Fernando Pujaico Rivera

Curriculum Vitae

Personal information

Born	Peru - 17 December 1982
Address	Rua Geraldo Vitorino 188, Jardim América, Lavras, MG, Brazil, CEP:37200-000
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Curriculum Lattes	http://lattes.cnpq.br/1562723678793624

Education

2014 **PhD in Electrical Engineering**, *State University of Campinas (UNICAMP)*, Brazil.
Title: Bit-Flipping algorithms for joint decoding of correlated sources in noisy channels.

2011 **Master's degree in Electrical Engineering**, *UNICAMP*, Brazil.
Title: Hard-decision decoding algorithms for LDGM codes.

2008 **Electronic Engineer**, *National University of Engineering (UNI)*, Peru.
Title: Electrical resistivity tomography applied to the study of roots growth.

2006 **Bachelor of science with mention in Electronic Engineering**, *UNI*, Peru.

Areas of expertise

Electronic engineering, information theory, error correcting codes, programing, electronic design, digital signal processing.

Experience

Teaching experience

November 2016 **short course: Dynamic Speckle Laser in Bio-systems**, *Entity: Faculty of Agricultural Engineering*, UNICAMP, Brasil.
8 horas

Second semester 2013 **Teacher training stage: PED C**, *GL100* , Mathematics I.
Entity: FCA UNICAMP

First semester 2010 **Teacher training stage: PED C**, *EE881* , Communications principles.
Entity: FEEC UNICAMP

2008 **Teacher**, *C++ Language*, Level I.
Entity: CCIESAM - UNI. Peru.

Professional experience

2015 – 2019 **Postdoctoral**, *University of Lavras (UFLA)*, Brazil.
Engineering department / Applied Instrumentation Development Center to Agriculture (CEDIA)

2007 – 2008 **Researcher**, *Institute for Research and Development of Civil Engineering Faculty (IIFIC)*, UNI, Peru.
Type of contract: Labor
Description: Design, construction and data processing of an accelerometer to the Accelerometers National Network of CISMID - II.

2006 – 2008 **Researcher**, *IIFIC*, UNI , Peru.
Type of contract: Labor
Description: Design and construction of a data acquisition system for dynamic testing of piles.

Published works

Books

2016 **A practical guide to biospeckle laser analysis: theory and software**, *ISBN: 9-788581-270517*, 2016, Ed. UFLA.
http://repositorio.ufla.br/jspui/handle/1/12119

Chapters of Books

2019 **Engenharias, ciência e tecnologia 4**, *ISBN: 9788572470872*, 2019, Editora Atena.
DOI:10.22533/at.ed.872193101

Articles published in magazines

2019 **Computers and Electronics in Agriculture**, *DOI: 10.1016/j.compag.2019.01.051*.
Title: "Sound as a qualitative index of speckle laser to monitor biological systems".

2018 **Theoretical and Applied Engineering**, *DOI: 10.31422/taae.v2i2.5*.
Title: "The use of particle image velocimetry for displacement measurements in steel columns subjected to buckling".

2018 **Optics and Laser Technology**, *DOI: 10.1016/j.optlastec.2018.07.006*.
Title: "Diode laser reliability in dynamic laser speckle application: Stability and signal to noise ratio".

2018 **Journal of Food Measurement and Characterization**, *DOI: 10.1007/s11694-018-9839-8*.
Title: "Measurement of water activities of foods at different temperatures using biospeckle laser".

2018 **Engenharia Agrícola, ISSN:0100-6916**, *DOI: 10.1590/1809-4430-eng.agric.v38n2p159-165/2018*.
Title: "Analysis of elasticity in woods submitted to the static bending test using the particle image velocimetry (PIV) technique".

2017 **Journal of Biomedical Optics**, *DOI: 10.1117/1.JBO.22.4.045010*.
Title: Dynamic laser speckle analyzed considering inhomogeneities in the biological sample.

2017 **Optics Communications**, *DOI: 10.1016/j.optcom.2017.03.015*.
Title: Selection of statistical indices in the biospeckle laser analysis regarding filtering actions.

2014 **IEEE Communications Letters**, *DOI: 10.1109/LCOMM.2014.2377237*.
Title: Optimal Rate for Joint Source-Channel Coding of Correlated Sources Over Orthogonal Channels.

Articles published in annals of events

2013 **XXXI Brazilian Telecommunications Symposium**, *Brazil*.
Title: "Algoritmo Para Decodificação e Fusão De Dados Correlacionados Em Redes De Sensores Sem Fio".

