



Fernando Pujaico Rivera

Curriculum Vitae

Personal information

Born Peru - 17 December 1982
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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 **Teacher training stage: PED C, EE881**, Communications principles.

2010 Entity: FEEC UNICAMP

2008 **Teacher, C++ Language**, Level I.

Entity: CCIESAM - UNI. Peru.

Professional experience

2015 – 2017 **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>

Articles published in magazines

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 activity 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, complex 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

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

Computer languages

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|--------------|---|
| 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

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