Carrillo Melgarejo Dick

Senior Staff Standardization Specialist - 3GPP RAN1 delegate

, Detailed CV, https://aikonbrasil.github.io/

February 20, 2026

Degrees

Doctor of Science (D.Sc.), LUT School of Energy Systems, LUT University, Finland 2023
Lappeenranta Campus, Yliopistonkatu 34, 53850 Lappeenranta, Finland.
Master of Science (M.Sc.), Dep. of Electrical Engineer, PUC-Rio, Brazil 2008
Rua Marquês de São Vicente, 225, Gávea - Rio de Janeiro RJ - Brasil.
Bachelor of Science (B.Sc.), Dep. of Electrical and Electronics Engineering, UNMSM, Perú 2004
Av. Carlos Germán Amezaga #375 - Cercado de Lima, Lima, Perú.

Current Employment

Senior Staff Standardization Specialist, Nokia Solutions and Networks, Espoo, Finland 2022–current

- Representing the company in 3GPP meetings for Rel. 20 Study Item (6GR, focusing on MIMO - PDSCH/PUSCH DMRS overhead reduction.
- Representing the company in 3GPP meetings for Rel. 19 Work Item (5G-Advanced technology), focusing on cellular positioning enabled by AI/ML.
- Representing the company in 3GPP meetings for Rel. 18 Study Item (5G-Advanced technology), focusing on AI/ML applications in cellular network air interface.

Previous Work Experience

Researcher and Consultant, LUT University, Lappeenranta, Finland 2018–2022

- System-level definition and requirements of cellular networks used on projects enabling connectivity to power system use cases.
- Management of the drive-test of an industrial 5G Network supporting power system protocols as IEC-61850.
- Academic research in 6G technologies.

Senior Wireless Systems Engineer, CPqD, Campinas, Brazil 2010–2018

- Development of a customized LTE base station and CPE to operate on 250 MHz and 450 MHz, following 3GPP standardization requirements.
- Responsible for the System-level integration of L1/L2 software.
- system-level coordination between research development teams.

Wireless Communication Systems Researcher, Nokia Institute of Technology, Brazil 2008–2010

- Development of a system-level simulator for WiMax.
- Research on indoor 3D positioning using WiFi fingerprint.

Broadcast System Engineer, Peruvian Institute of Radio and Television, LUT University, Peru 2003–2006
System Engineer, LABTEL, Universidad Nacional Mayor de San Marcos, Peru 2000–2003

Management Experience

Leader of the Technical wireless communication group, strategic leadership to define technical roadmap in the field of wireless communication (CPqD) 2015-2018

Technical coordinator, development of a WiFi Mesh Cognitive Network (CPqD) 2010-2015

Project Management, Development of an early warning system project (UNMSM) 2010

Other Education and Expertise

Deep Reinforcement Learning, Udacity's Nanodegree Program 2021

Machine Learning with Python, Department of Computer Science - Aalto University 2019

Advanced Data Analysis and Machine Learning , Department of Mathematics - LUT University 2019

Self-Driving Car Engineer using Deep Learning, Udacity's Nanodegree Program 2017

Internet of Things: Roadmap to a connected world, MIT, Boston, United States 2016

Electrical Energy Storages and Electric Vehicles , Laboratory of Electrical Energy Engineering, Tampere University 2018

LTE RF Optimization, CPqD, Brazil 2015

Radio Planning and Optimization with Atoll, Forsk, Chicago, United States 2013

Radio Planning software with CelPlan, CelPlan, Brazil 2012

LTE-EPC Networks and Signals, Award Solutions, United States 2010

LTE Protocols and Signaling, Award Solutions, United States 2010

Mastering LTE air Interface, Award Solutions, United States 2010

Research Funding and Grants

DIGITWINIOT, Novel methods for combining physics-based digital twins, human biosignals and Industrial Internet of Things technologies for improving production processes. 2023
Submitted to academy ICT2023. PI: Prof. Heikki Handroos (LUT University).
Role in the funding application: Lead WP3 on Optimal communication architecture based on (beyond) 5G.

FIREMAN, 5G architectures to support detection and analyses of rare events in Industrial applications. 2019–2022
Funded by Finnish academy. PI: Prof. Pedro Nardelli (LUT University).
Role in the funding application: IoT System architecture to support rare events industrial applications.

