEEE Transactions on Wireless Communications*, vol. 14, no. 7, pp. 4034-4051, July 2015.
17. P. Di Francesco, F. Malandrino, T. K. Forde, and L. A. DaSilva, "A Sharing- and Competition-Aware Framework for Cellular Network Evolution Planning," *IEEE Transactions on Cognitive Communications and Networking*, vol. 1, no. 2, pp. 230-243, Jun. 2015.

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19. Y. Xiao, Z. Han, K.-C. Chen, and L. A. DaSilva, "Bayesian Hierarchical Mechanism Design for Cognitive Radio Networks," *IEEE Journal on Selected Areas in Communications (JSAC)*, vol. 33, no. 5, pp. 986-1001, May 2015.
20. I. Macaluso, H. Ahmadi, and L. A. DaSilva, "Fungible Orthogonal Channel Sets for Multi-user Exploitation of Spectrum," *IEEE Transactions on Wireless Communications*, vol. 14, no. 4, pp. 2281-2293, April 2015.
21. P. Di Francesco, S. McGettrick, U. K. Anyanwu, A. B. MacKenzie, and L. A. DaSilva, "A Split MAC Approach for SDR Platforms," *IEEE Transactions on Computers*, vol. 64, no. 4, pp. 912-924, April 2015.
22. S. A. Ahmad and L. A. DaSilva, "Power Control and Soft Topology Adaptations in Multihop Cellular Networks with Multi-Point Connectivity," *IEEE Transactions on Communications*, vol. 63, no. 3, pp. 683-694, March 2015.
23. S. A. Ahmad, C. R. C. M. da Silva, and L. A. DaSilva, "Marginal Power Efficiency Considerations in Power Control Adaptations for Multihop Cellular Networks," *IEEE Transactions on Vehicular Technology*, vol. 63, no. 9, pp. 4718-4723, Nov. 2014.
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26. F. Paisana, N. Marchetti, and L. A. DaSilva, "Radar, TV, and Cellular Bands: Which Spectrum Access Technique for Which Bands?," *IEEE Communication Surveys and Tutorials*, vol. 16, no. 3, pp. 1193-1220, 3rd Quarter 2014.
27. H. Ahmadi, Y. H. Chew, N. Reyhani, C. C. Chai, and L. A. DaSilva, "Learning Solutions for Auction-based Dynamic Spectrum Access in Multicarrier Systems," *Computer Networks*, vol. 67, pp. 60-73, July 2014.
28. J. D. Deaton, R. E. Irwin, and L. A. DaSilva, "Dynamic Spectrum Access in LTE-Advanced Networks," *Physical Communications*, Elsevier, vol. 10, pp. 127-143, March 2014.

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39. Z. Khan, S. Glisic, L. A. DaSilva, and J. Lehtomaki, "Modeling the Dynamics of Coalition Formation Games for Cooperative Spectrum Sharing in an Interference Channel," *IEEE Trans. on Computational Intelligence and AI in Games*, vol. 3, no. 1, Mar. 2011, pp. 17-30.
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42. N. Theis, R. W. Thomas, and L. A. DaSilva, "Rendezvous for Cognitive Radios," *IEEE Trans. on Mobile Computing*, vol. 10, no. 2, Feb. 2011, pp. 216-227.
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45. M. T. Refaei, L. A. DaSilva, M. Eltoweissy, and T. Nadeem, "Adaptation of Reputation Management Systems to Dynamic Network Conditions in Ad Hoc Networks," *IEEE Trans. on Computers*, vol. 59, no. 7, May 2010, pp. 707-719.
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48. R. W. Thomas, D. H. Friend, L. A. DaSilva, and A. B. MacKenzie, "Cognitive Networks: Adaptation and Learning to Achieve End-to-end Performance Objectives," *IEEE Communications Magazine*, vol. 44, no. 12, Dec. 2006, pp. 51-57.
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51. V. Srivastava, J. Neel, A. MacKenzie, R. Menon, L.A. DaSilva, J. Hicks, J.H. Reed and R. Gilles, "Using Game Theory to Analyze Wireless Ad Hoc Networks," *IEEE Communications Surveys and Tutorials*, vol. 7, no. 4, pp. 46-56, 4th quarter 2005.
52. J. De La Ree, Y. Liu, L. Mili, A. Phadke and L. A. DaSilva, "Catastrophic Failures in Power Systems: Causes, Analyses, and Countermeasures," *Proceedings of the IEEE*, vol. 93, no. 5, May 2005, pp. 956-964.
53. D. Gracanin, M. Eltoweissy, A. Wadaa, and L. A. DaSilva, "A Service-centric Model of Sensor Networks: Formalism and Visualization," *IEEE Journal on Selected Areas in Communications*, vol. 23, no. 6, June 2005, pp. 1159-1166.
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55. W. M. de Sousa and L. A. DaSilva, "Exploring Heterogeneity in Ad Hoc Networks with Antenna Arrays," *Journal of Communication and Information Systems*, vol. 19, no. 3, December 2004, pp. 74-80.
56. L. A. DaSilva, S. F. Midkiff, J. S. Park, K. Phanse, T. Lin, G. Hadjichristophi, and N. J. Davis, "Network Mobility and Protocol Interoperability in Ad Hoc Networks," *IEEE Communications Magazine*, vol. 42, no. 11, November 2004, pp. 88-96.
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58. D. Gracanin, Y. Zhou and L. A. DaSilva, "Quality of Service for Networked Virtual Environments," *IEEE Communications Magazine*, vol. 42, no. 4, Apr. 2004, pp. 42-48.
59. L. A. DaSilva and K. Phanse, "Prioritizing Access to Scarce Resources: Network Survivability through Policy-supported Quality of Service," *International Journal on Critical Infrastructures (IJCIS)*, vol. 1, no.1, 2004, pp. 20-37.
60. K. Phanse and L. A. DaSilva, "Addressing the Requirements of QoS Management for Wireless Ad Hoc Networks," *Computer Communications*, vol. 26, no. 12, July 2003, pp. 1263-1273.
61. L. A. DaSilva, "Experiences in Collaborative Distributed Learning across Geographies and Heterogeneous Student Populations in a Graduate Engineering Course," *International Journal of Distance Education Technologies*, vol. 1, no. 4, October-December 2003, pp. 72-82.
62. D. Novak, D. Rowland and L. A. DaSilva, "Modeling Dialup Internet Access: an Examination of User-to-Modem Ratios, Blocking Probability, and Capacity Planning in a Modem Pool," *Computers and Operations Research*, vol. 30, no. 13, November 2003, pp. 1959-1976.

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65. L. A. DaSilva, "Pricing for QoS-enabled Networks: a Survey," *IEEE Communication Surveys and Tutorials*, vol. 3, no. 2, Second Quarter 2000, pp. 2-8.
66. L. A. DaSilva, J. B. Evans, D. Niehaus, V. S. Frost, R. Jonkman, B. O. Lee and G. Y. Lazarou, "ATM WAN Performance Tools, Experiments and Results," *IEEE Communications Magazine*, vol. 35, no. 8, August 1997, pp. 118-125.
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PATENTS

1. J. D. Deaton and L. A. DaSilva, "Systems, Apparatuses, and Methods to Support Dynamic Spectrum Access in Wireless Networks," Pub. No. US 2012/0120887, 17 May 2012.

BOOK CHAPTERS

1. G. W. O. da Costa, A. F. Cattoni, P. E. Mogensen, and L. A. DaSilva, "Dynamic Channel Selection for Cognitive Femtocells," in *Cognitive Radio and Networking for Heterogeneous Wireless Networks*, Springer, pp. 151-180, 2014.
2. A. F. Cattoni, J. L. Buthler, O. Tonelli, L. A. DaSilva, J. P. Miranda, P. Sutton, F. Crespi, S. Benco, A. Perotti, D. Riviello, "Designing a CR Testbed: Practical Issues," in *Cognitive Radio and Networking for Heterogeneous Wireless Networks*, Springer, pp. 315-360, 2014.
3. I. Macaluso, H. Ahmadi, L. A. DaSilva, and L. E. Doyle, "Channel Usage Patterns and Their Impact on the Effectiveness of Machine Learning for Dynamic Channel Selection," in *Cognitive Communication and Cooperative HetNet Coexistence*, M.-G. Di Benedetto and F. Bader (eds.), Springer, 2014, pp. 33-45.
4. Z. Khan, S. Glisic, and L. A. DaSilva, "Dynamics of Coalition Games for Cooperation in Wireless Networks," in *Game Theory for Wireless Communications and Networking*, Y. Zhang and M. Guizani (eds.), CRC Press, 2011.
5. L. A. DaSilva and R. W. Thomas, "Rendezvous in Cognitive Radio Networks," in *Cognitive Radio Technology*, B. A. Fette (ed.), 2nd edition, 2009, pp. 635-644.

