RODRIGO LIMA PEREIRA

PhD IN MECHANICAL ENGINEERING

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PROFILE

PhD in Mechanical Engineering from the University of Campinas (UNICAMP), Master of Mechanical Sciences from the University of Brasília (UnB), and Bachelor of Mechanical Engineering from the Federal University of Ceará (UFC), with a Sandwich period at the University of Nottingham (UoN), United Kingdom. Experienced researcher in various areas of engineering, with a special interest for computational mechanics, and applications involving finite elements and topology optimization in the design of smart materials and structures. He has published academic articles in international peer-reviewed journals, atended to congresses, conferences, symposia and workshops of the field, with publication of works, and acted as an academic reviewer. He has experience in teaching Dynamics, Solid Mechanics, Maintenance of Systems, and Product Design and Development.

EDUCATION

University of Campinas – UNICAMP 2018 - 2023
PhD in Mechanical Engineering – Solid Mechanics and Mechanical Design *Campinas, SP*

- Member of the Laboratory of Topology Optimization and Multiphysics Analysis
- Member of the Center for Computing in Engineering & Sciences
- Scholarship from Coordination of Superior Level Staff Improvement – CAPES

University of Brasília – UnB 2016 - 2018
Master of Mechanical Sciences *Brasília, DF*

- Member of the Fatigue, Fracture and Materials Group
- Scholarship from Coordination of Superior Level Staff Improvement – CAPES

Federal University of Ceará – UFC 2012 - 2016
Bachelor of Mechanical Engineering *Fortaleza, CE*

- Outstanding Academic Performance Award – Engineer's Day, 2016
- Science Without Borders Program scholarship recipient

COMPLEMENTARY EDUCATION

University of Nottingham – UoN 2013 - 2014
Sandwich Period in Mechanical Engineering (BEng) – Science Without Borders Program *Nottingham, UK*

- Scholarship from National Council for Scientific and Technological Development – CNPq

Virtual University of the State of São Paulo – UNIVESP August 2021 - December 2021
Courses on Didactic-Pedagogical Processes in Distance Learning *Online*

- Learning Strategies for Pedagogical Mediation – 40h
- Learning Assessment: Elaboration of Assessment Instruments – 40h

EXPERIENCE

University of Nottingham – UoN June 2014 - August 2014
Part-time Researcher *Nottingham, UK*

- Research Project: CFD Analysis and Design of Landspeed Record Car Body

Companhia Brasileira de Bebidas das Américas – AMBEV April 2015 - June 2015
People and Management Intern *Fortaleza, CE*

- Management of time banks, vacations and compensation of sectoral employees

Gerdau Aços Longos S/A 2015 - 2016
Project Engineering Intern *Fortaleza, CE*

- Develop, execute and control engineering projects, as well as support maintenance activities
- Take part in internal courses of project management, safety, environment, social responsibility and maintenance

University of Brasília – UnB 2016 - 2018
Master's Researcher *Brasília, DF*

- Researcher of the field of fatigue and fracture of materials, with emphasis on uniaxial and fretting fatigue, mechanical contact and finite elements
- Research Project: Predicting the Fatigue Life Under Fretting Conditions of an 1350-H19 Aluminum Wire Using the Finite Element Method

University of Campinas – UNICAMP 2018 - 2023
PhD Researcher and Teaching Intern *Campinas, SP*

- Member of the Teaching Internship Program (PED), working on the courses of Dynamics (2S/2019) and Solid Mechanics (1S/2020). Responsible for the preparation and correction of tests, computer codes, and didactic exercises, as well as for teaching extra or substitute classes
- Researcher of the field of solid mechanics and mechanical design, focusing on evolutionary methods of topology optimization, finite elements and acoustic-porous systems
- Research Project: Multimaterial and Multidomain Acoustic Topology Optimization Based on an Evolutionary Approach

Virtual University of the State of São Paulo – UNIVESP August 2021 - December 2021
Teacher Facilitator *Online*

- Teacher facilitator of Maintenance of Systems (3B/2021), and Product Design and Development (4B/2021). Responsible for the correction of tests and didactic exercises, as well as for teaching extra classes

Scientific Journal Reviewer 2022 - Current

- Finite Elements in Analysis and Design
- 8th International Symposium on Solid Mechanics

Boards and Judging Commissions 2019 - 2021
Scientific Projects Evaluator *Multiple Locations*

- XXVII Scientific Initiation Congress, 2019. University of Campinas
- XXIX Scientific Initiation Congress, 2021. University of Campinas
- 11ª BRAGANTEC - Science and Technology Fair, 2021. Federal Institute of São Paulo

TECHNICAL SKILLS

Programming Languages	Matlab, Python, LaTeX
Software	Abaqus, Comsol Multiphysics, GIT, Inkscape
Frameworks & Libraries	Jupyter Notebooks, LiveLink, Matplotlib, Numpy, Scipy