EE-IoT, MTC and URLLC applications that support Energy Internet applications 2018–2020
Funded by Finnish Academy. PI: Prof. Pedro Nardelli (LUT University).
Role in the funding application: IoT System architecture definition to support Energy Internet applications based on MTC and URLLC.

AGROTICS, Development of Radio communication and Sensing Technologies for Sugarcane Production operating in Sub-1GHz bands 2016–2017
Funded by FUNTTEL (Fund for the Technological Development of Telecommunications Brazil). PI: Prof. Fabricio Figueiredo.
Role in the funding application: IoT System architecture definition for sensors, transport technologies, middle-ware and application layer. IoT Architecture definition focused in Agribusiness applications. Network planning of Wireless cellular network using propagation simulator tools and NS3.

LTE-450MHz, Development of a cellular network based on the standard 3GPP Rel.8 in band 31. 2014–2015
Funded by FUNTTEL (Fund for the Technological Development of Telecommunications Brazil). PI: Prof. Fabricio Figueiredo.
Role in the funding application: LTE system support for network performance evaluation and troubleshooting issues considering the complete protocol stack of the network.

Advanced Wireless Access Network - RASFA, Development of a cellular network based on the standard 3GPP Rel.8 for terrestrial and satellite connectivity. It also considered developing a WiFi Mesh cognitive network. 2010–2013
Funded by FUNTTEL (Fund for the Technological Development of Telecommunications Brazil). PI: Prof. Fabricio Figueiredo
Role in the funding application: LTE system support of all features related to physical and MAC layer. Cognitive network project coordinator. System simulation support to Satellite model based on OFDMA using Matlab and C++.

WISI, System Level Simulation for WiMax (802.16e/m) 2008–2010
Funded by Brazilian Informatics Law
Role in the funding application: Code Developer of simulator features using Matlab.

Research Scientific Contribution and Patents

Journal publications

[1] Analytical Derivation of the SINR for GFDM Signals on Rician Fading Channels With MMSE Receiver
Dick Carrillo Melgarejo, Santosh Kumar, Gustavo Fraidenraich, Pedro H. J. Nardelli
IEEE Transactions on Vehicular Technology 75.1 (2026) pp. 670–685. 2026. DOI: 10.1109/TVT.2025.3591495

[2] Boosting 5G on Smart Grid Communication: A Smart RAN Slicing Approach
Dick Carrillo, Charalampos Kalalas, Petra Raussi, Diomidis S. Michalopoulos, Demostenes Z. Rodriguez, Heli Kokkoniemi-Tarkkanen, Kimmo Ahola, Pedro H. J. Nardelli, Gustavo Fraidenraich, Petar Popovski
IEEE Wireless Communications (2022) pp. 1–8. 2022. DOI: 10.1109/MWC.004.2200079

[3] Dynamic Algorithm for Interference Mitigation Between Cells in Networks Operating in the 250 MHz Band
Dick Carrillo Melgarejo, Luiz Quirino Rezende Da Costa Filho, Álvaro Augusto Machado De Medeiros, Carlos Lorena Neto, Fabricio Lira Figueiredo, Demóstenes Zegarra Rodríguez
IEEE Access 10 (2022) pp. 33803–33815. 2022. DOI: 10.1109/ACCESS.2022.3162618

[4] Optimizing Flying Base Station Connectivity by RAN Slicing and Reinforcement Learning
Dick Carrillo Melgarejo, Jiri Pokorny, Pavel Seda, Arun Narayanan, Pedro H. J. Nardelli, Mehdi Rasti, Jiri Hosek, Milos Seda, Demóstenes Z. Rodríguez, Yevgeni Koucheryavy, Gustavo Fraidenraich
IEEE Access 10 (2022) pp. 53746–53760. 2022. DOI: 10.1109/ACCESS.2022.3175487

[5] Understanding UAV-Based WPCN-Aided Capabilities for Offshore Monitoring Applications
D. Carrillo, K. Mikhaylov, P. J. Nardelli, S. Andreev, D. B. da Costa
IEEE Wireless Communications (2021) pp. 1–7. 2021. DOI: 10.1109/MWC.001.2000218