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8. D. H. Friend, R. W. Thomas, A. B. MacKenzie, and L. A. DaSilva, "Distributed Learning and Reasoning in Cognitive Networks: Methods and Design Decisions," in *Cognitive Networks: Towards Self-Aware Networks*, Q. H. Mahmoud (ed.), John Wiley and Sons, 2007, pp. 223-246.
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120. A. Nag, Y. Zhang, L. A. DaSilva, L. Doyle, and M. Ruffini, "Integrating Wireless BBUs with Optical OFDM Flexible-Grid Transponders in a C-RAN Architecture," *Optical Networking and Communication Conference (OFC)*, Los Angeles, CA, 19-23 Mar. 2017.
119. H. Ahmadi, I. Macaluso, I Gomez, L. A. DaSilva, and L. E. Doyle, "Virtualization of Spatial Streams for Enhanced Spectrum Sharing," *IEEE Globecom*, Washington, DC, 4-8 Dec. 2016.
118. C. Sexton, Q. Bodinier, A. Farhang, N. Marchetti, F. Bader, and L. A. DaSilva, "Coexistence of OFDM and FBMC for Underlay D2D Communications in 5G Networks," *IEEE Globecom Workshops*, Washington, DC, 4-8 Dec. 2016.
117. A. Liberato, M. R. N. Ribeiro, M. Martinello, J. M. Marquez-Barja, N. Kaminski, and L. A. DaSilva, "Dynamic Backhauling with Converged Networks," *Proc. of the 2016 Workshop on Fostering Latin American Research in Data Communication Networks (LANCOMM)*, SIGCOMM, Florianópolis, Brazil, 22 Aug. 2016, pp. 31-33.
116. G. A. Ropokis, M. C. Filippou, A. A. Rontogiannis, L. A. DaSilva, N. Marchetti, V. Frascolla, and P. T. Mathiopoulos, "Optimal Sensing and Power Allocation in Pilot-Aided Shared Access Systems: A BER Minimization Approach," *17th Intl. Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Edinburgh, UK, 3-6 July 2016.
115. P. Ruckebusch, S. Giannoulis, E. De Poorter, I. Moerman, I. Tinnirello, D. Garlisi, P. Gallo, N. Kaminski, L. A. DaSilva, P. Gawlowicz, M. Chwalisz, A. Zubow, "A Unified Radio Control Architecture for Prototyping Adaptive Wireless Protocols," *European Conference on Networks and Communications (EuCNC)*, Athens, Greece, June 27-30, 2016.
114. J. Marquez-Barja, M. Ruffini, N. Kaminski, N. Marchetti, L. Doyle, and L. A. DaSilva, "Decoupling Resource Ownership from Service Provisioning to Enable Ephemeral Converged

Networks (ECNs)", *European Conference on Networks and Communications (EuCNC)*, Athens, Greece, June 27-30, 2016.

113. Y. Xiao, Z. Xiong, D. Niyato, Z. Han, and L. A. DaSilva, "Full Duplex Machine-to-Machine Communication for Wireless-Powered Internet-of-Things," *IEEE ICC*, Kuala Lumpur, Malaysia, 23-27 May 2016.

112. J. Kibilda, F. Malandrino, and L. A. DaSilva, "Incentives for Infrastructure Deployment by Over-the-Top Service Providers in a Mobile Network: A Cooperative Game Theory Model," *IEEE ICC*, Kuala Lumpur, Malaysia, 23-27 May 2016.

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110. F. Paisana, Z. Khan, J. Lehtomäki, L. A. DaSilva, and R. Vuohtoniemi, "Exploring Radio Environment Map Architectures for Spectrum Sharing in the Radar Bands," *23rd International Conference on Telecommunications (ICT)*, Tessaaloniki, Greece, 16-18 May 2016.

109. B. Galkin, J. Kibilda, and L. A. DaSilva, "Deployment of UAV-mounted Access Points According to Spatial User Locations in Two-tier Cellular Networks," *IFIP Wireless Days*, Toulouse, France, 23-25 March 2016.

108. M. J. Abdel-Rahman, K. V. Cardoso, A. B. MacKenzie, and L. A. DaSilva, "Dimensioning Virtualized Wireless Access Networks from a Common Pool of Resources," 13th IEEE Consumer Communications and Networking Conference, Las Vegas, NV, 9-12 January 2016.

107. D. Finn, H. Ahmadi, R. Razavi, H. Claussen, and L. A. DaSilva, "Energy and Spectral Efficiency Gains from Multi-User MIMO-Based Small Cell Reassignments," *IEEE Globecom*, San Diego, CA, 6-10 December 2015.

106. J. Kibilda, P. Di Francesco, F. Malandrino, and L. A. DaSilva, "Infrastructure and Spectrum Sharing Trade-offs in Mobile Networks," IEEE Dynamic Spectrum Access Networks (DySPAN), Stockholm, Sweden, 29 September-2 October 2015.

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104. J. F. Santos, F. Paisana, N. J. Kaminski, J. M. Marquez-Barja, and L. A. DaSilva, "Context-Aware Radar Modeling Framework," IEEE Dynamic Spectrum Access Networks (DySPAN), Stockholm, Sweden, 29 September-2 October 2015.

103. B. Galkin, J. Kibilda, and L. A. DaSilva, "Stochastic Modelling of Downlink Transmit Power in Wireless Cellular Networks," *20th IEEE International Workshop on Computer*

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1. L. A. DaSilva, D. W. Petr and V. S. Frost, "A Class-oriented Replacement Technique for Lost Speech Packets," *Proc. 8th Annual Joint Conference of the IEEE Computer and Communication Societies (INFOCOM)*, 22-27 April 1989, Ottawa, Canada, vol. 3, pp. 1098-1105.

OTHER ARTICLES

6. L. A. DaSilva, "The Virtualization of Wireless Networks," *IEEE COMSOC TCCN Communications*, vol. 1, no. 1, Dec 2015, pp. 10-12.
5. F. Bader, P. Demestichas, L. A. DaSilva, and H. Harada, "Cognitive Radio in Emerging Communication Systems: Small Cells, Machine-to-machine Communications, TV White Spaces and Green Radios," guest editorial, *Transactions on Emerging Telecommunications Technologies*, 24:633-635, 2013.
4. A. B. MacKenzie and L. A. DaSilva, "Application of Signal Processing to Address Wireless Data Demand," *IEEE Signal Processing Magazine*, vol. 29, no. 6, November 2012, pp. 166-168.
3. D. Finn, L. A. DaSilva, and Y. Xiao, "Playing Games in Cognitive Radio Networks," *IEEE COMSOC MMTC E-Letter*, vol. 7, no. 6, July 2012, pp. 22-25.
2. L. A. DaSilva and A. B. MacKenzie, "Wireless Networking 'Maniacs' Compete in Challenge," *IEEE Pervasive Computing*, vol. 8, no. 3, July-September 2009, p. 92-93.
1. L. A. DaSilva, A. B. MacKenzie, M. S. Thompson, and E. Q. Baumann, "The MANIAC Challenge: Educational Experiences in Ad Hoc Networking," *IEEE Pervasive Computing*, vol. 8, no. 1, January-March 2009, pp. 7-11.

PROCEEDINGS EDITED

1. *ICCCN 2003: Proceedings of the 12th International Conference on Computer Communications and Networks*, R. P. Luijten, L. DaSilva, and E. K. Park, eds., IEEE, 2003 (ISBN: 0780379454).

