Ramon Abritta Aguiar Santos

Brazilian, 33 years old
Veimester Kroghs gate 2A, 7043 Trondheim - Norway
+47 413 41 989
ramon.a.santos@ntnu.no
ORCID: https://orcid.org/0000-0002-3387-7234
LinkedIn: https://www.linkedin.com/in/ramon-abritta/

Background and activities

I received my BA and MSc titles in Electrical Engineering from Universidade Federal de Juiz de Fora (UFJF), Brazil. These degrees are recognized in Portugal by DGES and in Norway by NOKUT. I have published 4 papers in journals, and 3 papers in conferences. I have completed participation as researcher in a 2.5-year R&D project, which was hosted by UFJF, had the company EDP do Brasil as partner, and was financed by ANEEL. In this project, I was the main developer of codes to optimize the operation of three Brazilian hydroelectric power plants. I am now a PhD candidate at NTNU taking part in InnoCyPES, project "Operation, maintenance and investment strategy for offshore energy hub", in which I am expected to develop an uncertainty model designed to optimize an offshore energy hub comprising oil/gas production, wind power generation, and energy storage. My main research interests are wind power, offshore oil and gas, scheduling problems, operational research, uncertainty analysis, data-driven optimization, and digital twins.

Education

Jan/22 - present, Ph.D. in Engineering, Norwegian University of Science and Technology (NTNU).

Set/20 - Dez/21, Ph.D. in Electrical Engineering, Federal University of Juiz de Fora (interrupted).

Mar/18 - Ago/20, M.Sc. in Electrical Engineering, Federal University of Juiz de Fora (87% GPA) *,**.

Mar/14 - Dec/17, B.A. in Electrical Engineering, Federal University of Juiz de Fora (69% GPA) *,**.

* Degree recognized by DGES in Portugal. Verifiable at https://www.dges.gov.pt/RecOn/Validacao by using registration numbers 120210072992 (M.Sc.) and 220210012750 (B.A.).

** Degree recognized by NOKUT in Norway. Proof document available upon request.

Publications

Oliveira, M. L., da Silva Junior, I. C., **Abritta, R.**, Oliveira, E. da S., Nascimento, P. H. M., Honório, L. de M. A Hybrid Sine Cosine Algorithm for the Unit Commitment Problem with Wind Uncertainty. Electrical Engineering, p. 1-18, 2021. https://doi.org/10.1007/s00202-021-01360-z

Abritta, R., Panoeiro, F., Honório, L., Junior, I.S.S., Marcato, A., Guimarães, A. Hydroelectric operation optimization and unexpected spillage indications. Energies, v. 13, n. 20, p. 5368, 2020. https://doi.org/10.3390/en13205368

Nascimento, P. H., **Abritta, R.**, Panoeiro, F. F., Honório, L. D. M., Marcato, A. L., & da Silva Junior, I. C. Spillage Forecast in Hydroelectric Power Plants via Machine Learning. Brazilian Symposium of Electrical Systems - SBSE, v. 1, n. 1, 2020. https://doi.org/10.48011/sbse.v1i1.2369. Awarded as best paper in the “Computational Intelligence Applied to Electrical Systems” section.

Abritta, R., Panoeiro, F.F., de Aguiar, E.P. et al. Fuzzy system applied to a hydraulic turbine efficiency curve fitting. Electrical Engineering, v. 102, n. 3, p. 1361-1370, 2020. https://doi.org/10.1007/s00202-020-00951-6

Abritta, R., Panoeiro, F. F., da Silva Junior, I. C., Marcato, A. L. M., & de Mello Honório, L. (2019, October). Simple Algorithm for Maximum Water Saving at Hydroelectric Power Plants. Accepted and presented at CLAGTEE 2019 (Paper ID 113) - http://www.clagtee2019.pucv.cl/2019/book.html

Abritta, R., Panoeiro, F. F., da Silva Junior, I. C., Marcato, A. L. M., de Mello Honório, L., & de Oliveira, L. E. Turbines Allocation Optimization in Hydro Plants via Computational Intelligence. In: Proceedings of SAI Intelligent Systems Conference. Springer, Cham, 2019. p. 314-329. https://doi.org/10.1007/978-3-030-29516-5_24