[6] Containing Future Epidemics with Trustworthy Federated Systems for Ubiquitous Warning and Response
Dick Carrillo, Lam Duc Nguyen, Pedro H. J. Nardelli, Evangelos Pournaras, Plinio Morita, Demóstenes Z. Rodríguez, Merim Dzaferagic, Harun Siljak, Alexander Jung, Laurent Hébert-Dufresne, Irene Macaluso, Mehar Ullah, Gustavo Fraidenraich, Petar Popovski
Frontiers in Communications and Networks 2 (2021) p. 11. 2021. DOI: 10.3389/frcmn.2021.621264

[7] Bit Error Probability for MMSE Receiver in GFDM Systems
D. Carrillo Melgarejo, S. Kumar, G. Fraidenraich, L. L. Mendes
IEEE Communications Letters PP.99 (2018) pp. 1–1. 2018. DOI: 10.1109/LCOMM.2018.2808475

[8] Incorporating Wireless Communication Parameters into the E-Model Algorithm
D. Zegarrarodriguez, D. Carrillo, M. A. Ramirez, P. N. Nar, S. Moller
IEEE/ACM Transactions on Audio, Speech, and Language Processing (2021) pp. 1–1. 2021. DOI: 10.1109/TASLP.2021.3057955

[9] What Role Do Intelligent Reflecting Surfaces Play in Multi-Antenna Non-Orthogonal Multiple Access?
A. S. Sena, D. Carrillo, F. Fang, P. H. J. Nardelli, D. B. Costa, U. S. Dias, Z. Ding, C. B. Papadias, W. Saad
IEEE Wireless Communications 27.5 (2020) pp. 24–31. 2020. DOI: 10.1109/MWC.001.2000061

[10] Performance of LoRaWAN for Handling Telemetry and Alarm Messages in Industrial Applications
F.H.C Santos Filho, P.S. Dester, E.M.G. Stancanelli, P. Cardieri, D. Carrillo P.H.J. Nardelli, H. Alves
Sensors 20.3061 (2020). 2020. DOI: 10.3390/s20113061

[11] Event Detection System Based on User Behavior Changes in Online Social Networks: Case of the COVID-19 Pandemic
R. L. Rosa, M. J. De Silva, D. H. Silva, M. S. Ayub, D. Carrillo, P. H. J. Nardelli, D. Z. Rodríguez
IEEE Access 8 (2020) pp. 158806–158825. 2020. DOI: 10.1109/ACCESS.2020.3020391

[12] Energy Internet via Packetized Management: Enabling Technologies and Deployment Challenges
P. H. J. Nardelli, H. Alves, A. Pinomaa, S. Wahid, M. D. C. Tomé, A. Kosonen, F. Kühnlenz, A. Pouttu, D. Carrillo
IEEE Access 7 (2019) pp. 16909–16924. 2019. DOI: 10.1109/ACCESS.2019.2896281

[13] Speech Quality Classifier Model based on DBN that Considers Atmospheric Phenomena
Marielle Jordane Silva, Dick Carrillo Melgarejo, Renata Lopes Rosa, Demóstenes Zegarra Rodríguez
Journal of Communications Software and Systems 16.1 (2020). 2020

[14] Key Advances in Pervasive Edge Computing for Industrial Internet of Things in 5G and Beyond
A. Narayanan, A. S. D. Sena, D. Gutierrez-Rojas, D. Carrillo, H. M. Hussain, M. Ullah, S. Bayhan, P. H. J. Nardelli
IEEE Access 8 (2020) pp. 206734–206754. 2020. DOI: 10.1109/ACCESS.2020.3037717

[15] Neurosciences and Wireless Networks: The Potential of Brain-Type Communications and Their Applications

Renan Cipriano Moioli, Pedro H. J. Nardelli, Michael Taynnan Barros, Walid Saad, Amin Hekmatmanesh, Pedro E. Gória Silva, Arthur Sousa Sena, Merim Dzaferagic, Harun Siljak, Werner Van Leekwijck, Dick Carrillo Melgarejo, Steven Latré
IEEE Communications Surveys Tutorials 23.3 (2021) pp. 1599–1621. 2021. DOI: 10.1109/COMST.2021.3090778

[16] Transfer Learning Approach to IDS on Cloud IoT Devices Using Optimized CNN
Ogobuchi Daniel Okey, Dick Carrillo Melgarejo, Muhammad Saadi, Renata Lopes Rosa, João Henrique Kleinschmidt, Demóstenes Zegarra Rodríguez
IEEE Access 11 (2023) pp. 1023–1038. 2023. DOI: 10.1109/ACCESS.2022.3233775

