RESUME

PERSONAL DATA

Name: Luís Carlos Carneiro Gonçalves

Residence: Paris, France. **Nationality**: Portuguese

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Professional Career

- 16^{th} **January 2023** - **September 2023**, Senior Researcher in Global Navigation Satellite System (GNSS) at OHB Digital Solutions at Graz, Austria.
  - Implementation of MUSIC algorithm in Matlab, Python and C++. Field tests. Implementation in C++ of Filter to remove noise and outliers of the angles of arrival.
  - Computation of intersection point to find a jammer position with the information of the Angle of Arrivals in several linear arrays of two antennas.
- **June 2017 to February 2018**, ported program of Motorola DSP board (16 bits) to Texas Instruments LAUNCHXL-F28069M for Allied Motion, Vila do Conde, Portugal. Board with Texas Instruments DSP with functions of micro-controller ADC, PIO, Timer, 3 Phase PWM, Quadrature Decoder etc. CCSTUDIO IDE.
- **2010 to 2012**, Realization of two Software Projects for Globe Motors (now Allied Motion), Vila do Conde, Portugal involving C programming of a DSP and LabView. Done a third project which includes beyond DSP programming and LabView, a hardware circuit design. The drive of the Motors were with PWM (from DC to Three Phase). Them all were for a test production place. The achievements were more reliability in the tests and less time of the tests. The all production chain time was shortened.
- **March 1998 to February 1999**, Maintenance and Development Engineer at MARTONIC. The maintenance work was done mainly on glass working machines and saw machines on electronic circuits.
- **October 1997 to March 1998**, Maintenance Engineer at BLAUPUNKT. Mainly the work was the data treatment of a database (DBase).
- **April 1996 to October 1997**, Computer Engineer at BLAUPUNKT.
- **April 1992 to April 1996**, Process Engineer at BLAUPUNKT, Audio and Video Company in Braga, Portugal.
- **October 1991 to April 1992**, Equipment Engineer at TEXAS INSTRUMENTS, Maia, Portugal.

Academic Career

- 1^{st} **December 2023** - 30^{th} **November 2024**, Senior Researcher in Telecommunications, Cloud and Data Analytics at Institut Polytechnique de Paris, Télécom SudParis at Palaiseau, Île-de-France, France. Article submitted to a journal.
- 16^{th} **January 2020 to** 30^{th} **June 2022**, PostDoc Researcher at ESAN/University of Aveiro in Medical Image Processing. Project ARTHUR. 3D Image Registration. Packages SimpleITK, PyCuda. Unstructured image (Meshes) manipulation with C. Package VTK in C++ and Python. Package Ctypes (Python).

  - Developed Client-Server solution (Web Browser-Program Python and C) for Digital Image Processing of the head and dentistry medical operation.
  - Facial preview of a bilateral sagittal split osteotomy (BSSO).

- 1^{st} **June 2018 to** 31^{st} **December 2019**, Researcher from Institute of Telecommunications at Aveiro in 5G Telecommunications. Projects Mobilizador 5G and ORCIP. Subjects: OpenAirInterface, 5G.

- 1^{st} **March 2017 to** 28^{th} **February 2018**, Post-Doc Researcher at INESC TEC (Vila Real, Portugal) in Digital Image Processing. Knowledge, Mantiuk'08 TMO, IOIndustries Flare Camera + BitFlow Frame Grabber , Debevec Photo Merge, Photo Debayer, OpenCV, PFStools, HDRtools

  - Successfully reimplemented a widely used and highly regarded tone mapping algorithm for integrated High Dynamic Range (HDR) video processing pipeline for object detection and tracking
  - Developed a solution to capture and merge in HDR images using Low Dynamic Range Flare image camera

- 1^{st} **March 2014 to** 28^{th} **February 2017**, Post-Doc Researcher at University of Aveiro (High Performance Computing for Telecommunications).

- 1^{st} **June 2013 to** 28^{th} **February 2014**, Post-Doc Researcher at Institute of Telecommunications at Aveiro (Cognitive Radio and Spectrum Occupation).

