

Evelio Martín García Fernández

Federal University of Paraná
Department of Electrical Engineering
Centro Politécnico, CP. 19011
81531-990, Curitiba, PR, Brazil

Phone: (+55 41) 3361-3221
Email: evelio@eletrica.ufpr.br
Homepage: <http://www.eletrica.ufpr.br/evelio/>

Full Professor.

IEEE Member.

Education

B.S. Electronics Engineering, Central University of Las Villas (UCLV), Cuba, 1985.

M.Sc. Electrical Engineering, University of Campinas (UNICAMP), 1997.

- Major Field: Electronics and Communications

D.Sc. Electrical Engineering, University of Campinas (UNICAMP), 2001.

- Major Field: Telecommunications and Telematics

Employment

Central University of Las Villas (UCLV) 1988–2001.

São Paulo State University (UNESP) 2002–2003.

Federal University of Paraná (UFPR), 2003–

Participation in Founded Projects

Security for Vehicular Mobility in Network, founded by Araucária Foundation (2017-).

Evaluation of Mechanisms and Algorithms for Cognitive Radio in Software Defined Radio Platform for Communication in Smart Grid Systems, founded by Araucária Foundation (2013-2016).

Design and Analysis of Cognitive Radio System, International Collaboration (Brazil-Cuba), funding by CAPES/MES-Cuba (2013-2015).

High Performance Packet Switching Networks / Next Generation Networks, International Collaboration (Brazil-Cuba), funding by CAPES/MES-Cuba (2009-2012).

Capacitation of Human Resources in Digital TV, funding by CAPES (2008-2012).

Broadband Communications Networks and Quality of Service, International Collaboration (Brazil-Cuba), funding by CAPES/MES-Cuba (2006-2009).

Publications

Journal Articles

- Elias, F. G. M., Fernandez, Evelio M. G. **An Analysis of Energy Detector Based on Improved Approximations of the Chi-square Distributions.** *EURASIP Journal on Wireless Communications and Networking*, 44, 2021.
- Pinto, F. A., Fernandez, Evelio M. G., Pedroso, C. M. **Exploiting user preferences to reduce bandwidth requirements for VoD services with client caching.** *IET Communications*, v. 15, p. 763-770, 2021.
- Leonardo, E. J., Mafra, S. B., Montejo-Sánchez, S., Fernandez, Evelio M. G. **Approximations for the Product, Ratio, and Sum of $\alpha - \mu$ Random Variables with Application in the Analysis of Cognitive Radio Networks.** *International Journal of Communication Systems*, v. 34, p. e4756, 2021.
- Lopez, O. L. A., Alves, H., Souza, R. D., Montejo-Sanchez, S., Fernandez, Evelio M. G., Latva-Aho, M. **Massive Wireless Energy Transfer: Enabling Sustainable IoT Towards 6G Era.** *IEEE Internet of Things Journal*, v. 8, p. 8816-8835, 2021.
- Algora, C. M. G., Guerra, E. O., Montejo-Sanchez, S., Fernandez, Evelio M. G., Steenhaut, K. **A Theoretical Association Time Model for IEEE 802.15.4 TSCH Networks.** *IEEE Communications Letters*, v. 25, p. 656-659, 2021.
- Bolufe, S., Azurdia-Meza, C. A., Cespedes, S., Montejo-Sanchez, S., Souza, R. D., Fernandez, Evelio M. G. **POSACC: Position-Accuracy based Adaptive Beaconing Algorithm for Cooperative Vehicular Safety Systems.** *IEEE Access*, v. 8, p. 15484-15501, 2020.
- Elias, F. G. M., Fernandez, Evelio M. G., Reguera, V. A. **Multi-Step-Ahead Spectrum Prediction for Cognitive Radio in Fading Scenarios.** *Journal of Microwaves, Optoelectronics and Electromagnetic Applications*, v. 19, p. 457-484, 2020.
- Lopez, O. L. A., Alves, H., Souza, R. D., Montejo-Sanchez, S., Fernandez, Evelio M. G. **Rate Control for Wireless-Powered Communication Network with Reliability and Delay Constraints.** *IEEE Transactions on Wireless Communications*, v. 18, p. 5791-5805, 2019.
- Montejo-Sanchez, S., Azurdia-Meza, C., Souza, R. D., Fernandez, Evelio M. G., Soto, I., Hoeller, A. **Coded Redundant Message Transmission Schemes for Low-Power Wide Area IoT Applications.** *IEEE Wireless Communications Letters*, v. 8, p. 584-587, 2019.
- Mafra, S. B., Fernández, Evelio M. G. Montejo-Sanchez, S., SOUZA, Souza, R. D., Rayel, O. K., Rebelatto, J. L. **On the performance of two-user full-duplex network-coded cooperation.** *International Journal of Communication Systems*, v. 32, p. e3931, 2019.
- Oliveira, G., Fernandez, Evelio M. G., Mafra, S., Montejo-Sanchez, S., Azurdia-Meza, C., **Optimal Improper Gaussian Signaling for Physical Layer Security in Cognitive Radio Networks.** *Security and Communication Networks*, v. 2018, p. 1-13, 2018.
- Algora, C. M. G., Reguera, V. A., Fernandez, Evelio M. G., Steenhaut, K. **Parallel Rendezvous-Based Association for IEEE 802.15.4 TSCH Networks.** *IEEE Sensors Journal*, v. 18, p. 9005-9020, 2018.
- Oliveira, G., Fernandez, Evelio M. G., Mafra, S., Montejo-Sanchez, S. **Physical Layer Security in Cognitive Radio Networks Using Improper Gaussian Signaling.** *IEEE Communications Letters*, v. 22, p. 1886-1889, 2018.