[17] Experimental Evaluation of End-to-End Delay in a Sigfox Network
Jouni Ikonen, Niklas Nelimarkka, Pedro H. J. Nardelli, Niko Mattila, Dick Carrillo Melgarejo
IEEE Networking Letters 4.4 (2022) pp. 194–198. 2022. DOI: 10.1109/LNET.2022.3203799

Peer-reviewed conferences and workshops

[1] Achievable Sum Rate and Outage Capacity of GFDM Systems with MMSE Receivers
D. Carrillo, S. Kumar, G. Fraidenraich, P. H. J. Nardelli, D. B. Costa
ICC 2020 - 2020 IEEE International Conference on Communications (ICC), 2020. DOI: 10.1109/ICC40277.2020.9149450

[2] Reconfigurable Intelligent Surface-Aided Grant-Free Access for Uplink URLLC
D. C. Melgarejo, C. Kalalas, A. S. de Sena, P. H. J. Nardelli, G. Fraidenraich
2020 2nd 6G Wireless Summit (6G SUMMIT), 2020. DOI: 10.1109/6GSUMMIT49458.2020.9083788

[3] GFDM-Based Cooperative Relaying Networks with Wireless Energy Harvesting
D. C. Melgarejo, J. M. Moualeu, P. Nardelli, G. Fraidenraich, D. B. da Costa
2019 16th International Symposium on Wireless Communication Systems (ISWCS), 2019. DOI: 10.1109/ISWCS.2019.8877135

[4] Energy Management Methodology for Fusion Grid
A. Lana, I. Demidov, A. Pinomaa, D. Carrillo, O. Pyrhönen
2019 IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe), 2019. DOI: 10.1109/ISGTEurope.2019.8905555

[5] Performance of Multi-carrier Technology over VHF Channels for Rural Area Applications
D. C. Melgarejo, G. Fraidenraich, L. Quirino, A. Medeiros, P. Nardelli
2019 IEEE Wireless Communications and Networking Conference Workshop (WCNCW), 2019. DOI: 10.1109/WCNCW.2019.8902782

[6] Demonstrating the Impact of LTE Communication Latency for Industrial Applications
F. Polunin, D. C. Melgarejo, T. Lindh, A. Pinömaa, P. H. J. Nardelli, O. Pyrhonen
2019 IEEE 17th International Conference on Industrial Informatics (INDIN), 2019. DOI: 10.1109/INDIN41052.2019.8972105

[7] Application of LTE 450 MHz in the electric energy sector
R. T. Caldeira, D. C. Melgarejo, R. Coutinho
2017 European Conference on Networks and Communications (EuCNC), 2017. DOI: 10.1109/EuCNC.2017.7980770

[8] LoRaWAN Practical Tests: Indoor and Underground Applications
J. Seki, J. Bazzo, I. Junqueira, F. Penteado, D. Carrillo
2017 9th IEEE Latin-American Conference on Communications (LATINCOM), 2017

[9] Rural area deployment of internet of things connectivity: LTE and LoRaWAN case study
D. Carrillo, J. Seki
2017 IEEE XXIV International Conference on Electronics, Electrical Engineering and Computing (INTERCON), 2017. DOI: 10.1109/INTERCON.2017.8079711

[10] Framework for automated tests of LTE physical layers
F. A. P. Figueiredo, F. Mathilde, L. R. Pizzini, F. Figueiredo, D. Carrillo, I. Moerman
2017 IEEE XXIV International Conference on Electronics, Electrical Engineering and Computing (INTERCON), 2017. DOI: 10.1109/INTERCON.2017.8079693

[11] Evolution of long term narrowband-IoT
S. Barros, J. Bazzo, O. Reis Pereira, D. Carrillo, J. Seki
2017 IEEE XXIV International Conference on Electronics, Electrical Engineering and Computing (INTERCON), 2017. DOI: 10.1109/INTERCON.2017.8079717

[12] LTE jamming mitigation based on frequency hopping strategies
S. Barros, J. Bazzo, R. Takaki, D. Carrillo, J. Seki

2016 8th IEEE Latin-American Conference on Communications (LATINCOM), 2016. DOI: 10.1109/LATINCOM.2016.7811609