- 1^{st} **June 2012 to** 31^{st} **May 2013**, Post-Doc Researcher at Centre of Innovation in Telecommunications and Integration of Services (CITI) of Institut National des Sciences Appliquées (INSA) de Lyon.

- 1^{st} **March 2010 to** 31^{st} **May 2012**, Post-Doc Researcher at Institute of Telecommunications at Aveiro (Cognitive Radio and Spectrum Occupation).

- **September 2009 to February 2010**, Assistant Professor at Lusófona University at Lisbon.

- **September 2004 to August 2008**, Invited Lecturer at University of Madeira.

- **December 1999 to November 2003**, PhD Grant of FCT.

- Previous Experiences in Companies - See Section "Professional Career".

Education

- 18^{th} **September 2009**, PhD in Electrical Engineering (Telecommunications), Unanimous, in University of Aveiro. The title was *Detecção Multiutilizador no Domínio da Frequência para Sistemas DS-CDMA* (*Multiuser Detection in Frequency Domain for DS-CDMA Systems*). It is the reference (plus the article *European Transactions on Telecommunications*) to the theoretical application of *Fresh Filters* in frequency domain to DS-CDMA systems.

  http://ria.ua.pt/bitstream/10773/2225/3/2010000093.pdf

- **1991**, Degree (5 years) in Electronics and Telecommunications Engineering, at Aveiro University, with average/grade of 15 on a maximum of 20.

- High School at Maia. Admission at University with an average/grade of 18.7 (Grade to apply to University, Admission Exams Included).

Patents

- 24^{th} **November of 2015**, Luís Gonçalves (50% share), Diogo Cunha, Atílio Gameiro, *Method to Determine the Delay between Measurements in two or more Spectrum Analyzers or Power Meters.* Conceded by Instituto Nacional da Propriedade Industrial (INPI). Number 107293B.

  Conceded Patent Link *Bulletin*

Main Published Articles

http://orcid.org/0000-0001-7358-4113

* - Attended Conference

- **July 2021**, Luis Gonçalves, Rui Martins, António Ferrari, *Realtime Parallel Software Implementation of a DS-CDMA Multiuser Detector* in Microprocessors and Microsystems, Elsevier.

  https://doi.org/10.1016/j.micpro.2021.104051

- **August 2016**, Luís Gonçalves, Diogo Cunha, *Method to Determine the Delay between Measurements in two or more Spectrum Analyzers or Power Meters*, Recent Advances in Communications and Networking Technology, Bentham Science Publishers, Volume 5, Issue 2.

  http://dx.doi.org/10.2174/2215081105666161128142559

- **March 2013**, G. Villemaud, L. Gonçalves, M. Luo, J. Weng, P. Wang, *Measurement Campaigns and Model Calibration*, D1.4 Progress Report, iPlan project.

  http://iplan.project.citi-lab.fr/files/D1_4.pdf

- **June 2012**, Deepaknath Tandur, Jonathan Duplicy, Kamran Arshad, David Depierre, Janne Lehtomäki, Keith Briggs, Luis Gonçalves, Atilio Gameiro, *Cognitive Radio Systems Evaluation: Measurement, Modeling and Emulation Approach* in IEEE Vehicular Technology Magazine (special issue on applications of cognitive radio networks), Volume 7, Issue 2, pages 77-84.

  http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6182685

- **10-14 September 2011**, L. Mendes, L. Gonçalves, A. Gameiro, *GSM Downlink Spectrum Occupancy Modeling* in IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC'11), Toronto, Canada. Interesting Analysis of the Measurement Setup. Modeling of GSM Spectrum Occupancy.*

  http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6140021

- **June 2008**, L. Gonçalves, A. Gameiro, *Erratum: Multi-Sensor Frequency Domain Multiple Access Interference Canceller for DS-CDMA Systems* in European Transactions on Telecommunications, Wiley & Sons, Volume 19, Issue 4, Page 495. Erratum of the article below