2. *ICCCN 2004: Proceedings of the 13th International Conference on Computer Communications and Networks*, L. DaSilva, T. Engbersen, and E. K. Park, eds., IEEE, 2004 (ISBN: 0780388143).

POSTERS AND DEMONSTRATION PAPERS

1. J. Tallon, J. Kibilda, T. K. Forde, L. A. DaSilva, and L. E. Doyle, "Receiver-driven Handover between Independent Networks," demonstration paper, *IEEE Symposia on New Frontiers in Dynamic Spectrum Access Networks (DySPAN)*, Bellevue, WA, October 16-19, 2012.
2. A. S. Abdallah, M. D. Horvath, M. S. Thompson, A. B. MacKenzie, and L. A. DaSilva, "Facilitating Experimental Networking Research with the FINS Framework," poster paper, *6th ACM Intl. Workshop on Wireless Network Testbeds, Experimental Evaluation and Characterization (WiNTECH)*, Las Vegas, NV, 19 September 2011, pp. 67-74.
3. L. A. DaSilva, A. B. MacKenzie and G. Hadjichristofi, "Mobile Ad Hoc Network Interoperability And Cooperation (MANIAC) Challenge: Objectives and Architecture," *MobiHoc 2006*, Florence, Italy, May 22-25, 2006.
4. M.T. Refaei, V. Srivastava and L.A. DaSilva, "DEBRA: Delivery Based Reputation mechanism for Ad hoc networks," *1st IEEE International Conference on Sensor and Ad Hoc Communications and Networks (SECON 2004)*, Santa Clara, CA, Oct. 2004.
5. M.S. Thompson, W.O. Plymale, C.T. Hager, K. Henderson, S.F. Midkiff, L.A. DaSilva, N.J. Davis and J.S. Park, "Ad Hoc Networking Support for Pervasive Computing," *6th Intl. Conf. on Ubiquitous Computing (UbiComp 2004)*, Nottingham, England, 7-10 September 2004.
6. L. A. DaSilva, S. F. Midkiff and I.-R. Chen, "A Laboratory Course in Wireless and Mobile Systems Design," poster and white paper, *Workshop on Computer Networking: Curriculum Designs and Educational Challenges*, Pittsburgh, PA, 20 August 2002.

KEYNOTES AND INVITED SEMINARS

1. L. A. DaSilva, "FUTEBOL: Experimental Research at the Boundary between Wireless and Optical Networks," invited talk, *Workshop on Optical Wireless Integration, EuCNC 2016*, Athens, Greece, 27 June 2016.
2. L. A. DaSilva, "Using Game Theory to Model Resource Sharing in Wireless Networks," *IEEE ComSoc Distinguished Lecturer Tour*, Indian Institute of Technology (IIT), Kharagpur, India, 23 June 2016.
3. L. A. DaSilva, "Sharing Infrastructure and Spectrum: A Vision for the Future of Mobile Networks," *IEEE ComSoc Distinguished Lecturer Tour*, Jadavpur University, Kolkata, India, 20 June 2016; *Indian Institute of Technology (IIT)*, Kharagpur, India, 22 June 2016; *Indian Institute of Science (IISc)*, Bengaluru, India, 24 June 2016.
4. L. A. DaSilva, "When Wireless Met Optical: Challenges and Opportunities in Experimental Network Research," keynote, *VII Workshop de Pesquisa Experimental da Internet do Futuro (WPEIF)*, Salvador, Brazil, 3 June 2016.

5. L. A. DaSilva, "O Compartilhamento de Recursos e seus Efeitos no Planejamento de Redes Sem Fio," keynote, XXI Workshop de Gerência e Operação de Redes e Serviços (WGRS), Salvador, Brazil, 30 May 2016.
6. L. A. DaSilva, "Sharing Infrastructure and Spectrum in Mobile Networks", invited seminar, IoE² Laboratory Seminar Series, University College Dublin, Ireland, 6 April 2016.
7. L. A. DaSilva, "Infrastructure and Spectrum Sharing Trade-offs in Mobile Networks," invited talk, *Information Theory and Applications Workshop*, San Diego, CA, 5 February 2016.
8. L. A. DaSilva, "Sharing Infrastructure and Spectrum in Mobile Networks," keynote, *EURASIP-IEEE 3rd Spanish Workshop on Signal Processing, Information Theory and Communication*, Seville, Spain, 29 January 2016.
9. L. A. DaSilva, "Future Directions in Wireless Networks", *19th Wireless Community Work Meeting: Experimental Facilities for Robust Wireless Solutions*, Leuven, Belgium, 29 October 2015.
10. L. A. DaSilva, "Service-driven Networks: Resource Sharing and the Future of the Wireless Access," keynote talk, *1st EAI International Conference on Future Access Enablers of Ubiquitous and Intelligent Infrastructures*, Ohrid, Macedonia, 24 September 2015.
11. L. A. DaSilva, "Mobile Operators, Service Providers, and the Virtualisation of Wireless Networks," keynote talk, *27th International Teletraffic Conference (ITC27)*, Ghent, Belgium, 9 September 2015.
12. L. A. DaSilva, "Modelling Multi-Operator Infrastructure Sharing in Large-Scale Wireless Networks," invited talk, *20th IEEE International Workshop on Computer Aided Modelling and Design of Communication Links and Networks (CAMAD)*, Guildford, UK, 7 September 2015.
13. L. A. DaSilva, "Dynamic Spectrum Access and the Role of Game Theory," invited talk, *Riunione Annuale 2015 dell'Associazione Gruppo Nazionale Telecomunicazioni e Tecnologie dell'Informazione (GTI)*, L'Aquila, Italy, 18 June 2015.
14. L. A. DaSilva, "Using Game Theory to Model Resource Sharing in Future Wireless Networks," *European Future of Wireless Technology Workshop*, Stockholm, Sweden, 16 June 2015.
15. L. A. DaSilva, "Inter-operator Resource Sharing, Stochastic Geometry, and the Future of Wireless Networks," *Simons Conference on Networks and Stochastic Geometry*, Austin, TX, 20 May 2015.
16. L. A. DaSilva, F. Malandrino, J. Kibilda, P. Di Francesco, "Intra-operator Infrastructure Sharing in Future Wireless Networks," invited talk, *Information Theory and Applications Workshop*, San Diego, CA, February 6, 2015.

17. L. A. DaSilva, "Redes Virtuais, Compartilhamento de Recursos, e o Futuro da Comunicação sem Fio," invited seminar, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, 7 November 2014.
18. L. A. DaSilva, "Service-Aware Networks over Shared Wireless Access Infrastructure," invited talk, *II International Workshop on Challenges and Trends in Broadband Wireless Mobile Access Networks: Beyond LTE-A*, Campinas, Brazil, 5 November 2014.
19. L. A. DaSilva, "Resource Sharing as a Key Paradigm for Future Wireless Networks," invited talk, RWTH Aachen, Germany, 17 October 2014.
20. L. A. DaSilva, "Energy Efficiency through Resource Sharing in the Wireless Access," invited talk, *3rd International Workshop on Next Generation Green Wireless Networks (Next-GWiN)*, Rennes, France, 1 October 2014.
21. L. A. DaSilva, "Sharing and Virtualization in Future Wireless Networks," *9th Intl. Conf. on Cognitive Radio Oriented Wireless Networks (CROWNCOM)*, keynote address, Oulu, Finland, 4 June 2014.
22. L. A. DaSilva, "Resource Sharing in the Wireless Access," invited talk, Waterford Institute of Technology, Waterford, Ireland, 26 May 2014.
23. L. A. DaSilva, "Compartilhamento de Recursos e o Futuro das Redes de Acesso sem Fio," keynote, *IV Workshop de Redes de Acesso de Banda Larga*, Florianópolis, Brazil, 9 May 2014.
24. L. A. DaSilva, "The Challenges and Promise of Experimental Wireless Networks and Communications Research," invited talk, *2nd GENI/FIRE Collaboration Workshop*, Cambridge, MA, 5 May 2014.
25. L. A. DaSilva, "Enabling a Sharing Economy for Future Wireless Networks," invited talk, INSA, Lyon, France, 24 February 2014.
26. L. A. DaSilva, I. Macaluso, and H. Ahmadi, "Towards a Sharing Economy in Future Wireless Networks," invited talk, *Information Theory and Applications Workshop*, San Diego, CA, February 14, 2014.
27. L. A. DaSilva, "Orquestrando Redes sem Fio Virtuais a partir de Recursos Compartilhados," invited talk at: Universidade Federal do Rio de Janeiro, August 23, 2013; Universidade de Campinas, August 26, 2013; Universidade de Brasília, August 28, 2013; Universidade Federal de Minas Gerais, December 18, 2013.
28. L. A. DaSilva, "Orchestrating Virtual Wireless Networks from Common Resource Pools," invited talk, Josef Stefan Institute Colloquium, Ljubljana, Slovenia, March 28, 2013.
29. L. A. DaSilva, "Network Topology Control," invited talk, *COST Action IC0902 Management Committee Meeting and Workshop*, Dublin, Ireland, March 11-12, 2013.