- Lopez, R. B., Sanchez, S. M., Souza, R. D., Brante, G., Fernandez, Evelio M. G. **Energy Efficient Cooperation Based on Relay Switching ON-OFF Probability for WSNs.** *IEEE Systems Journal*, v. 12, p. 3369-3380, 2018.
- Lopez, O. L. A., Sanchez, S. M., Mafra, S. B., Fernandez, Evelio M. G., Brante, G., Souza, R. D. **Power Control and Relay Selection in Cognitive Radio Ad Hoc Networks Using Game Theory.** *IEEE Systems Journal*, v.12, p. 2854-2865, 2018.
- Lopez, O. L. A., Fernandez, Evelio M. G., Souza, R. D., Alves, H. **Ultra-Reliable Cooperative Short-Packet Communications with Wireless Energy Transfer.** *IEEE Sensors Journal*, v. 18, p. 2161-2177, 2018.
- Lopez, O. L. A., Fernandez, Evelio M. G., Souza, R. D., Alves, H. **Wireless Powered Communications With Finite Battery and Finite Blocklength.** *IEEE Transactions on Communications*, v. 66, p. 1803-1816, 2018.
- Pereira, H., Mafra, S., Fernandez, Evelio M. G., **Performance Analysis of a Full-Duplex Energy Harvesting Cognitive Wireless Network.** *Journal of Communication and Information Systems (JCIS)*, v. 33, p. 234-241, 2018.
- Lopez, R. B., Sanchez, S. M., Fernandez, E. M. G., Mafra, S. B., Souza, R. D., Rebelatto, J. L., **Energy-efficient outage-constrained power allocation based on statistical channel knowledge for dual-hop cognitive relay networks,** *International Journal of Communication Systems*, v.1, p.1-15, 2017.
- Lopez, O. L. A., Alves, H., Souza, R. D., Fernandez, Evelio M. G. **Ultra-Reliable Short-Packet Communications with Wireless Energy Transfer.** *IEEE Signal Processing Letters*, v. 24, p. 387-391, 2017.
- Lopez, R. B., Mafra, S. B., Souza, R. D., Rebelatto, J. L., Fernandez, Evelio M. G. **Energy Efficient Power Allocation Schemes for a Two-User Network-Coded Cooperative Cognitive Radio Network,** *IEEE Transactions on Signal Processing*, v. 64, p. 1654-1667, 2016.
- Mafra, S. B., Fernandez, Evelio M.G., Souza, R. D. **Performance Analysis of Full-Duplex Cooperative Communication in Vehicular Ad-Hoc Networks,** *IFAC-PapersOnLine*, v. 49, p. 227-232, 2016.
- Mafra, S. B., Alves, H., Costa, D. B., Souza, R. D., Fernandez, E. M. G., Latva-aho, M., **On the performance of cognitive full-duplex relaying under spectrum sharing constraints,** *EURASIP J WIREL COMM*, v. 2015, p. 1-13, 2015.
- Runcos, R., Gavriloff, I., Pedroso, C. M., Fernandez, E. M. G., Ribeiro, E. P., **Delay-Centric Handover Issues in Voice Transmissions with Multihomed SCTP,** *Journal of Circuits, Systems, and Computers*, v. 24, p. 1550096-1-1550096-22, 2015.
- Guerra, E. O., Reguera, V. A., Fernandez, E. M. G., Souza, R. D., Pellenz, M. E., **Systematic construction of common channel hopping rendezvous strategies in cognitive radio networks,** *EURASIP J WIREL COMM*, v. 2015, p. 134, 2015.
- Reguera, V. A., Guerra, E. O., Souza R. D., Fernandez, E. M. G., **Short Channel Hopping Sequence Approach to Rendezvous for Cognitive Networks,** *IEEE Communications Letters*, v.18, p.289-292, 2014.
- Guerra, E. O., Reguera, V. A., Souza, R. D., Brante, G., Fernandez, E. M. G., **Simple role-based rendezvous algorithm for cognitive ad hoc radio networks,** *Electronics Letters*, v.50(3), p.182-184, 2014.
- Sánchez, S. M., Souza, R. D., Fernandez, E. M. G., Reguera, V. A., Godoy, W., **Effect of Location Accuracy and Shadowing on the Probability of Non-Interfering Concurrent Transmissions in Cognitive Ad Hoc Networks,** *Radioengineering*, v.22(4), p.1138-1149, 2013.