Araujo, J. R., Silva, A. M., Gouvêa, C. P., Lopes, E. S., **Santos, R. A.**, Terrazos, L. A., Capaz, R. B., Achete, C. A., & Maciel, I. O. Phosphorous bonding in single wall carbon nanotubes studied by X-ray photoelectron spectroscopy and DFT calculations. Carbon, v. 99, p. 1-7, 2016. https://doi.org/10.1016/j.carbon.2015.11.059

Research experience – projects and other activities

Jan 2022 – present: H2020, Marie Skłodowska Curie Actions, Innovative Training Networks. Call ID: H2020-MSCA-ITN-2020 (https://innocypes.eu/).

The principal goal of the InnoCyPES international training network is to provide world-leading and transferable scientific training to a new generation of 15 high-achieving early-stage researchers (ESRs), each working on a particular project. I am fortunate to be ESR 6, working on the project "Operation, maintenance and investment strategy for offshore energy hub" under the main supervision of Dr. Alexey Pavlov in NTNU. The project has Equinor as the industrial partner. In this project, I am expected to integrate different sources and types of information into operations-oriented models, to devise novel control and health monitoring algorithms for the management of hybrid offshore energy hubs, and to develop the techno-economic study of system design that considers both capital and operational costs, along with the possibility for economic benefits from fuel savings and CO2 emission reductions.

May 2018 – August 2020: ANEEL (Brazilian National Agency for Electrical Energy) Research & Development project (PD-00673-0052/2018).

R&D project supervised by Ivo C. da S. Junior. I (i) developed literature searching skills, (ii) reviewed and studied probabilistic, deterministic and “intelligent” optimization, (iii) was the main developer of codes (Julia language) to optimize the daily operation of three Brazilian hydroelectric power plants (which belong to the company EDP do Brasil), (iv) contributed to the development of a spillage forecast model, and (v) presented research at two academic conferences via oral presentations.

October 20 - 23, 2019: Latin-American Congress on Electricity Generation and Transmission (CLAGTEE - Santiago, Chile).

Presented paper “Simple Algorithm for Maximum Water Saving at Hydroelectric Power Plants”.

September 5 - 6, 2019: Intelligent Systems Conference (IntelliSys - London, England).

Presented paper “Turbines Allocation Optimization in Hydro Plants via Computational Intelligence”.

August 2014 - April 2015: Growth of Carbon Nanomaterials by Chemical Vapor Deposition.

Undergraduate scientific initiation program. Studied the fundamentals of carbon nanotubes. Performed several laboratory procedures to grow nanomaterial. Presented research at a local conference via poster presentation.

Teaching experience

April 2017 - Dez 2021: SINSERPU-JF (Juiz de Fora servers syndicate).
Mathematics and Physics volunteer teacher - school reinforcement for associates' children, from base to high school.

May 2015 - March 2016: Federal University of Juiz de Fora.
“Electromechanical Conversion of Energy I and II” courses tutor.

August 2011 - November 2011 (during previous uncompleted B.A. program): Federal University of Juiz de Fora.
“Algorithms” and “Programming Laboratory” courses tutor.

Referees

Dr. Ivo Chaves da Silva Júnior (former supervisor)
Professor and researcher in Electrical Engineering
Federal University of Juiz de Fora
José L. Kelmer st. 36036-900 Juiz de Fora BR
ivo.junior@ufjf.edu.br

Dr. Bruno Henriques Dias
Professor and researcher in Electrical Engineering
Federal University of Juiz de Fora
José L. Kelmer st. 36036-900 Juiz de Fora BR
bruno.dias@ufjf.edu.br

Dr. Alexey Pavlov (supervisor)
Professor and researcher in Petroleum Cybernetics
Norwegian University of Science and Technology
Petroleumsteknisk senter, 512, Valgrinda, S.P. Andersensveg 15a
alexey.pavlov@ntnu.no