PEDRO H. G. FERREIRA

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EDUCATION

Bsc., Computer Science, Dalhousie University, Canada, 2019
Visiting Student

B.sc., Electrical Engineering, Universidade de Brasília, Brazil, 2015-
Expected Graduation Date: July/2020
Concentrations: Artificial Intelligence, Communication Networks, Signal Processing
Thesis: *Don't Care Filling in Data Compression*
Thesis Advisor: Eduardo Peixoto da Silva Fernandes, Ph.D.

Preparatory High School, Centro Educacional Sigma, Brasília, Brazil, 2014
With Merit-Based Full Scholarship

RESEARCH EXPERIENCE

Undergraduate Researcher, Spatial Information Systems Laboratory, 2019-

Deep Learning applications on Multichannel Satellite Images. Digital Image Processing.
Supervisor: Osmar Abílio de Carvalho Junior, Ph.D., Universidade de Brasília, Brazil

Undergraduate Researcher, Digital Signal Processing Group, 2019-

Application of analytical methods and artificial intelligence techniques to Don't Care Filling for Point Cloud Compression. Image and Video Compression.
Supervisor: Eduardo Peixoto da Silva Fernandes, Ph.D., Universidade de Brasília, Brazil

Undergraduate Researcher, Network Information Management and Security Group (NIMS), 2019

Machine Learning application in highly unbalanced datasets. Insider Threat detection. Feature Engineering. Data Cleaning. Time Series analysis.
Head and Supervisor: Nur Zincir-Heywood, PhD, Dalhousie University, Canada

Undergraduate Researcher, Smart Grids Laboratory (REILab), 2018-
Economical Evaluation and Feasibility of smart meters installation. Economical Evaluation and Environmental Impact Assessment of the adoption of electrical buses in Brasília.
Head and Supervisor: Anésio de Leles Ferreira Filho, PhD, Universidade de Brasília, Brazil

Undergraduate Researcher, Digital Television and Communication Networks Laboratory, 2018-
Computational Simulation of Bluetooth Networks. Direction of Arrival Estimation. Signal Processing.
Head and Supervisor: Cláudia Jacy Barrenco Abbas, PhD, Universidade de Brasília, Brazil

Undergraduate Researcher, Power System Protection Laboratory (pLab), 2017-2018
Analysis and Comparison of different frequency-domain based fault location methods in power grids. Computational Modeling and Simulation of power systems. Signal Processing.
Head: Kléber Melo, PhD, Universidade de Brasília, Brazil
Supervisor: Felipe Vigolvino Lopes, PhD, Universidade de Brasília, Brazil

TEACHING ASSISTANT EXPERIENCE

Junior Teaching Assistant, Universidade de Brasília, 2015-2019
Courses: Calculus I, Electrical Circuits, Digital Systems 2 (3x), Algorithms and Data Structures

PROJECT EXPERIENCE

Head, AI-Based Unemployment Forecast System, 2019

Role: Selecting, Training and On-Boarding team members. Acquiring and Cleaning the data. Supervising Feature Engineering, Model Selection and Hyperparameter Tuning processes.

Lead Programmer, Papafilas, 2018

Software Developed: Papafilas, a fast and agile meal plan manager application with options of credit recharge, balance check and real-time restaurant and queue status [Available on Android and Embedded Kiosk].

Role: Leader of Embedded Development Team. Full Stack Developer.

PUBLICATIONS

Ferreira P. H. G, Le C. D., Zincir-Heywood, A. N. (2019). "Exploring Feature Normalization and Temporal Information for Machine Learning Based Insider Threat Detection". *(on 15th International Conference on Network and Service Management)*

A. Ol. de Albuquerque, P. P. do Bem, R. S. de Moura, O. L. F. de Carvalho, **P. H. G. Ferreira**, C. R. Silva, R. A. T. Gomes, R. F. Guimarães, O. A. de Carvalho Júnior (2020). "Center Pivot Classification with Deep Residual U-Net". *(on 2020 IEEE International Geoscience and Remote Sensing Symposium)*

Ferreira, H. G. P., Abbas, C. J. B. and Bittencourt, S. A. B. (2019). "On the impact of Operational Conditions on MUSIC-Based Direction of Arrival Detection Systems". *16th Federal District Scientific Initiation Congress*. (in Portuguese)

Ferreira, H. G. P. and Lopes, F. V. (2018). "Analysis of Fault Location Functions Based on High Frequency Components on Transmission Lines." *15th Federal District Scientific Initiation Congress*. (in Portuguese)

Martins, P. H. A, **Ferreira, P.H.G** and Lopes, F. V. (2019). "Fault Location in Single-Ended Traveling Waves-Based Methods". *16th Federal District Scientific Initiation Congress*. (in Portuguese)

Vasconcelos M.V.L, Anésio L.F. Filho, Couto L. Cugula and **Ferreira P. H. G** (2019). "Cost-benefit analysis of the implementation of smart grids in the Brazilian distributors". *(**Under Review** on Energy Policy)*

PRESENTATIONS

Ferreira, P. H. G. (2018). "A Hands-On Approach on Version Control and GitHub". Lecture presented as part of onboarding program for IEEE Computational Intelligence Society Student Members.

Ferreira, P. H. G. (2018). "Fundamentals of Assembly Programming Language for Intel x86". Lecture presented as part of Digital Systems 2 Junior Teaching Assistant activities.

GRANTS AND FELLOWSHIPS

Mitacs Globalink Research Internship Grant (Mitacs, 2019)

Young Researcher Grant (Fundação Universidade de Brasília, 2017-2018)

Outstanding Student Scholarship (Centro Educacional Sigma, 2012-2014)

AWARDS AND HONORS

Honorable Mention in Best Paper in STEM at 16th Federal District Scientific Initiation Congress. [for "*On the impact of Operational Conditions on MUSIC-Based Direction of Arrival Detection Systems*"]

Nominated to Best Paper in STEM at 15th Federal District Scientific Initiation Congress.

PROFESSIONAL MEMBERSHIPS

IEEE Computational Intelligence Society
Role: Universidade de Brasília's Student Chapter's Founder (2018)
Role: Student Chapter's Chair (2018-2019, 2019-)
Role: Student Chapter's General Secretary (2019)

COMMUNITY ACTIVITIES

Student Member of Universidade de Brasília's Council of Teaching, Research and Extension (2018)

Represent the interest of Universidade de Brasília's students in academical matters. Propose, evaluate and decide about the adoption of academic policies.

Director of Academic Affairs of the Electrical Engineering Students' Union (2016-2017)

Represent the interest of Universidade de Brasília's Electrical Engineering students in academical matters. Advise the students about their rights, university policies, regulations, and procedures. Mediate discussions between the students and the faculty. Propose, evaluate, and decide about the adoption of academic policies.

LANGUAGES

Portuguese: Native
English: Fluent
Spanish: Intermediate-Advanced

RELEVANT SKILLS

Programming ability in Python, Matlab, C++, PHP and Assembly
Experience with Version Control and GitHub
Extensive knowledge of Artificial Intelligence, Deep Learning, Data Compression, Signal Processing, Bluetooth, TCP/IP and Related Protocols