Sánchez, S. M., Souza, R. D., Fernandez, E. M. G., Reguera, V. A., **Rate and Energy Efficient Power Control in a Cognitive Radio Ad Hoc Network**, *IEEE Signal Processing Letters*, v.20, p.451-454, 2013.

Sánchez, S. M., Reguera, V. A., Fernandez, E. M. G., Godoy, W., **Power Control and Concurrent Transmission for Cognitive Ad Hoc Networks**, *IEEE Latin America Transactions*, v. 11, p.857-864, 2013.

Mafra, S. B., Souza, R. D., Rebelatto, J. L., Fernandez, E. M. G., Alves, H., **Cooperative Overlay Secondary Transmissions Exploiting Primary Retransmissions**, *EURASIP Journal on Wireless Communications and Networking*, v.2013, p. 196, 2013.

Sánchez, S. M., Souza, R. D., Fernandez, E. M. G., Reguera, V. A., **Impact of Power Allocation and Antenna Directivity in the Capacity of a Multiuser Cognitive Ad Hoc Network**, *Radioengineering*, v.21, p.1110-1116, 2012.

Mattos, C. I., Ribeiro, E. P., Fernandez, E. M. G., Pedroso, C. M., **An Unified VoIP Model for Workload Generation**, *Multimedia Tools and Applications*, p.1-21, 2012.

Sánchez, S. M., Souza, R. D., Fernandez, E. M. G., Reguera, V. A., **Impact of Rate Control on the Performance of a Cognitive Radio Ad-Hoc Network**, *IEEE Communications Letters*, v.16, p.1424-1427, 2012.

Torres, D. P., Fernandez, E. M. G., Ribeiro, E. P., Reguera, V. A., de Oliveira, C., **On the Impact of Adaptive RED in IP Networks Transporting H.264/MPEG-4 AVC Video Streams**, *Computers & Electrical Engineering*, v.38, p.128-139, 2012.

Reguera, V. A., Fernandez, E. M. G., Paliza, F. A., Godoy, W., Ribeiro, E. P., **Quality of Service for Voice over IP in Networks with Congestion Avoidance**, *Annales des Télécommunications*, v.64, p.225-237, 2009.

Reguera, V. A., Fernandez, E. M. G., Paliza, F. A., Godoy, W., **VoIP Quality of Service in Networks with Active Queue Management**, *IEEE Latin America Transactions*, v.7(5), p.603-611, 2009.