LANGUAGES

Native	Portuguese
Fluent	English
Beginner	French

AWARDS AND RECOGNITION

Federal University of Ceará – UFC 2016
Undergraduate Award *Fortaleza, CE*

· Outstanding Academic Performance Award – Engineer's Day, 2016

Science Olympiads 2007 - 2009
High School Awards *Fortaleza, CE*

· Bronze Medal – Brazilian Olympiad of Astronomy and Astronautics (OBA/SAB) – 2008 and 2009
· Bronze Medal – Brazilian Olympiad of Physics (OBF/SBF) – 2007 and 2008
· Silver Medal – Brazilian Olympiad of Robotics (OBR/SBC-SBA) – 2008

COMPLEMENTARY ACADEMIC ACTIVITIES

IV Career's Fair – Federal University of Ceará 2012
Vocational Guidance Counselor *Fortaleza, CE*

English Course 2011 - 2013
House of British Culture of the Federal University of Ceará *Fortaleza, CE*

· Workload: 300 h

Test of English as a Foreign Language - TOEFL iBT 2013
Total score: 87 *Fortaleza, CE*

CCES Workshop Internacional – 2019 2019
Poster: Acoustical Topology Optimization Applied to Rigid Noise Barriers *Águas de Lindoia, SP*

e-Forum Acusticum 2020
Presentation: Design of Periodic Noise Barriers Using the Bi-directional Evolutionary Optimization Method *Lyon, FR*

15th World Congress on Computation Mecchanics & 8th Asian Pacific Congress on Computation Mechanics
Presentation: Topology Optimization of Acoustic-Poroelastic-Elastic Structures for Sound Attenuation 2022 – *Kyoto, JP*

8th International Symposium on Solid Mechanics 2022 – Campinas, SP
Presentation: Topology Optimization Design of Multilayered Acoustic-Poroelastic-Elastic Structures by the BESO Approach

CCES Workshop Internacional – 2022 2022
Presentation: Evolutionary Topology Optimization to Design Multiphase Soundproof Systems *Itatiba, SP*

PUBLICATIONS

Master's Thesis 2018

University of Brasília – UnB *Brasília, DF*

· Pereira, Rodrigo Lima. Predição da Vida em Fadiga Sob Condições de Fretting de um Fio de Alumínio 1350-H19 Utilizando o Método dos Elementos Finitos. 2018. Dissertação (Mestrado em Ciências Mecânicas), Universidade de Brasília, Brasília, Brasil.

Doctoral Dissertation 2023

University of Campinas – UNICAMP *Campinas, SP*

· Pereira, Rodrigo Lima. Multimaterial and Multidomain Acoustic Topology Optimization Based on an Evolutionary Approach. 2023. Thesis (Ph.D.). School of Mechanical Engineering, University of Campinas, Campinas, Brazil.

Articles Published in Scientific Journals 2020 - 2023

· Pereira, R. L., Díaz, J. I. M., Ferreira, J. L. A. et al. Numerical and experimental analysis of fretting fatigue performance of the 1350-H19 aluminum alloy. J. Braz. Soc. Mech. Sci. Eng. v.42, p.419 (2020)

· Pereira, R. L., Lopes, H. N., Pavanello, R. Topology optimization of acoustic systems with a multiconstrained BESO approach. Finite Elem. Anal. Des. v.201, p.103701 (2022)

· Pereira, R. L., Lopes, H. N., Moura, M. S., Pavanello R. Multi-domain acoustic topology optimization based on the BESO approach: applications on the design of multi-phase material mufflers. Struct. Multidiscipl. Optim. v.66, p.25 (2023)

· Pereira, R. L., Anaya-Jaimes L. M, Pavanello R. Evolutionary topology optimization approach to design multiphase soundproof systems with poroelastic media. *Under Review*: Finite Elem. Anal. Des. (2023)

Articles Published in Annals of Events 2018 - 2022

· Lima Pereira, R., Monroy, J. I, Ferreira, J. L. A. Fadiga Uniaxial de um Fio de Alumínio 1350-H19 Utilizando o Método dos Elementos Finitos, in: X Congresso Nacional de Engenharia Mecânica, Salvador/BR (2018)

· Pereira, R. L., Anaya-Jaimes, L. M., Pavanello, R. Design of periodic noise barriers using the bi-directional evolutionary optimization method, in: Forum Acusticum, Lyon/FR (2020)

· Pereira R. L., Anaya-Jaimes L. M., Pavanello R. Topology Optimization of Acoustic-Poroelastic-Elastic Structures for Sound Attenuation, in: 15th World Congress on Computation Mecchanics & 8th Asian Pacific Congress on Computation Mechanics, Kyoto/JP (2022)

· Pereira, R. L., Pavanello, R. Topology Optimization Design of Multilayered Acoustic-Poroelastic-Elastic Structures by the BESO Approach, in: 8th International Symposium on Solid Mechanics, Campinas/BR (2022)