30. L. A. DaSilva, "Spectrum and Infrastructure Sharing among Mobile Network Operators," invited talk, *Information Theory and Applications Workshop*, San Diego, CA, February 11, 2013.
31. L. A. DaSilva, "Game Theory for Cognitive Radio," invited talk, Motorola Scientific Advisory Board Annual Conference, Chicago, IL, November 13, 2012.
32. L. A. DaSilva, "Introduction to Dynamic Games," invited lecture, COST Action IC0902 2nd Intl. Summer School on Cognitive Wireless Communications: Highlight on Game Theory, Paris, France, 10-13 July, 2012.
33. L. A. DaSilva, "Cognitive Radios: a Network Perspective," research seminar, University of York, York, UK, March 12, 2012.
34. L. A. DaSilva, "Cognitive Networks: the Pursuit of Evolvable, Sustainable, and Submissive Networks," keynote talk, *Annual Workshop of the Graduate School on Mobile Communications*, Kleinwalsertal, Austria, September 14, 2011.
35. L. A. DaSilva, "Dynamic Spectrum Access Games," keynote talk, Callan Institute Research Day, Maynooth, Ireland, June 16, 2011.
36. L. A. DaSilva, "Learning Mechanisms for Cognitive Radio," invited lecture, *COST IC0902 First International Summer School on Cognitive Wireless Communications*, Florence, Italy, July 14, 2011.
37. L. A. DaSilva, "Game Theory for Distributed Decision Making in Cognitive Radio," invited lecture, *COST IC0902 First International Summer School on Cognitive Wireless Communications*, Florence, Italy, July 14, 2011.
38. L. A. DaSilva, "In pursuit of evolvable, sustainable, and submissive networks," invited talk, 5th WUN Cognitive Communications meeting, Aachen, Germany, May 4, 2011.
39. L. A. DaSilva, "Cognitive networks: Transient Ownership of Resources in Wireless Networks," invited seminar, University of Brasilia, Brazil, February 8, 2011.
40. L. A. DaSilva, "Transient Ownership of Resources in Cognitive Networks," invited talk, *ICT 2010*, Brussels, Belgium, September 28, 2010.
41. L. A. DaSilva and P. Marques, "Cognitive Radio Systems for Efficient Sharing of TV White Spaces in European Context," invited talk, *ICT 2010*, Brussels, Belgium, September 28, 2010.
42. L. A. DaSilva, "Game Theory and Cognitive Networks: Application to Distributed Spectrum Sharing," invited talk, Hamilton Institute, National University of Ireland, Maynooth, Ireland, November 4, 2009.
43. L. A. DaSilva and L. E. Doyle, "When Networks Go Cognitive: Cognitive Radios and the Quest for Ubiquitous Networks of Autonomous Nodes," invited talk, *Joint Workshop Brazil-European Union Cooperation in Information and Communication Technologies*, São Paulo, Brazil, September 8-9, 2009.

44. L. A. DaSilva, "Cognitive Radio: Practice and Promise," *ACC Annual Workshop and Feder Award Ceremony* (keynote presentation), Tel Aviv, Israel, February 25, 2009.
45. L. A. DaSilva, "Cognitive Radios and Networks: Challenges and Opportunities," invited talk, *WUN RP on Cognitive Communications*, York, UK, January 8, 2009.
46. L. A. DaSilva, "Cognitive Radios, Cognitive Networks, and Dynamic Spectrum Access," invited presentation at *IQT Technology Focus Day on Software Defined Radios*, Arlington, VA, March 11, 2008.
47. L. A. DaSilva, "Cognitive Radios, Cognitive Networks, and Dynamic Spectrum Access," invited presentation to U.S. Air Force Scientific Advisory Board, Arlington, VA, March 5, 2008.
48. L. A. DaSilva, "Ad Hoc Networks: New Applications Bring New Challenges," invited talk, Northern Virginia IEEE Computer Society Chapter Technical Meeting, Reston, VA, June 16, 2005.

SHORT COURSES AND PRESENTATIONS AT PROFESSIONAL MEETINGS

- L. A. DaSilva, "Inter-operator Resource Sharing, Stochastic Geometry, and the Future of Wireless Networks," Simons Conference on Networks and Stochastic Geometry, Austin, TX, 20 May 2015.
- L. A. DaSilva, "Resource Sharing in Future Generations of Wireless Networks," US-Ireland R&D Partnership Workshop, Dublin, Ireland, 30 September 2014.
- L. A. DaSilva, "Wireless Networks Vision: Networks without Borders," Future Internet Assembly, Dublin, Ireland, 10 May, 2013.
- L. A. DaSilva, "Game Theoretic Modeling of Resource Management in Cognitive Radio Networks," Wi-FiUS Summer School, Oulu, Finland, 25-27 June, 2012.
- L. A. DaSilva, A. Cattoni, and P. Popovski, "Theory and Practice of Cognitive Radio," Ph.D. course, Aalborg University, Denmark, 9-11 May, 2012.
- L. A. DaSilva, "The CREW project: experimental validation of cognitive radio, cognitive networking and spectrum sensing concepts," FIRE Workshop on Experimental Validation of Cognitive Radio/Cognitive Networking Solutions, *Future Internet Assembly*, Aalborg, Denmark, 9 May 2012.
- O. Tonelli, G. Berardinelli, F. M. L. Tavares, A. F. Cattoni, and L. A. DaSilva, "Coexistence Issues in Multi-system Cognitive Radios," *2nd Intl. Workshop COST Action IC0902 on Cognitive Radio and Networking for Cooperative Coexistence of Heterogeneous Wireless Networks*, Castelldefels, Spain, 5-7 October, 2011. (presented by O. Tonelli)
- J. P. Miranda, J. Kibilda, and L. A. DaSilva, "Spectrum Sensing by Program Making and Special Events in the Post-switchover Era: Achievements of a Short Term Scientific

Mission,” *2nd Intl. Workshop COST Action IC0902 on Cognitive Radio and Networking for Cooperative Coexistence of Heterogeneous Wireless Networks*, Castelldefels, Spain, 5-7 October, 2011. (presented by J. Kibilda)