2012 **XXX Brazilian Telecommunications Symposium**, *Brazil*.
Title: "Algoritmos de Decodificação Abrupta para Códigos LDGM".

2011 **XXIX Brazilian Telecommunications Symposium**, *Brazil*.
Title: "Decodificação Iterativa Conjunta Fonte-Canal".

Presentations

2013 **Algorithm for decoding and fusion of correlated data in wireless sensor networks**.
XXXI Brazilian Telecommunications Symposium, Brazil

2012 **Hard-decision decoding algorithms for LDGM codes**.
XXX Brazilian Telecommunications Symposium, Brazil

2011 **Iterative source-channel joint decoding**.
XXIX Brazilian Telecommunications Symposium, Brazil

Professor adviser

Joint supervisor

2016 **Development of an optic technique for characterizing the presence of superficial crust of the soil**, *Barreto, Bianca Batista*, Master's degree in Agricultural Engineering, UFLA.
http://repositorio.ufla.br/jspui/handle/1/11903

Participation in stalls completion work

Doctoral's degree

2016 **Digitization of physical deformations of the soil through a digital camera**, *Participation in stalls of Diego Eduardo Costa Coelho*, Dissertation defense of post-graduation program agricultural engineering.
UFLA. Ordinance CPGSS/PRPG Nro 987/2016 de 23/11/2016.

Master's degree

2015 **Influence of laser intensity in the biospeckle actvity map**, *Participation in stalls of Renan Oliveira Reis*, Dissertation defense of post-graduation program in system and automation engineering .
UFLA. Ordinance CPGSS/PRPG Nro 655/2015 of 13/07/2015.

Doctoral's degree qualification

2016 **Participation in the evaluation committee of Rodrigo Allan Pereira**, Qualification exam of post-graduation program in system and agricultural engineering.
UFLA.

Master's Degree Qualification

2016 **Participation in the evaluation committee of Eduardo Zampieri Ribeiro**, Qualification exam of post-graduation program in system and automation engineering.
UFLA.

Free software projects

2015 – Actual **Bio-Speckle Laser Tool Library**.
This package is a set of functions, written in M-code, for the digital processing of images of a bio-speckle analysis. The library is designed to be used in OCTAVE or MATLAB. You can find functions to calculate: Co-occurrence matrix, THSP, AVD, inertia moment, Fujii, GD, PTD, etc.

2015 – Actual **PDS-IT Package**, *http://trucomanx.github.io/pdsit-pkg*.
This package is a set of functions, written in M-code, for to work with digital signal processing and information theory in OCTAVE or MATLAB. You can find functions for: Entropy for binary sources, Joint entropy for binary sources, bit error rate in the CEO problem, etc.

2014 – Actual **PDS Project Library in Java**, *http://pdsplibj.sourceforge.net/*.
It is a set of libraries, written in Java language, For the digital signal processing. You can find libraries for: Random variables, vectors, matrices, digital filters, digital sources, particle image velocimetry, etc.

2014 – Actual **LDPC Tools**, *https://launchpad.net/ldpc-tools*.
It is a set of programs, written in C language, for to work with low density parity check matrices.

2011 – Actual **PDS Project Library**, *http://www.nongnu.org/pdsplibrary/*.
It is a set of libraries, written in C language, for the digital signal processing. You can find libraries for: Random variables, complexs numbers, vectors, matrices, FFT, digital filters, digital sources, neural networks, etc.

2008 – Actual **PIC-GCC Library**, *http://pic-gcc-library.sourceforge.net/*.
This project implement the utility library and standard C library for the PIC-GCC compiler for micro-controllers PIC of Microchip 16F family.

2007 – Actual **Linux Communication**, *http://lnxcomm.sourceforge.net/*.
It is a library, written in C language, for the communication with the computer serial port.

Languages

Spanish	Native language
Portuguese	Read good, write good, understands good, speak good
English	Read good, Write reasonably, Understands reasonably, Speaks little

Computer languages

C	C language - Advanced level
M-code	MATLAB language - Intermediary level
C++	C++ language - Intermediary level
Java	Java language - Intermediary level
LaTeX	LaTex language - Intermediary level
Java/Android	Development of Android applications - Basic level

Interests

- Photography
- Ocarinas maker
- Renewables energy
- Running
- C language
- Raw food