  http://doi.wiley.com/10.1002/ett.1297

- **April 2007**, L. Gonçalves, A. Gameiro, *Multi-Sensor Frequency Domain Multiple Access Interference Canceller for DS-CDMA Systems* in European Transactions on Telecommunications, Wiley & Sons, Volume 18, Issue 3, Pages 263–273. Article of Reference of the use of *Fresh Filters* in Frequency Domain in Multiuser Detection in DS-CDMA Systems. This detector has advantages in relation to MMSE detector in an implementation in WCDMA-TDD or TD-CDMA (Popular Republic of China). A *chip* implementation can have energy savings in mobile phones.

  http://doi.wiley.com/10.1002/ett.1146

Projects Participation

ARTHUR - 3D DENTOFACIAL SURGERY FULL PLANNING, HDR4RTT (Real Time Tracking and Display of Multiple Objects in Extreme Lighting Conditions), iPlan (FP7), QoSMOS (Quality of Service and MObility driven cognitive radio Systems)(FP7), MATRICE (MC-CDMA Transmission Techniques for Integrated Broadband Cellular Systems)(FP5), ASILUM (Advanced Signal Processing Schemes for Link Capacity increase in UMTS)(FP5), VISEF (Video Coding and Transmission on Wireless Networks) FCT (PRAXIS XXI)

Teaching

- **September 2014 to January 2015**, Teaching at University of Aveiro on Introduction to Communication and Information Technology to Management Degree (Microsoft Office: Excel, Word, Outlook and PowerPoint).
- **September 2009 to February 2010**, Assistant at Lusófona University at Lisbon. Lectures and ruled Signals and Systems (Theoretics and Practice). It was done 13 exercises sheets for teaching support.
- **September 2004 to August 2008**, Invited Lecturer at University of Madeira. Lectures on
  - Electronics I (Theoretics and Practice) - +-450 slides to support the lectures were prepared.
  - Electronics II (Theoretics and Practice) - +-450 slides to support the lectures were prepared.
  - Telecommunications Fundamentals (Theoretics and Practice).
  - Telecommunications Fundamentals II (Practice).
  - Telecommunications Systems (Theoretics and Practice).
  - Digital Systems (Practice).
  - Circuits Analysis (Practice).

Student Guidance

- 14^{th} **of July 2011**, Co-oriented a Master Degree named "Measurements and Analysis of Spectrum Activity" by Luís Vinhas Mendes with a grade of 17 (in 20).

  http://ria.ua.pt/bitstream/10773/7725/1/244742.pdf

  This gave rise to a conference article that I attended.

Experience with Software

- Experience in C++, C, CUDA (Nvidia GPU Architecture), OpenCL (Intel GPU) and OpenMP in Visual C and Gcc (Eclipse).
- Experience in Python. Experience on LabView of National Instruments (Post-Doc) and Agilent ADS. Most of my papers and PhD thesis were written in *Latex*.
- Experience in Visual C++ Microsoft Foundation Classes.
- During the PhD acquired experience in simulation software of telecommunications systems, System Studio of Synopsys (before named Cocentric and COSSAP) in SUN and LINUX (C, C++, Fortran).
- The algorithms of the PhD Thesis were first tested with Matlab. Also the PostDocs involved programming in Matlab. Coding, Interface to Matlab and run of MEX compiled files.
- Experience in Electronic Simulation Program Pspice and MultiSim (Lectures of Electronic I and Electronic II at University of Madeira). Pspice was introduced in the Lectures by me.
- Maintenance of a Linux Virtual Server (IPv6 Compliant) with Web Server (SSL) and Email Server (DMARC, DKIM and SPF). Also not as public domain a webside with Drupal. At *http://www.luisgo.pro*

Languages

Native in Portuguese, Fluent in English, Professional knowledge of French and Basic knowledge German. English – 5 years at High School, one year in University, 4 terms at British Institute (now British Council) at Porto, French – 5 years at High School, German – 1 1/2 years at Blaupunkt.