- I. Macaluso, B. Ozgul, and L. A. DaSilva, “On the Performance of Reinforcement Learning for Dynamic Channel Selection,” *2nd Intl. Workshop COST Action IC0902 on Cognitive Radio and Networking for Cooperative Coexistence of Heterogeneous Wireless Networks*, Castelldefels, Spain, 5-7 October, 2011. (presented by I. Macaluso)
- L. A. DaSilva, Linda Doyle, Danny Finn, Justin Tallon, Ingrid Moerman, and Stefan Bouckaert, “CREW: Building a Cognitive Radio Federation,” *COST IC0902 Workshop*, Bologna, Italy, November 24, 2010. (presented by L. A. DaSilva)
- Barış Özgül, Paul Sutton, Irene Macaluso, Linda Doyle and L. A. DaSilva, “Spectral Masks and OFDM Waveform Adaptation for Intersystem Coexistence and Cooperation,” *COST IC0902 Workshop*, Bologna, Italy, November 24, 2010. (presented by L. A. DaSilva)
- Paul D. Sutton, Baris Ozgul, Irene Macaluso, Keith E. Nolan, L. A. DaSilva and Linda E. Doyle, “Cyclostationary Signatures – A PHY Layer Watermarking Technique for Intersystem Coexistence and Cooperation,” *COST IC0902 Workshop*, Bologna, Italy, November 24, 2010. (presented by L. A. DaSilva)
- L. A. DaSilva, “Game Theory for Wireless Networks,” short course at Institute for Infocom Research (I²R), Singapore, August 23-27, 2010.
- L. A. DaSilva, “Game Theory and Cognitive Networks: Cooperation for Spectrum Sharing,” Institute for Infocom Research (I²R), Singapore, April 6, 2010.
- A. B. MacKenzie and L. A. DaSilva, “Resource Management for Dynamic Spectrum Access,” short course at the University of Oulu, Finland, May 4-5, 2009.
- L. A. DaSilva and A. B. MacKenzie, “Cognitive Radios and Networks,” tutorial at 5th Intl. Conf. on Testbeds and Research Infrastructures for the Development of Networks and Communities (TridentCom) 2009, Reston, VA, April 6, 2009.
- L. A. DaSilva, “Cognitive Networks and Dynamic Spectrum Access,” ½-day tutorial at 11th Intl. Symp. on Wireless Personal Multimedia Communications (WPMC), Saariselka, Finland, Sept. 8, 2008.
- L. A. DaSilva, “Cognitive Radios and the Road to Cognitive Networks,” DARPA Cognitive Radio Electronics Workshop, Arlington, VA, May 28, 2008.
- L. A. DaSilva and A. B. MacKenzie, “Cognitive Radios and Cognitive Networks,” short course at the University of Oulu, Finland, February 18-20, 2008.
- L. A. DaSilva, “Self-organizing Networks and the Road to Cognitive Networks,” Technical University of Darmstadt, Germany, December 11, 2007.

- L. A. DaSilva and A. B. MacKenzie, “Cognitive Networks,” tutorial at 13th Annual Intl. Conf. on Mobile Computing and Networking (MOBICOM), Montreal, Canada, 9 September 2007.
- L. A. DaSilva, “When Networks Go Cognitive,” invited panelist in the panel “Going Cognitive: Why Bother?,” 18th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communication (PIMRC), Athens, Greece, 5 September 2007.
- L. A. DaSilva and A. B. MacKenzie, “Cognitive Networks,” tutorial at 2nd Intl. Conf. on Cognitive Radio Oriented Networks and Communications (CROWNCOM), Orlando, FL, 31 July 2007.
- L. A. DaSilva, “Cognitive Networks and Dynamic Spectrum Access,” USA-Finland Workshop on Mobile Wireless Technology and the Impacts on Future Internet, Helsinki, Finland, May 22, 2007.
- L. A. DaSilva, “Cognitive Networks and Dynamic Spectrum Access,” Swedish/US Workshop on Mobile Wireless Systems, Stockholm, Sweden, May 25, 2007.
- L. A. DaSilva, “Research Challenges in Dynamic Spectrum Access,” panel at Defense Spectrum Summit, Annapolis, MD, December 8, 2006.
- L. A. DaSilva and A. B. MacKenzie, “Cooperation in Ad Hoc Networks: A Game-Theoretic Approach,” WICAT Workshop on Cooperative Communications, New York, NY, October 21, 2005.
- L. A. DaSilva and S. F. Midkiff, “Ad Hoc Networks: Protocol Integration and Cross Layer Interactions,” Intel Research and Development, Nizhny Novgorod, Russia, August 18, 2005.
- S. F. Midkiff and L. A. DaSilva, Wireless Networks and Mobile Systems Curriculum Workshop, Nizhny Novgorod, Russia, August 16-17, 2005.
- L. A. DaSilva and V. Srivastava, “Wireless Networking and Mobile Systems: Principles and Practice,” tutorial at the IEEE Wireless Communications and Networking Conference (WCNC 2005), New Orleans, LA, March 13, 2005.
- S. F. Midkiff and L. A. DaSilva, Curriculum Development Workshop for Wireless Networks, Hsinchu, Taiwan, October 19-20, 2004.
- S. F. Midkiff and L. A. DaSilva, “Network Mobility: Protocol Integration and Interoperability,” Computer Science Seminar, National Tsing Hua University, Hsinchu, Taiwan, October 18, 2004.
- L. A. DaSilva, “The Resurgence of Push-to-Talk Technologies,” Wireless Opportunities Workshop, Blacksburg, VA, 27 September 2004.
- L. A. DaSilva, “Wireless Community Networks: Evolution and Technical Challenges,” International Workshop on Nationwide Internet Access and Online Applications, Dhaka, Bangladesh, 22-24 May 2004.

- S. F. Midkiff and L. A. DaSilva, "Wireless Networks and Mobile Systems: a Hands-on Tutorial," one-day tutorial at the IEEE Wireless Communications and Networking Conference (WCNC 2004), Atlanta, GA, 21 March 2004.
- L. A. DaSilva, "Wireless Networking Games: an Overview of Game Theoretic Approaches to Resource Management in Wireless and Ad Hoc Networks," Computer Science Colloquium, Old Dominion University, Norfolk, VA, 16 October 2003.
- L. A. DaSilva and L. Z. Ribeiro, "Traffic Engineering for Wireless Communications," short course, University of Wisconsin, Madison, WI, 18-20 June 2002.
- L. A. DaSilva, "Prioritizing Access to Scarce Resources: Network Survivability through Quality of Service," *Critical Infrastructures Workshop*, Alexandria, VA, 10 September 2001.
- L. A. DaSilva, K. Phanse and K. Kidambi, "TCP/IP, PPP and ATM: Performance and QoS Issues in Access Networks using Asymmetric Digital Subscriber Line," *IEEE International Conference on Communications (ICC'00)*, New Orleans, LA, 21 June 2000.
- L. A. DaSilva, "Quality of Service in Integrated Networks: a Tutorial," *IEEE SoutheastCon 2000*, Nashville, TN, 7 April 2000.
- L. A. DaSilva, "Layering, Mapping, Concatenation: How to Achieve Quality of Service in Heterogeneous Network Environments?" *Chamrousse Conference*, Chamrousse, France, 10-12 January 2000.
- L. A. DaSilva, D. W. Petr and N. Akar, "Static Pricing and Traffic Management in Networks with Allocation of Resources," *Second Annual Sprint Applied Research parTners Advanced Networking (SPARTAN) Symposium*, May 19-20 1998, Lawrence, KS.
- J.B. Evans, V. S. Frost, D. Niehaus, R. Jonkman, L. A. DaSilva, B. Lee and G. Lazarou, "AAI ATM WAN Performance Tools, Experiments and Results," *1996 DARPA Workshop on Wide-Area ATM Performance*, June 19-20 1996, Lawrence, KS (presented by J. B. Evans).
- J. B. Evans, L. A. DaSilva, H. Zhu and V. S. Frost, "Credit-based Flow Control for ATM Networks Revisited," *Gigabit Networking Workshop*, April 2 1995, San Francisco, CA (presented by J. B. Evans).

FUNDED RESEARCH PROJECTS

1. L. A. DaSilva, C. B. Both, et al., "FUTEBOL: Federated Union of Telecommunications Research Facilities for an EU-Brazil Open Laboratory," funded by the European Commission, Horizon 2020, 2016-2019.
2. I. Moerman et al., "Elastic Wireless Networking Experimentation (eWINE)," funded by the European Commission, Horizon 2020, 2016-2018.
3. L. A. DaSilva, A. B. MacKenzie, W. Scanlon, "Enabling Cellular Networks to Exploit Millimeter-wave Opportunities (NEMO)," funded by the Science Foundation Ireland, 2016-2019.