Fernandez, E. M. G., Reguera, V. A., Paliza, F. A., Godoy, W., **On the Impact of Active Queue Management on VoIP Quality of Service**, *Computer Communications*, v.31, p.73-87, 2008.

Coutinho, F. R., Fernandez, E. M. G., **Algebraic Soft-Decision Decoding of Reed-Solomon Codes with Erasures on Gaussian Channels**, *Journal of Communication and Information Systems*, v.22, p.24-31, 2007.

Book Chapters

Schwartz, C., Fernandez, E. M. G., **Ferramenta de Previsão de Desempenho do Sistema ISDB-T de TV Digital**, In: Fonseca, K. V. O., Pohl, A. P. (Org.), *Novas Técnicas e Ferramentas Aplicadas ao Sistema Brasileiro de TV Digital*, 1ed.Curitiba: Omnipax Editora, v. 1, p. 1-38, 2013.

Proceedings

Lobo, S. C., Neumeier, S., Fernandez, Evelio M. G., Facchi, C. **InTAS - The Ingolstadt Traffic Scenario for SUMO**. *SUMO User Conference 2020, Berlin*.

Semedo, E. M. C., Mafra, S. B., Montejo-Sanchez, S., Fernandez, Evelio M. G. **On the Performance Analysis of Full-Duplex Incremental Cooperative NOMA**. *XXXVIII Simpósio Brasileiro de Telecomunicações e Processamento de Sinais - SBrT 2020, Florianópolis*.

Lobo, S. C., Fernandez, Evelio M. G., Facchi, C. **Determining the Location of Objects Using a Vision-System Sensor and CPM.** XXXVIII Simpósio Brasileiro de Telecomunicações e Processamento de Sinais - SBrT 2020, Florianópolis.

Elias, F. G. M., Fernandez, Evelio M. G. **Uma análise aproximada do detector de energia.** XXXVIII Simpósio Brasileiro de Telecomunicações e Processamento de Sinais - SBrT 2020, Florianópolis.

Quispe, A. A., Riella, R. J., Iantorno, L., Fernandez, Evelio M. G. **Avaliação de Métricas de Desempenho da Rede no Sistema Wi-SUN FAN usando Simulador Cooja.** XXXVII Simpósio Brasileiro de Telecomunicações e Processamento de Sinais, 2019, Petrópolis.

Zuniga, D. J. C., Mafra, S. B., Mejia-Salazar, J. R., Montejo-Sanchez, S., Fernandez, Evelio M. G., Cespedes, S. **Visible Light V2V Cooperative Communication Under Environmental Interference.** XXXVII Simpósio Brasileiro de Telecomunicações e Processamento de Sinais, 2019, Petrópolis.

Bolufe, S., Montejo-Sanchez, S., Azurdia-Meza, C. A., Céspedes, S., Souza, R. D., Fernandez, Evelio M. G. **Dynamic control of beacon transmission rate and power with position error constraint in cooperative vehicular networks.** 33rd Annual ACM Symposium on Applied Computing, (SAC '18), Pau, 2018.

Montejo-Sanchez, S., Azurdia-Meza, C., Aranda-Cubillo, J., Souza, R. D., Fernandez, Evelio M. G., Soto, I. **Energy-Efficient Transmission Strategies with Multiple Radios in Cognitive Radio: Beyond Rendezvous.** 2018 IEEE Colombian Conference on Communications and Computing (COLCOM), 2018, Medellin.

Lopez, O. L. A., Souza, R. D., Alves, H., Fernandez, Evelio M. G. **Ultra reliable short message relaying with wireless power transfer.** 2017 IEEE International Conference on Communications, (ICC 2017), Paris.

Sanchez, S. M., Azurdia-Meza, C. A., Souza, R. D., Fernandez, Evelio M. G., Soto, I., Rebelatto, J. L. **An alternative non-cooperative transmission scheme based on coded redundant information.** IEEE 9th LatinAmerican Conference on Communications (LATINCOM), 2017, Guatemala City.

Bolufe, S., Sanchez, S. M., Azurdia-Meza, C. A., Cespedes, S., Souza, R. D., Fernandez, Evelio M. G. **Dynamic Control of Beacon Transmission Rate with Position Accuracy in Vehicular Networks.** 3rd Spring School on Networks (SSN 2017), Pucón, Chile.