[13] A low-cost test platform to estimate the LTE timing advance procedure
D. Carrillo, G. G. Neto, S. M. Sakai, W. L. Souza, R. T. Caldeira, J. J. Bazzo
2016 8th IEEE Latin-American Conference on Communications (LATINCOM), 2016. DOI: 10.1109/LATINCOM.2016.7811608

[14] LTE Privado para Defesa e Seguranca Publica no Brasil
J. Seki, J. Bazzo, S. Barros, R. Takaki, D. Carrillo
XXXIV SIMPOSIO BRASILEIRO DE TELECOMUNICACOES- SBrT2016, 2016. DOI: 10.1109/LATINCOM.2016.7811608

[15] Cognitive wireless mesh network without common control channel evaluated in NS-3
D. Carrillo
2015 17th Conference of Open Innovations Association (FRUCT), 2015. DOI: 10.1109/FRUCT.2015.7117966

[16] Cognitive network validation using NS-3
D. Carrillo
IEEE Colombian Conference on Communication and Computing (IEEE COLCOM 2015), 2015. DOI: 10.1109/ColComCon.2015.7152103

[17] Narrowband interference suppression in Long Term Evolution systems
J. P. Miranda, D. Melgarejo, F. Mathilde, R. Yoshimura, F. A. Figueiredo, J. J. Bazzo
2014 IEEE 25th Annual International Symposium on Personal, Indoor, and Mobile Radio Communication (PIMRC), 2014. DOI: 10.1109/PIMRC.2014.7136241

[18] A USRP based scheme for cooperative sensing networks
Ricardo Seiti Yoshimura, Fabiano S. Mathilde, João Pedro Dantas, José Cruz, Juliano J. Bazzo, Dick Melgarejo
, 2014

[19] Red experimental cognitiva: Algoritmos y resultados
D. Carrillo, F. Mathilde, R. Yoshimura, J. Bazzo
2013 IEEE Colombian Conference on Communications and Computing (COLCOM), 2013. DOI: 10.1109/ColComCon.2013.6564839

[20] RF Channel occupation tool using GNU Radio
D. Carrillo
GNU-Radio Conference 2013, 2013

[21] Estrategias de Sensoriamento de Espectro Cooperativo Baseado em Autovalores
Jose H. Cruz Jr. Joao P. M. Dantas, Mario G. F. Figueredo, Vicente A. Sousa Jr. Juliano J. Bazzo, Dick C. Melgarejo, Ricardo S. Yoshimura
, 2014

[22] Building an efficient energy detector with SDR and GNU Radio
D. Carrillo
GNU-Radio Conference 2012, 2012

[23] Reduction of intermodulation products of superior order generated by Nonlinear systems over OFDM signals using a pre-distortion technique
D. Carrillo
2010 7th International Symposium on Wireless Communication Systems, 2010. DOI: 10.1109/ISWCS.2010.5624381

Books and edited proceedings

[1] Iurii Demivod, Dick Carrillo Melgarejo, Antti Pinomaa, Liana Ault, Jari Jolkkonen, Kirsi Leppa. 'IEC-61850 Performance Evaluation in a 5G Cellular Network: UDP and TCP Analysis'. In: ***Handbook of Smart Energy Systems***. Ed. by Michel Fathi, Enrico Zio and Panos M. Pardalos. Gewerbestrasse 11, 6330 Cham, Switzerland: Springer Nature Switzerland AG, 2023, pp. 65–75. ISBN: 978-3-030-97939-3. DOI: 10.1007/978-3-030-97940-9_121. URL: https://doi.org/10.1007/978-3-030-97940-9_121.

[2] D. Carrillo. 'Cognitive Radio Networks'. In: ***Cognitive Technologies***. Ed. by Alberto Paradisi, Alan Godoy Souza Mello, Fabrício Lira Figueiredo and Rafael Carvalho Figueiredo. Cham: Springer International Publishing, 2017, pp. 95–109. ISBN: 978-3-319-53753-5. DOI: 10.1007/978-3-319-53753-5_8. URL: https://doi.org/10.1007/978-3-319-53753-5_8.

