Contacts

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Introduction

I am currently postdoctoral fellow in the Applied Mathematics department at Ecole Polytechnique Fédéral de Lausanne

2019 — DSc. Computational Modelling LNCC, Petropolis, Brazil — GPA:3.83/4

2014— MSc. Computational Modelling LNCC, Petropolis, Brazil — GPA:3.9/4

2012 — B.E. Mechanical Engineering UFRN, Natal, Brazil — GPA:8.8457/10

Scientific Computing: Numerical Methods; Numerical Solution of Differential Equations; Numerical Analysis of Fin

Mathematics: Real Analysis; Functional Analysis; Variational Calculus; Probability and Statistics.

Computational Mechanics: Continuum Mechanics; Computational Transport Phenomena.

Computer Science: Data Structures ; Software Design ; POO; Parallel Processing.

B - Basic, F- Fluent

Languages: Python (F), C/C++ (F), Fortran 77/90 (F), Matlab (B).
Extensions and Libraries : Tensorflow/Keras (F), Numpy/Scipy (F), Fenics (F), OpenMP (B), MPI/mpi4py (B), Petsc
Other: Linux/Mac (F), Latex (F), Gmsh (F), Git (B), Bash (B).

Portuguese (Native), English (C1, IELTS: 6.5, TOEFL: 89), French (B2), Italian (B1), Spanish (B1), German (A2)

Research Dissertations

Thesis(Jan'15-Apr'19) Multiscale Modelling of Fibrous Materials: from the elastic regime to failure detection in sof
Institution: National Laboratory for Scientific Computing (LNCC), Petropolis, Brazil. Master(Mar'13-Dec'14) Basics A
Institution: Federal University of Rio Grande do Norte (UFRN), Natal, Brazil. Final Project(Dec'11-Jul'12) Modelling
Institution: Arts et Métiers Paristech (ENSAM), Paris, France.

Short- and Long-term Academic Visits

Sep-Out'19Prof. Sidarta Lima, Federal University of Rio Grande do Norte, Natal, BrazilI gave a short course on M
Apr'17Prof. Anne Robertson, University of Pittsburgh, Pittsburgh, USA I spent 20 days observing mechanical expe
Jun-Jul'15Prof. Pablo Sanchez and Prof. Alfredo Huespe, Centro de Investigación de Métodos Computacionales (C
Aug-Jul'12Arts et Métiers Paristech (ENSAM), Paris, FranceI took part of undergraduate studies in a sandwich ex

Publications

Peer-reviewed journal:

Felipe Figueredo Rocha, Pablo Javier Blanco, Pablo Javier Sánchez, and Raúl Antonino Feijóo. Multi-scale modelling o
Felipe Figueredo Rocha, Pablo Javier Blanco, Pablo Javier Sánchez, Eduardo de Souza Neto, and Raúl Antonino Feijóo
Pablo Javier Blanco, Pablo Javier Sánchez, Felipe Figueredo Rocha, Sebastian Toro, and Raúl Antonino Feijóo. A consi
Felipe Figueredo Rocha, Simone Deparis, Pablo Antolin, Annalisa Buffa. Enhancing defective Multi-scale Solid Mechani

Complete articles in conference proceedings:

F.F. Rocha, P.J. Blanco, R.A. Feijóo, P.J. Sanchez, and A.E. Huespe. A multi-scale approach to model arterial tissue.

Extended Abstracts in Conferences:

F.F. Rocha; P.J. Blanco ; P.J. Sánchez; R.A. Feijóo. On the constitutive modeling for fibrous tissues. In: International

Abstracts in Conferences:

F.F. Rocha; P.J. Blanco; de Souza Neto, E.; P.J. Sánchez, R.A. Feijóo. An computational homogenisation approach to a
P.J. Blanco, P.J. Sánchez, F.F. Rocha, Toro, S.; R.A. Feijóo. Multiscale formulation for materials with randomly distrib
F.F. Rocha; P.J. Blanco; de Souza Neto, E.; P.J. Sánchez, R.A. Feijóo. Towards post-critical multiscale modelling of da
F.F. Rocha, P.J. Blanco, P.J. Sánchez, R.A. Feijóo. A Multiscale Approach to Study Softening Mechanisms in Arterial
Toro, S., F.F. Rocha, P.J. Sánchez, P.J. Blanco, A.E. Huespe, R.A. Feijóo. Modelado Multiescala de Materiales: Análisi

Other Attended Conferences

(8-10 Jan'2020) International Workshop on Scientific Machine Learning, University of Cologne, Germany.

MSML2020, (20-24 Jul'2020) Mathematical Scientific Machine Learning Conference, Online, Princeton University

mathml2020, (3-7 Aug'2020) LMS-Bath Symposium on the Mathematics of Machine Learning, Online, University o

Invited Talks

EAMC 2021 (2021), LNCC Galerkin convida Mr. Deep para um café (in Portuguese).

Postgraduation Seminar (2021), LNCC Aprendizado de Máquina em Computação Científica com Aplicações à Sol

Relevant Complementary Education

2020 (16h, listener) (MATH-631) Mathematical foundations of neural networks, EPFL, Lausanne, Switzerland.

2019 (36h, listener) Introdução ao Aprendizado de Máquina, LNCC, Petrpolis, Brazil.

2018 (4h) Python for HPC, LNCC, Petropolis, Brazil.

2015 (6h) New Formulations of Finite Element Method, LNCC, Petropolis, Brazil.

2014 (32h) Biomech. Summerschool: Trends of Modelling, TUGraz, Graz, Austria.

2014 (4h) Topological Asymptotic Analysis, LNCC, Petropolis-RJ, Brazil.

2014 (7h) Object-Oriented Finite Element Method, LNCC, Petropolis-RJ, Brazil.

Teaching Experiences

Spring 2021: Analysis II (EPFL): Teaching assistant.

Spring 2020: Numerical Analysis (EPFL): Teaching assistant.

Jun'-Sep'2018: Numerical Methods (LNCC): I worked as a tutor for students pursuing MS and PhD degrees in C

Mar'-May'2018: Introduction to Modelling: See comments above.

Mar'-Oct'2017: Preparation for the Brazilian Mathematics Olympiads: I worked as a online tutor for distingu

Supervision

2020-actual, Co-supervisor, PhD Thesis Ronaldo Dias dos Santos Junior, Computational and Mathematical Mode

Reviewer

2021 National Congress of Applied and Computational Mathematics, CNMAC 2021 (Online Event), Brasil.

2021 Academic Meeting on Comp. Modelling, EAMC 2021, LNCC, Petropolis, Brazil.

2020-actual Engineering Computations.

Participation in Examination Boards

2020, Bachelor's Final Project Henrique Ribeiro da Silva, Dinâmica dos Fluidos Computacional: Uma aproximação

Achievements

2017 - "Aluno nota 10" (LNCC): scholarship awarded to the best PhD student.

2014 - "Aluno nota 10" (LNCC): scholarship awarded to the two best MS students.

2012 - Summa cum Laude (UFRN): higher GPA of its undergraduate class.

2006 - Silver Medal: on the Brazilian Mathematics Olympiads of Public Schools.