4. L. A. DaSilva, A. B. MacKenzie, and M. Weiss, "Collaborative Research: Virtualized Wireless Networks and Their Impact on Capacity Markets," funded by the National Science Foundation, 2015-2017.
5. L. A. DaSilva, "Federation and Virtualization of a Radio Testbed (FAVORITE)," funded by the European Commission, 2014-2016.
6. I. Moerman et al., "WiSHFUL: Wireless Software and Hardware platforms for Flexible and Unified radio and network control", funded by the European Commission, Horizon 2020, 2015-2017.
7. L. Doyle et al., "CONNECT: The Centre for Future Networks and Communications," funded by the Science Foundation Ireland, 2015-2020.
8. L. DaSilva, Z. Han, M. Latva-aho, and Z. Khan, "Joint Collaboration of Multiple Cognitive Systems without Coordination," funded by the National Science Foundation (US) and the National Academy (Finland), 2013-2015.
9. J. Domingue et al., "FORGE: Forging Online Education through FIRE," funded by the European Commission, 2013-2016.
10. A. B. MacKenzie and L. A. DaSilva, "Economic Models for Collaborative Access Network Provisioning," funded by the National Science Foundation, US, 2011-2014.
11. L. A. DaSilva, "The Self-Architecting Wireless Network: Transient Ownership, Information Sharing, and Learning," funded by the Science Foundation Ireland (Principal Investigator Program), 2011-2016.
12. L. E. Doyle et al., "Designing for Change: Evolvable, Sustainable, and Submissive Networks," funded by the Science Foundation Ireland (Centres for Science, Engineering, and Technology program), 2011-2016.
13. I. Moerman et al., "CREW: Cognitive Radio Experimentation World," funded by the European Commission, Seventh Framework Programme call FP7-ICT-2009-5, 2010-2015.
14. P. Marques et al., "COGEU: Cognitive Radio Systems for Efficient Sharing of TV White Spaces in European Context," funded by the European Commission, Seventh Framework Programme (FP7 ICT-248560), 2010-2012.
15. A. B. MacKenzie, L. A. DaSilva, and M. S. Thompson, "NeTS: Small: Collaborative: The Flexible Internetwork Stack (FINS) Framework," funded by the National Science Foundation, US, (award number CNS-0916300), 2009-2012.
16. Y. Yang, L. A. DaSilva, and M. S. Hsiao, "NeTS: An Open Architecture for the Evolutionary Design of Routing Protocols," funded by the National Science Foundation, US, (award number CNS-0916873), 2009-2010.
17. L. A. DaSilva, A. B. MacKenzie, C. W. Bostian, R. M. Buehrer, and J. H. Reed, "Reasoning and Learning in Adaptive Wireless Networks," funded by BBN Technologies under DARPA's Wireless Network after Next (WNaN) program, 2007-2010.

18. L. A. DaSilva, "Connectivity Techniques for Airborne Networks Using Smart Radio," funded by SCA Technica, 2006-2007.
19. A. Bell *et al.*, "A Discovery-based First Year Electrical and Computer Engineering Course Emphasizing Real-world Projects that Benefit Society," funded by the National Science Foundation, 2007-2008.
20. L. A. DaSilva and A. B. MacKenzie, "NeTS-NBD: Mobile Ad Hoc Networking Interoperability And Cooperation (MANIAC) Challenge," funded by the National Science Foundation (award number CNS-0519825), 2005-2010.
21. W. Stutzman *et al.*, "Advanced Wireless Integrated Navy Network," funded by the Office of Naval Research, 2005-2006.
22. L. A. DaSilva and J. H. Reed, "Software Defined Radios: Evolution and Application Areas," funded by Booz Allen & Hamilton, 2005.
23. A. Wang *et al.*, "SIRG: Highly Multiplexed Optical Fiber Sensing Networks for Infrastructure Monitoring," funded by the National Science Foundation (award number CMS-0427951), 2004-2007.
24. J. H. Reed, L. A. DaSilva and R. Gilles, "Game Theoretic Analysis of Radio Resource Management for Ad Hoc Networks," funded by the Office of Naval Research, 2003-2006.
25. S. F. Midkiff, L. A. DaSilva and N. Davis, "Pervasive Embedded Networks for Ad Hoc Environments," funded by Microsoft Research, 2003-2004.
26. L. A. DaSilva and J. H. Reed, "Policy-based Resource Management in a Vehicular Ad Hoc Network for First Responders," funded by Naval Postgraduate School, 2003-2004.
27. S. Midkiff, I.-R. Chen and L. DaSilva, "Wireless Curriculum Development: An Integrated Laboratory Course in Wireless and Mobile Systems Design," funded by Intel, 2002-2003.
28. I.-R. Chen, D. Gracanin, S. Bohner, S. Midkiff and L. DaSilva, "Wireless Ad Hoc Messenger," funded by Microsoft Research, 2002-2003.
29. L. DaSilva, C. Bostian, G. Morgan, S. Midkiff, J. H. Reed, B. Woerner and J. M. Baker, "Tactical Communications Architecture and Implementation Plan for the US Customs Service," funded by the U.S. Customs Services, 2002-2003.
30. L. DaSilva, A. Annamalai, B. Woerner, "FCS Communications Networking Antenna Controller Study," funded by Raytheon Corporation, 2001-2002.
31. J. Reed, W. Davis, W. Stutzman, A. Annamalai, L. DaSilva, "Propagation, Interference, and Antenna Placement Issues for XM Radio," funded by General Motors Corporation, 2001-2002.
32. W. Tranter, J. Reed, B. Woerner, W. Stutzman, L. DaSilva and A. Annamalai, "Research and Development for IMT-2000," funded by LG Electronics, 2000-2001.

33. S. F. Midkiff *et al.*, "Integrative Graduate Education and Research Training in Advanced Networking," funded by the National Science Foundation, 2000-2004.
34. L. A. DaSilva, "Investigation of the Role of PPP over ATM in the Delivery of Quality of Service over ADSL," funded by ECI Telecom, 1999-2000.
35. L. A. DaSilva, "The re-design, development and distributed delivery of *NET-2: Network Performance Evaluation, Design and Management*, Networking module, Masters of Information Technology Program," funded by the Center for Innovation in Learning, Virginia Tech, 2000-2001.
36. K. Reifsnider *et al.*, "Navy Collaborative Integrated Information Technology Initiative (NAVCIITI)," funded by the Office of Naval Research, 2000-2003.
37. S. Edwards, S. Midkiff, L. A. DaSilva, W. Tranter, "Asynchronous Multimedia Course Delivery for the Graduate Program in Information Technology," funded by Center for Innovation in Learning, Virginia Tech, 1999-2000.

PH.D. DISSERTATIONS SUPERVISED

16. Francisco Paisana, "Spectrum Sharing Techniques for Radar Bands," September 2016, Trinity College Dublin.
15. Jacek Kibilda, "Radio Access Network and Spectrum Sharing in Future Mobile Networks," March 2016, Trinity College Dublin.
14. Paolo Di Francesco, "On the Effects of Resource Sharing on Mobile Network Deployment Decisions," September 2015, Trinity College Dublin.
13. Danny Finn, "Enhanced Multi-Antenna Capabilities through Small Cell Collaboration," March 2015, Trinity College Dublin.
12. Syed Amaar Ahmad, "Autonomous Link-Adaptive Schemes for Heterogeneous Cellular Systems with Congestion Feedback," February 2014, Virginia Tech.
11. Juan Deaton, "Enabling Dynamic Spectrum Access in 4G Networks and Beyond," March 2012, Virginia Tech.
10. Ryan Irwin, "Traffic-aware Channel Assignment for Multi-transceiver Wireless Networks," March 2012, Virginia Tech.
9. Vivek Srivastava, "Behavior-based Incentives for Node Cooperation in Ad Hoc Networks," September 2008, Virginia Tech.
8. Juan Suris, "Cooperative Game Theory and Non-convex Optimization for Distributed Spectrum Sharing," November 2007, Virginia Tech.
7. Ryan W. Thomas, "Cognitive Networks," June 2007, Virginia Tech.

