

FRANCISCO DE ASSIS BOLDT

Associate Professor - Machine Learning Researcher

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RESEARCH INTERESTS

Machine Learning Deep Learning Automatic Fault Diagnosis
Signal Processing Natural Language Processing Forecasting

EXPERIENCE

Associate Professor Ifes
Instituto Federal de Educação, Ciência e Tecnologia do Espírito Santo
March 2004 – Ongoing Serra-ES

- Machine Learning Researcher
- Research Project Coordinator
- Lecturer and advisor (Master Course in Applied Computing)
- Disciplines:
 - Artificial Intelligence
 - Pattern Recognition
 - Artificial Neural Networks

Teacher of informatics, developer and programmer
Coopen - Cooperativa de Profissionais de Ensino
Jan 2001 – Jan 2002 Colatina-ES

High-school Teacher of Informatics
Cefetes - Centro Federal de Educação Tecnológica do Espírito Santo
July 1999 – Dec 2000 Colatina-ES

PROJECTS

Automated Bibliometrics
Fapes/Ifes Coordinator
July 2019 – June 2021 Serra-ES
Search, select and compile scientific and technical information about some field of study. Apply the automated method to collect data about reuse of ornamental rock wast.

Compilation of real datasets for fault diagnosis
Ifes Coordinator
August 2019 – July 2020 Serra-ES
Select public available datasets used for automatic fault diagnosis. Compile the most important datasets and explain how to use them. Develop a framework that applies machine learning methods to the selected datasets.

Defect Pattern Recognition in Centrifugal Pump Systems
Petrobras/Ufes Researcher
2011-2014 Vitória-ES
This project used computational intelligence techniques to identify defect patterns in submerged centrifugal pumping systems during the testing and acceptance phase of this system.

EDUCATION

Ph.D. in Computer Science
Universidade Federal do Espírito Santo
Dec 2012–July 2017 Vitória-ES
Classifier Ensemble Feature Selection for Automatic Fault Diagnosis

M.Sc. in Informatics
Universidade Federal do Espírito Santo
Feb 2006–June 2008 Vitória-ES

Specialization in Systems Development with Java
Universidade Federal do Espírito Santo
Feb 2005–June 2006 Vitória-ES

Tech. in Data Processing
Unesc
Aug 1995–July 1998 Colatina-ES

LANGUAGES

Portuguese ●●●●●
English ●●●●●
German ●●●●●
Spanish ●●●●●
Italian ●●●●●

REFEREES

Prof. Thomas Walter Rauber
@ Universidade Federal do Espírito Santo
thomas@inf.ufes.br

Prof. Flávio Miguel Varejão
@ Universidade Federal do Espírito Santo
fvarejao@inf.ufes.br

Prof. Karsten Berns
@ University of Kaiserslautern
berns@informatik.uni-kl.de

PUBLICATIONS

Journal Articles

- Rauber, TW, FA Boldt, and CJ Munaro (2020). "Feature Selection for Multivariate Contribution Analysis in Fault Detection and Isolation". In: *Journal of the Franklin Institute*.
- Assis Boldt, Francisco de, Thomas W Rauber, and Flávio M Varejão (2017). "Cascade feature selection and elm for automatic fault diagnosis of the tennessee eastman process". In: *Neurocomputing* 239, pp. 238–248.
- Rauber, Thomas W, Francisco de Assis Boldt, and Flávio Miguel Varejão (2015). "Heterogeneous feature models and feature selection applied to bearing fault diagnosis". In: *IEEE Transactions on Industrial Electronics* 62.1, pp. 637–646.
- Assis Boldt, Francisco de, Thomas Walter Rauber, and Flávio Miguel Varejão (2013). "A fast feature selection algorithm applied to automatic faults diagnosis of rotating machinery". In: *Journal of Applied Computing Research* 3.2, pp. 78–86.