[3] D. Carrillo, R. Takaki, F. Lira Figueiredo, F. Mathilde. '5G Cognitive Wireless Mesh Network Without Common Control Channel'. In: ***Cognitive Technologies***. Ed. by Alberto Paradisi, Alan Godoy Souza Mello, Fabrício Lira Figueiredo and Rafael Carvalho Figueiredo. Cham: Springer International Publishing, 2017, pp. 65–75. ISBN:

978-3-319-53753-5. DOI: 10.1007/978-3-319-53753-5_6. URL: https://doi.org/10.1007/978-3-319-53753-5_6.

[4] J. J. Bazzo, S. Barros, R. Takaki, D. Carrillo, J. Seki. '4G/LTE Networks for Mission-Critical Operations: A Cognitive Radio Approach'. In: ***Cognitive Technologies***. Ed. by Alberto Paradisi, Alan Godoy Souza Mello, Fabrício Lira Figueiredo and Rafael Carvalho Figueiredo. Cham: Springer International Publishing, 2017, pp. 51–64. ISBN: 978-3-319-53753-5. DOI: 10.1007/978-3-319-53753-5_5. URL: https://doi.org/10.1007/978-3-319-53753-5_5.

[5] Dick Carrillo, Felipe A. P. Figueiredo, Fabrício Lira Figueiredo, João Paulo Miranda. 'LTE and Beyond'. In: ***Long Term Evolution: 4G and Beyond***. Ed. by Alberto Paradisi, Michel Daoud Yacoub, Fabrício Lira Figueiredo and Tania Tronco. Cham: Springer International Publishing, 2016, pp. 1–25. ISBN: 978-3-319-23823-4. DOI: 10.1007/978-3-319-23823-4_1. URL: https://doi.org/10.1007/978-3-319-23823-4_1.

[6] João Paulo Miranda, Dick Carrillo, Fabiano Mathilde, Felipe A. P. Figueiredo, Juliano João Bazzo. 'Wavelet-Based Narrowband Interference Suppression in Long Term Evolution Physical Channels'. In: ***Long Term Evolution: 4G and Beyond***. Ed. by Alberto Paradisi, Michel Daoud Yacoub, Fabrício Lira Figueiredo and Tania Tronco. Cham: Springer International Publishing, 2016, pp. 79–101. ISBN: 978-3-319-23823-4. DOI: 10.1007/978-3-319-23823-4_5. URL: https://doi.org/10.1007/978-3-319-23823-4_5.

Submitted Patents

[1] S. M. Sakai, D. Carrillo, C. Lorena. 'Sistema e Método para Reduzir os Efeitos de Interferência Inter-células em um Sistema Móvel Operando em Reúso 1 e Cenário Rural'. BR 10 2017 025838 6. Nov. 2017.

[2] D. Carrillo. 'Método e Arquitetura Flexível Baseada em M2M e M2O para Suportar Aplicações do Agronegócio'. BR 10 2017 023602 1. Nov. 2017.

[3] D. Carrillo. 'Método e Sistema para Garantir a Integridade de Dados em uma Solução IoT Utilizando uma Rede de Área Local sem Fio'. BR 10 2017 023373 1. Oct. 2017.

[4] D. Carrillo. 'Método de Desenvolvimento de Aplicações Voltadas à Internet das Coisas'. BR 10 2016 031043-1. Dec. 2016.

[5] D. Carrillo. 'Método e Aparato Receptor para Otimização da Capacidade de Usuários Simultâneos da Estação Base de um Sistema Baseado em Espalhamento Espectral'. BR 10 2016 030403 2. Dec. 2016.

[6] D. Carrillo, F. S. Mathilde, F L. Figueiredo, R. Takaki. 'Rede sem Fio Mesh-Cognitivo sem Canal de Controle Comum'. BR 10 2016 030415 6. Dec. 2016.

[7] D. Carrillo, J. Seki, J. J. Bazzo, R. Takaki, S. Barros. 'Método de Mitigação de Jamming em Sistemas LTE'. BR 10 2016 028282 9. Dec. 2016.

[8] D. Carrillo. 'Método e Sistema para Reduzir os Efeitos das Potências de Intermodulação de Terceira Ordem em Sistemas Baseados em OFDM'. BR 10 2015 024415 0. Sept. 2015.

[9] R. Caldeira, E. B. Arruda, D. Carrillo, W. L. Souza. 'Método e Aparato para Teste e Validação do Canal de Acesso Aleatório ao Meio para Sistemas de Comunicação Banda Larga sem Fio Utilizando a Tecnologia de Rádio Sobre Fibra Óptica (Rof)'. BR 10 2015 008115-4. Apr. 2015.