6. Mohamed Tamer Refaei, "Adaptive Reputation Management System for Ad Hoc Networks," February 2007, Virginia Tech.
5. Gustavo Nader, "Ultra Wideband Interference on Third-Generation Wireless Networks," December 2006, Virginia Tech.
4. Kerry Wood, "Directional Communications to Improve Multicast Lifetime in Ad Hoc Networks," July 2006, Virginia Tech.
3. JinSoo Park, "Adaptive Asymmetric Slot Allocation for Heterogeneous Traffic in WCDMA/TDD Systems," August 2004, Virginia Tech. [co-advised with A. Annamalai]
2. Kaustubh Phanse, "Policy-based Quality of Service Management in Wireless Ad Hoc Networks," August 2003, Virginia Tech.
1. Leila Ribeiro, "Traffic Dimensioning for Multimedia Wireless Networks," April 2003, Virginia Tech.

M.S. THESES SUPERVISED

11. Apoorv Naik, "Orchestra Framework: Protocol Design for Ad Hoc and Delay Tolerant Networks Using Genetic Algorithms," June 2011, Virginia Tech.
10. Juan Deaton, "Evaluation of Dynamic Channel and Power Assignment Techniques for Cognitive Dynamic Spectrum Access Networks," May 2010, Virginia Tech.
9. Jawwad Chattha, "Characterization of Selfish Behavior in Mobile Ad Hoc Networks through Virtual Emulation, September 2009, Virginia Tech.
8. Bo Fu, "A Mesh Architecture for Reliable Packet Delivery in Airborne Networks," August 2008, Virginia Tech.
7. Hanif Kazemi, "Distributed Monitoring System for Mobile Ad Hoc Networks: Design and Implementation," May 2007, Virginia Tech.
6. Aniket Bhat, "Stochastic Petri Net Models of Service Availability in a PBNM System for Mobile Ad Hoc Networks," June 2004, Virginia Tech.
5. Sarabjeet Chugh, "Impact of Network Address Translation on Router Performance," September 2003, Virginia Tech.
4. Vikram Dham, "Link Establishment in Ad Hoc Networks Using Smart Antennas," January 2003, Virginia Tech.
3. Abhishek Ram, "Assessment of Voice over IP as a Solution for Voice over ADSL," May 2002, Virginia Tech.
2. Shakheela Marikar, "Resource Management in 3G Systems Employing Smart Antennas," January 2002, Virginia Tech.

1. Kaustubh Phanse, "Simulation Study of an ADSL Network Architecture: TCP/IP Performance Characterization and Improvements Using ACK Regulation and Scheduling Mechanisms," October 2000, Virginia Tech.

SERVICE ACTIVITIES

Fellow, IEEE
Member, Tau Beta Pi Engineering Honor Society

Associate Editor, *IEEE Transactions on Wireless Communications* (2016-present)
Associate Editor, *IEEE Transactions on Cognitive Communications and Networks* (2015-present)
Associate Editor, *IEEE Communications Letters* (2006-2012)

Member of the Editorial Board, *Computer Networks* (2009-present)

Associate Editor, *Journal of Communication and Information Systems* (2011-present)

Guest editor (with F. Bader, P. Demestichas, and H. Harada) of *Transactions on Emerging Telecommunications Technologies*, special issue on "Cognitive Radio in Emerging Communications Systems - Small Cells, Machine-to-Machine Communications, TV White Spaces, and Green Radios," vol. 24, issue 7-8, November-December 2013.

Guest editor (with H. Bogucka and A. B. MacKenzie) of *IEEE Communications Magazine* feature topic on "Game Theory for Wireless Communications," August 2011.

Guest editor (with Ing-Ray Chen and Scott F. Midkiff) of *The Computer Journal* special issue on Mobile and Pervasive Computing, vol. 47, no. 4, 2004.

National Science Foundation (NSF) proposal review panels, 2000, 2001, 2003, 2004, 2005, 2006, 2008, 2009, 2010, 2011; and ad-hoc reviews, 2010, 2011.

Research proposal reviewer: American Association for the Advancement of Science (2003); South Carolina Experimental Program to Stimulate Competitive Research (EPSCoR) and Institutional Development Awards (IDeA) Programs (2008); University of Missouri Research Board (2009); Qatar National Research Fund (2010, 2011, 2012, 2014); US Department of Energy (2010); Army Research Office (2011); Natural Sciences and Engineering Research Council of Canada (2011, 2014); Research Foundation Flanders, Belgium (2012); Inria Grenoble Rhone-Alpes (2013); Research Grant Council of Hong Kong (2013); King Abdullah University of Science and Technology (KAUST), Saudi Arabia (2014); Chilean National Science and Technology Commission, Chile (2015).

General chair of *International Conference on Computer Communications and Networks (ICCCN) 2005*.

Co-chair of Technical Program Committee, *10th Intl. Symposium on Wireless Communication System (ISWCS)*, Ilmeanu, Germany, 2013.

Co-chair of Technical Program Committee, *4th Intl. Conf. on Cognitive Radio Oriented Wireless Networks and Communications (CROWNCOM)*, Hanover, Germany, 2009.

Co-chair (with A. MacKenzie and J. Morgan) of *GameNets: Workshop on Game Theory for Networks*, Pisa, Italy, October 2006.

Co-chair of Technical Program Committee, *International Conference on Computer Communications and Networks (ICCCN)*, 2003 and 2004.

Executive chair, *IEEE Dynamic Spectrum Access Networks (DySPAN)*, 2014.

Special Sessions Chair, *9th Intl. Conf. on Cognitive Radio Oriented Wireless Networks (CROWNCOM)*, Oulu, Finland, 2014.

Keynote Co-chair, *Next Generation Green Wireless Networks Workshop*, Rennes, France, 2014

Ph.D. external examiner/opponent:

- University of Oulu, Finland (2009, 2012, 2014)
- Technical University of Berlin, Germany (2011)
- Supelec, France (2011)
- Aalborg University, Denmark (2012)
- National University of Singapore (NUS), Singapore (2012)
- Josef Stefan Institute, Slovenia (2013)
- Indian Institute of Technology Kharagpur, India (2014, 2016)
- Technische Universität Ilmenau, Germany (2015)
- University of York, UK (2015)
- Universidade Federal do Ceará, Brazil (2015)
- University of Ghent, Belgium (2016)
- University of Surrey, UK (2017)

M.S. external examiner:

- Universidade de Brasilia, Brazil (2013)

External assessor for promotion/tenure: New Jersey Institute of Technology; University of Limerick, Ireland; Indiana University-Purdue University Fort Wayne; University of North Carolina Charlotte; The University of Kansas; University of Pittsburgh.

Member of Technical Program Committee for:

International Conference on Computer Communications and Networks (ICCCN), 2001, 2002, 2006; *IEEE Vehicular Technology Conference (VTC)*, Fall 2002, Fall 2007, Spring 2008, Fall 2010; *Information Resource Management Association (IRMA) International Conference*, 2003; *Workshop on Energy-efficient Wireless Communications and Networks (EWCN)*, 2003, 2004; *IEEE VTC Wireless Ad Hoc, Sensor, and Wearable Networks Symposium*, Fall 2003; *IEEE International Conference on Networks (ICON)*, 2004; *International Infrastructure Survivability Workshop (IISW)*, 2004; *IEEE International Performance, Computer and Communications Conference (IPCCC)*, 2005, 2006; *International Workshop on Computer-Aided Modeling, Analysis and Design of Communication Links and Networks (CAMAD)*, 2006; *International Conference on Distributed Computing Systems (ICDCS)*, 2006; *IEEE Workshop on Performance Management*, 2006; *International Workshop Towards Cognition in Wireless Networks (CogNet)*, 2007, 2008; *Intl. Symposium on Wireless Personal Multimedia Communications (WPMC)*, 2008, 2009; *Intl. Workshop on Cognitive Networks and Communications (COGCOM)*, 2008; *IEEE INFOCOM*, 2009, 2010, 2011, 2016; *IEEE Intl. Workshop on Performance and*