Conference Proceedings

- Carmo, Marcelo, Karin Komati, and Francisco Boldt (2019). "Previsão de receitas de ICMS do estado do Espírito Santo através de Seleção de Características em Cascata e técnicas de Aprendizado de Máquina". In: *Anais do XVI Encontro Nacional de Inteligência Artificial e Computacional*. SBC, pp. 118–129.
- D. N. Santos, Alter, Francisco Boldt, and Richard Godinez Tello (2018). "Uma Avaliação do Desempenho de Uma Rede Neural Extreme Learning Machine (ELM) aplicado a Sinais de Eletromiografia de Superfície (sEMG)". in: *XXII Congresso Brasileiro de Automática 2018, João Pessoa, Brazil*.
- D. N. Santos, Alter, Rodrigo P. Capucho, et al. (2018). "An Evaluation of an Adapted Extreme Learning Machine (ELM) Neural Network applied to Hand Gesture Recognition from Two Channels sEMG". in: *I Congresso de Tecnologia da Informação do IFSUL - Passo Fundo, Brasil*.
- P. Capucho, Rodrigo, Francisco Boldt, and Richard. Godinez Tello (2018). "Reconhecimento de Sequência de Movimentos de uma Mão a partir de Sensores Inerciais para o Controle de uma Cadeira de Rodas Robotizada". In: *I Congresso de Tecnologia da Informação do IFSUL - Passo Fundo, Brasil*.
- Assis Boldt, Francisco de, Thomas Walter Rauber, Thiago Oliveira-Santos, et al. (2017). "Binary feature selection classifier ensemble for fault diagnosis of submersible motor pump". In: *2017 IEEE 26th International Symposium on Industrial Electronics (ISIE)*. IEEE, pp. 1807–1812.
- Rauber, Thomas Walter et al. (2017). "Kernel and random extreme learning machine applied to submersible motor pump fault diagnosis". In: *2017 International Joint Conference on Neural Networks (IJCNN)*. IEEE, pp. 3347–3354.
- Assis Boldt, Francisco de, Thomas W Rauber, and Flávio M Varejão (2015). "Single sequence fast feature selection for high-dimensional data". In: *2015 IEEE 27th International Conference on Tools with Artificial Intelligence (ICTAI)*. IEEE, pp. 697–704.
- Assis Boldt, Francisco de, Thomas W Rauber, Flávio M Varejão, and Marcos Pellegrini Ribeiro (2015). "Fast feature selection using hybrid ranking and wrapper approach for automatic fault diagnosis of motorpumps based on vibration signals". In: *2015 IEEE 13th International Conference on Industrial Informatics (INDIN)*. IEEE, pp. 127–132.

EDITORIAL MEMBER

Progress in Human Computer Interaction

PEER REVIEWING

Journals

IEEE Access

IEEE Transactions on Industrial Electronics

IET Computer Vision

IET Science, Measurement and Technology

International Journal of Acoustics and Vibration

Conferences

CBEB 2020-27º Congresso Brasileiro de Engenharia Biomédica

CBA2018-22º Congresso Brasileiro de Automática

CBA2016-21º Congresso Brasileiro de Automática

AWARDS



Best Paper

2018 - I Congresso de Tecnologia da Informação, IFSUL - Passo Fundo, IFSUL



Best Paper

2013 - Conferência IADIS Ibero-Americana Computação Aplicada 2013, International Association for Development of Information Society.

- Assis Boldt, Francisco de, Thomas W Rauber, Flávio M Varejão, et al. (2014). "Performance analysis of extreme learning machine for automatic diagnosis of electrical submersible pump conditions". In: *2014 12th IEEE International Conference on Industrial Informatics (IN-DIN)*. IEEE, pp. 67–72.
- Assis Boldt, Francisco de, Thomas W Rauber, and Flávio M Varejão (2014). "Evaluation of the extreme learning machine for automatic fault diagnosis of the tennessee eastman chemical process". In: *IECON 2014-40th Annual Conference of the IEEE Industrial Electronics Society*. IEEE, pp. 2551–2557.
- Boldt, Francisco de A, Thomas W Rauber, and Flávio M Varejão (2013). "Feature Extraction and Selection for Automatic Fault Diagnosis of Rotating Machinery". In: *X Encontro Nacional de Inteligência Artificial e Computacional (ENIAC)*.
- Rauber, Thomas W et al. (2013a). "Computational intelligence for automatic diagnosis of submersible motor pump conditions in offshore oil exploration". In: *2013 IEEE 20th International Conference on Electronics, Circuits, and Systems (ICECS)*. IEEE, pp. 477–480.
- – (2013b). "Feature models and condition visualization for rotating machinery fault diagnosis". In: *2013 IEEE 20th International Conference on Electronics, Circuits, and Systems (ICECS)*. IEEE, pp. 265–268.

ACADEMIC ADVISORY

Master in Applied Computing

Instituto Federal do Espírito Santo

📅 April 2019 –

📍 Serra-ES

Carlos Henrique Gomes Correia.

Master in Applied Computing

Instituto Federal do Espírito Santo

📅 April 2019 –

📍 Serra-ES

Lucio Antonio Stange Venturim.

Master in Applied Computing

Instituto Federal do Espírito Santo

📅 March 2020 –

📍 Serra-ES

Israel de Moraes Madalena

Undergraduate Research Project

Instituto Federal do Espírito Santo

📅 08/2019 – 07/2020

📍 Serra-ES

Ana Carolina Ichimura

Undergraduate Research Project

Instituto Federal do Espírito Santo

📅 08/2019 – 07/2020

📍 Serra-ES

Flávio Fonsêca de Mendonça

Undergraduate Research Project

Instituto Federal do Espírito Santo

📅 08/2019 – 07/2020

📍 Serra-ES

Kamila Maria Vieira Pralon

Bachelor in Information Systems

Instituto Federal do Espírito Santo

📅 04/2019 – 08/2020

📍 Serra-ES

André Barbosa da Vitória

Big Data Specialization

Instituto Federal do Espírito Santo

📅 03/2019 – 11/2019

📍 Serra-ES

Marcelo Magalhães do Carmo