[10] D. Carrillo, F. S. Mathilde, F. L. Figueiredo, F. A. P. Figueiredo, J. P. C. L. Miranda, J. J. Bazzo. 'Método de Cancelamento de Interferência Faixa Estreita Utilizando Wavelets para Sistemas de Comunicação sem Fio'. BR 10 2014 029561-5. Nov. 2014.

[11] D. Carrillo. 'Arquitetura Baseada em UPNP para Testes de Campo de Redes sem Fio de Banda Larga'. BR 10 2014 028150-9. Nov. 2014.

[12] R. S. Yoshimura, J. J. Bazzo, F. L. Figueiredo, D. Carrillo, F. S. Mathilde. 'Dispositivo roteador ad-hoc mesh cognitivo'. BR 10 2014 000006 2. Jan. 2014.

[13] D. Carrillo, F. S. Mathilde, R. S. Yoshimura, J. J. Bazzo, A. P. T. R. Silva. 'Sistema automático de estimação de ocupação de canais de radiofrequência'. BR 10 2013 030160 4. Nov. 2013.

[14] F. S. Mathilde, F. A. C. Machado, D. Carrillo, R. S. Yoshimura, J. J. Bazzo, F. L. Figueiredo. 'Método de sensoriamento de espectro para detecção eficaz de usuários licenciados em redes de acesso sem fios cognitivasMétodo de sensoriamento de espectro para detecção eficaz de usuários licenciados em redes de acesso sem fios cognitivas'. BR 10 2013 030080 2. Nov. 2013.

[15] F. S. Mathilde, A. P. T. R. Silva, D. Carrillo, R. S. Yoshimura, J. J. Bazzo. 'Método de Gerenciamento de Nós para Redes Ad Hoc Cognitivas'. BR 10 2013 022212 7. Aug. 2013.

Note: Since 2022, more than 50 Global/International patents targeting 5G-Advanced technologies were submitted under Nokia patent office.

Awards

CAPES Award - Best Doctorate Thesis - UNICAMP University, "Improving the Design of Cellular Networks Beyond 5G for Smart Grids" 2024

Science Award - Merkkipäivärahasto - LUT Foundation, "6G Framework on RAN Slicing: a GFDM and Reinforcement Learning Approach" 2021
4000 EUR grant to complement research activities

Nokia Foundation Scholarship, "Improving the Design of Wireless Communication Systems for Energy Systems and Industrial Automation" 2019
5000 EUR grant to complement research activities

CPqD Innovation Recognition, Recognition for patents submissions between years 2011-2015 2015
Recognition Plate and Grant Prize

Scientific and Societal Impact

Organizing technical events for the following technical societies in Finland:

IEEE Signal Processing Finland Chapter, Treasure 2021-current

IEEE Communiaction Society Finland Chapter, Treasure 2024-current

IEEE Finland Section, Membership Development 2020-current

Computer and laboratory skills Coding: C, C++, Python, Matlab

System level simulation: System level simulator using Python and TensorFlow and PyTorch, 4G/5G ns3 (Lena Module), Vienna 5G Simulator, Sionna for AI/ML air interface.

RDS tools: **USRP210**, GNU-Radio, **OpenAirInterface**

System administration: GNU/Linux, Subversion, Git

Laboratory tools: Vector generator, spectrum analyzer, Wireshark, Iperf.

Embedded systems and micro-controllers: Panda-board, Arduino, Arduino-mini, Atmel SAMA5D36.

Operating Systems: ArchLinux, Ubuntu.

Languages

Mother tongue **Spanish**

Other languages[1]

	Understanding		Speaking		Writing
	Listening	Reading	Interaction	Production	
English[2]	C1 Fluent	C1 Fluent	C2 Fluent	B2 Independent	C1 Fluent
Portuguese (Brazil)[3]	C2 Fluent	C2 Fluent	C2 Fluent	C2 Fluent	C1 Fluent
Finnish[4]	A1 Basic	A1 Basic	A1 Basic	A1 Basic	A1 Basic

[1] *Common European Framework of Reference for Languages (CEFR)*

[2] *Course in Academic English at the US Cultural Institute*

[3] *Portugues para Estrangeiros da PUC-Rio.*

[4] *SUOMI 1 - Etelä-Karjalan kansalaisopisto.*