Management of Wireless and Mobile Networks (P2MNET), 2008; *Intl. Conf. Game Theory for Networks (GameNets)*, 2009; *Intl. Workshop on Collaboration and Cognition in Next Generation Networks (CoNGN)*, 2008; *Joint IEEE Workshop on Cognitive Wireless Networks and Systems – Cognitive Radio Networking (CogNet)*, 2009; *4th Workshop on Networking Technologies for Software Defined Radio*, 2009; *IEEE Wireless Communications and Networking Conference (WCNC)*, 2010; *IEEE Symposia on New Frontiers in Dynamic Spectrum Access Networks (DySPAN)*, 2010, 2011, 2012, 2014, 2015; *Military Communications Conference (MILCOM)*, 2010, 2011, 2012; *IEEE Globecom*, 2010, 2013, 2015; *Workshop on Cognitive Communications (WUN COGCOM)*, 2010; *Intl. Workshop on Recent Advances in Broadband Access Networks (RABAN)*, 2010; *IEEE INFOCOM Workshop On Cognitive & Cooperative Networks*, 2011; *IEEE Intl. Symp. On Personal, Indoor and Mobile Radio Communications (PIMRC)*, 2011; *IEEE Intl. Conf. on Communications (ICC)*, 2012, 2013, 2014, 2015; *Irish Signals and Systems Conference (ISSC)*, 2011, 2012, 2014; *ACM Cognitive Radio Networks (CoRoNet)*, 2011; *Simpósio Brasileiro de Telecomunicacoes (SBRT)*, 2012; *Workshop on Artificial Intelligence for Telecommunications and Sensor Networks (WAITS)*, 2012; *Future Network and Mobile Summit (FNMS)*, 2013; *ACM Workshop on Cognitive Radio Architectures for Broadband (CRAB)*, 2013; *International Workshop on Cognitive Cellular Systems (CCS)*, 2014; *European Conference on Networks and Communications (EuCNC)*, 2014, 2015, 2016; *Intl. Symp. on Wireless Communication Systems (ISWCS)*, 2015; *Intl. Conf. on Future Access Enablers of Ubiquitous and Intelligent Infrastructures (FABULOUS)*, 2015; *Workshop on Computer and Networking Experimental Research Using Testbeds (CNERT)*, 2016.

Book Reviewer, Artech House (1999-2000)

Book proposal Reviewer, Oxford University Press (2002)

Book proposal Reviewer, Morgan Kaufmann Publishers (2003)

Book chapter reviewer, *Wireless Sensor Networks: Signal Processing and Communications Perspectives*, John Wiley (2006)

Chapter or Article Reviewer, *The Internet Encyclopedia*, John Wiley & Sons (2002);

Encyclopedia of Information Science and Technology, Idea Group (2004)

Journal manuscript reviewer:

European Transactions on Communications (1998); *IEEE Communications Magazine* (1997, 2011, 2016); *IEEE Communication Letters* (1997, 2000, 2003, 2006, 2010); *International Journal of Parallel and Distributed Systems and Networks* (2001); *Journal of Software Practice and Experiences* (2002); *International Journal of Engineering Education* (2001); *IEEE/ACM Transactions on Networking* (2002, 2009, 2011, 2014); *International Journal of Critical Infrastructures (IJCI)* (2002); *Control Engineering Practice (CEP)* (2002); *IEEE Transactions on Education* (2002, 2003, 2004, 2005, 2009, 2010); *IEEE Transactions on Systems, Man and Cybernetics* (2002, 2007, 2008); *IEEE Journal on Selected Areas in Communications (JSAC)* (2003, 2004, 2005, 2007, 2011, 2012); *Simulation Practice and Theory* (2003); *IEEE Wireless Communications* (2004, 2012); *Information Sciences* (2004); *Journal of Communications and Networks* (2004); *ACM Transactions on Internet Technology* (2004); *International Journal of Wireless Information Networks* (2004); *Annals of Operations Research* (2005); *ACM Transactions on Modeling and Computer Simulation* (2006); *International Journal of Security and Networks* (2006); *Computer Communications* (2006); *IEEE Transactions on Mobile Computing* (2006, 2008, 2009, 2010, 2011, 2012, 2014); *Wireless Communications and Mobile Computing* (2006, 2007); *Computer Networks* (2006, 2011, 2013); *Journal of Systems and Software* (2006); *Ad Hoc Networks* (2007, 2008); *IEEE Journal of Selected Topics in Signal Processing* (2007, 2010); *IEEE Transactions on Wireless Communications* (2007, 2008, 2010, 2011, 2012, 2013, 2014, 2015); *IEEE Trans. on Vehicular Technology* (2008, 2009, 2010, 2011,

2012); *Annals of Telecommunications* (2008); *EURASIP Journal on Advances in Signal Processing* (2008); *IEEE Trans. on Parallel and Distributed Systems* (2008); *IEEE Trans. on Computers* (2009); *Advances in Electronics and Telecommunications* (2010); *IEEE Trans. on Signal Processing* (2010); *ETRI Journal* (2012); *IEEE Trans. on Communications* (2012, 2013, 2014); *Wireless Networks* (2012, 2013); *IEEE Trans. on Reliability* (2013); *ACM Trans. on Sensor Networks* (2013, 2014).

Conference manuscript reviewer:

IEEE INFOCOM (2000, 2003, 2004, 2009, 2010, 2017); IEEE International Conference on Communications (ICC) (1997, 1999, 2000, 2001, 2004, 2005, 2008, 2012, 2013); IEEE GLOBECOM (2000, 2003, 2004, 2009, 2010); International Conference on Computer Communications and Networks (ICCCN) (2000, 2001, 2002, 2007); International Conference on Networks (2001); ASEE Annual Conference (2002); Conference on Decision and Control (1999); High Performance Routing and Switching Workshop (HPSR) (2001); IEEE Workshop on IP Operations and Management (IPOM) (2003); ACM Symposium on Applied Computing (2004); International Conference on Distributed Computing Systems (ICDCS) (2004); IEEE Wireless Communications and Networking Conference (WCNC) (2004, 2005, 2006, 2010, 2013, 2017); Workshop on Pervasive Computing Education (PerEd) (2004); IEEE Vehicular Technology Conference (VTC) (2004, 2007, 2008, 2009, 2010, 2011); IEEE Intl. Performance, Computer and Communications Conference (IPCCC) (2005, 2006); IEEE Symposium on New Frontiers in Dynamic Spectrum Access Networks (DySPAN) (2005, 2008, 2010, 2011, 2012, 2014); Int. Conf. on New Technologies, Mobility and Security (NTMS) (2007); IEEE Military Communications Conf. (MILCOM) (2007, 2010, 2011); International Workshop Towards Cognition in Wireless Networks (CogNet) (2007, 2008); Intl. Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD) (2007); IEEE Intl. Workshop on Performance and Management of Wireless and Mobile Networks (P2MNET) (2008); Joint IEEE Workshop on Cognitive Wireless Networks and Systems – Cognitive Radio Networking (CogNet) (2009); Workshop on Cognitive Networks and Communications (COGCOM) (2009, 2010); International Symposium on Wireless Personal Multimedia Communications (WPMC) (2009); Intl. Conf. on Computing, Networking, and Communications (ICNC) (2012); IEEE Intl. Symp. on Personal, Indoor, and Mobile Radio Communications (PIMRC) (2012); Intl. Symp. on Wireless Communications Systems (ISWCS) (2012); Simposio Brasileiro de Telecomunicacoes (SBrT) (2012, 2013); Future Network and Mobile Summit (FNMS) (2013); European Conference on Networks and Communications (EuCNC), 2014, 2015.

Invited panelist, "Teaching with OPNET", *OPNETWORK 2000*, Washington, DC, August 2000.

AWARDS

IEEE Fellow (2016), for contributions to cognitive networking and to resource management in wireless networks

Fellow of Trinity College Dublin (2016)

IEEE Communications Society Distinguished Lecturer (2015-2016)

Virginia Tech College of Engineering Faculty Fellow (2006)

1999 Frontiers in Education New Faculty Fellow (ASEE/IEEE, 1999)

Paul H. Huebner Memorial Award (The University of Kansas, 1996)

H. T. Veatch Scholarship (The University of Kansas, 1985-86)

IIE/Fulbright Undergraduate Scholarship (1983-84)

OTHER QUALIFICATIONS

Foreign Languages: Portuguese, French, Spanish

Programming Experience in C, Pascal

Experience with network simulation tools BONESTTM and OPNET ModelerTM

Experience with standard Unix network performance measurement tools