Oliveira, G. A. Q. S. M., Mafra, S. B., Fernandez, Evelio M. G. **Secure Switch-and-Stay Combining with Multiple Antennas in Cognitive Radio Relay Networks,** XXXV Simpósio Brasileiro de Telecomunicações e Processamento de Sinais (SBrT2017), São Pedro.

Mafra, S. B., Fernandez, Evelio M. G., Sanchez, S. M., Pereira, H. D. **Performance Analysis of Energy Constrained Cognitive Full-Duplex Generalized Network Coding Scheme,** XXXV Simpósio Brasileiro de Telecomunicações e Processamento de Sinais (SBrT2017), São Pedro.

Pereira, H. D., Mafra, S. B., Fernandez, Evelio M. G. **Análise de Desempenho de uma Rede Cognitiva Full-Duplex com Captação de Energia,** XXXV Simpósio Brasileiro de Telecomunicações e Processamento de Sinais (SBrT2017), São Pedro.

Mafra, S. B., Fernandez, Evelio M. G., Souza, R. D., Rebelatto, J. L., Sanchez, S. M. **On the Performance of Cognitive Full-Duplex Generalized Dynamic Network Coding,** XXXIV Simpósio Brasileiro de Telecomunicações e Processamento de Sinais (SBrT 2016), 2016, Santarém.

Rohling, L. J., Silva, C. A. G., Fernandez, E. M. G., Pedroso, Carlos M. **Evidências da Falha do Modelo de Gilbert-Elliott em Redes sem Fio,** XXXIV Simpósio Brasileiro de Telecomunicações e Processamento de Sinais, (SBrT 2016), 2016, Santarém.

- Sanchez, S. M., Mafra, S. B., Souza, R. D., Fernandez, E. M. G., **Power-rate control with directional transmission and reception in a cognitive radio network.** *International Telecommunications Symposium (ITS)*, 2014, São Paulo.
- López, R. B., Sánchez S. M., Fernandez, E. M. G., Souza, R. D., Alves, H., **Genetic Algorithm Aided Transmit Power Control in Cognitive Radio Networks.** *9th International Conference on Cognitive Radio Oriented Wireless Networks (CROWNCOM)*, 2014, Oulu.
- Mafra, S. B., Alves, H., Souza, R. D., Fernandez, E. M. G., Rebelatto, J. L., **Using Multiple Co-Channel Femtocells as Relays to Increase the Performance of the Outdoor User.** *36th International Conference on Telecommunications and Signal Processing (TSP)*, 2013, Roma.
- Mafra, S. B., Alves, H., Costa, D. B., Souza, R. D., Fernandez, E. M. G., Latva-aho, M., **On the Performance of Cognitive Full-Duplex Relaying Systems under Spectrum Sharing Constraints.** *31th Brazilian Telecommunications Symposium*, 2013, Fortaleza.
- Mafra, S. B., Fernandez, E. M. G., Souza, R. D., Rebelatto, J. L. **Protocolo Cooperativo de Rádio Cognitivo Explorando Retransmissões do Primário.** *XXX Simpósio Brasileiro de Telecomunicações (SBrT)*, 2012, Brasília.
- Martinez, R. W. K., Fernandez, E. M. G. **Um Esquema de Codificação AL-FEC para Recepção Móvel no Sistema Brasileiro de Televisão Digital.** *XXX Simpósio Brasileiro de Telecomunicações (SBrT)*, 2012, Brasília.
- Mafra, S. B., Fernandez, E. M. G., Souza, R. D., Rebelatto, J. L. **Cooperative Cognitive Radio Protocol Exploiting Primary Retransmissions in Nakagami-m Fading.** *The Ninth International Symposium on Wireless Communication Systems (ISWCS)*, 2012, Paris.
- Sánchez, S. M., Reguera, V. A., Fernandez, E. M. G., Godoy, W. **Impacto do Uso de Controle de Potência na Probabilidade de Transmissão Concorrente em Redes Ad Hoc Cognitivas.** *XXIX Simpósio Brasileiro de Telecomunicações (SBrT)*, 2011, Curitiba.
- Schwartz, C., Fernandez, E. M. G. **Impacto do Uso de Portadoras Espalhadas no Tempo para Estimativa de Canal no Sistema ISDB-T.** *XXIX Simpósio Brasileiro de Telecomunicações (SBrT)*, 2011, Curitiba.
- Elias, F. G. M., Fernandez, E. M. G., Souza, R. D. **Projeto de Códigos LDPC para o Canal Nakagami-m.** *XXIX Simpósio Brasileiro de Telecomunicações (SBrT)*, 2011, Curitiba.
- Sánchez, S. M., Reguera, V. A., Fernandez, E. M. G., Godoy, W. **Impact of Location Accuracy on Concurrent Transmission for Cognitive Ad Hoc Networks.** *IEEE Latin-American Conference on Communications (LATINCOM)*, 2011, Belém.
- Lopez, C. R., Requera, V. A., Fernandez, E. M. G., Godoy, W. **Classical Payout Buffer Algorithm Revisited.** *XXVIII Simpósio Brasileiro de Redes de Computadores e Sistemas Distribuídos (SBRC)*, 2010, Gramado.
- Brandelero, F., Fernandez, E. M. G. **Improving VoIP Quality over Satellite Transmission with Dynamic Bandwidth.** *International Telecommunications Symposium (ITS)*, 2010, Manaus.
- Torres, D. P., Fernandez, E. M. G., Reguera, V. A., Oliveira, C. A. G. **On the Impact of Active Queue Management in IP Networks Transporting H.264/MPEG-4 AVC Video Streams.** *XIV Convención Científica de Ingeniería y Arquitectura (CCIA)*, 2008, Havana.
- Reguera, V. A., Fernandez, E. M. G., Godoy, W., Paliza, F. A. **Evaluación Analítica del Impacto de ARED en la Calidad de Servicio de VoIP.** *XIII Convención Internacional de Ingeniería Eléctrica (CIE)*, 2007, Santa Clara.

Reguera, V. A., Fernandez, E. M. G., Paliza, F. A., Godoy, W. **Análise de Qualidade de Serviço de VoIP em Redes com Controle de Congestionamento RED Adaptativo.** XXII Simpósio Brasileiro de Telecomunicações (SBrT), 2007, Recife.

Bragatto, T. A. C., Fernandez, E. M. G., Lamar, M. V. **Uma Nova Interface Homem-Máquina para Controle de Apontador em Sistemas Operacionais Gráficos Utilizando Visão Computacional.** XX SIBGRAPI-Workshop de Teses e Dissertações, 2007, Belo Horizonte.

Reguera, V. A., Paliza, F. A., Fernandez, E. M. G., Godoy, W. **Voice over IP Quality of Service Using Active Queue Management.** SBrT/IEEE International Telecommunications Symposium (ITS), 2006, Fortaleza.

Aragón, J. R. C., Fernandez, E. M. G. **Combining Diversity and Multiplexing in Wireless Communications Systems.** SBrT/IEEE International Telecommunications Symposium (ITS), 2006, Fortaleza.

Fernandez, E. M. G. **Códigos Convolucionais Concatenados com Runlength Limitado.** XXI Simpósio Brasileiro de Telecomunicações (SBrT), 2004, Belém.

Fernandez, E. M. G., Baldini, R. **Concatenated Runlength Limited Codes with Soft-decision Decoding.** IEEE International Symposium on Information Theory (ISIT), 2000, Sorrento.

Fernandez, E. M. G., Baldini, R. **Códigos Concatenados Entrelaçados para Canais com Runlength Limitado.** XVII Simpósio Brasileiro de Telecomunicações (SBrT), 1999, Vila Velha.

Fernandez, E. M. G., Baldini, R. **Runlength Limited Error Control Codes from Binary Expansions of Reed-Solomon Codes.** SBT/IEEE International Telecommunications Symposium (ITS), 1998, São Paulo.

Fernandez, E. M. G., Baldini, R. **Un Método para Encontrar Códigos Correctores de Errores con Runlength Limitado.** VII Simposio de Ingeniería Eléctrica (SIE), 1997, Santa Clara.

Fernandez, E. M. G., Baldini, R. **A Method to Find Runlength Limited Block Error Control Codes.** IEEE International Symposium on Information Theory (ISIT), 1997, Ulm.