José Ricardo Santos Andrade

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Experience

INESC Technology and Science – Associate Laboratory **2016–Present**

R&D Engineer - Energy Analytics and Forecasting Unit

Projects:

- ***CORAL*** - *Sustainable Ocean Exploitation: Tools and Sensors* - Design and development of a multi-temporal energy management tool that acts based on predictive models and is capable of defining the best operational strategy for the energy storage/consumption of envisioned maritime exploratory processes.

  Supervisor(s):

  – Bernardo Marques Amaral Silva
  – Ricardo Jorge Gomes Sousa Bento Bessa

- ***INTEGRID*** - *Demonstration of INTElligent grid technologies for renewables INTEgration and INTEractive consumer participation enabling INTEroperable market solutions and INTErconnected stakeholders.*

  Currently participating in the development of the following software:

  – Data cleaning algorithms.
  – Data visualization tools.
  – Active and reactive power probabilistic forecasts for MV clients and MV/LV secondary substations loads.
  – Probabilistic forecast models for the Iberian Electricity Market (MIBEL) hourly spot price of day-ahead and intraday markets.
  – Renewable energy sources based generation (PV, Wind) probabilistic forecasts based on NWP retrieved from external weather providers.
  – RESTful Application Programming Interfaces (API's).

  Supervisor(s):

  – Ricardo Jorge Gomes Sousa Bento Bessa

Education

FEUP - Faculdade de Engenharia da Universidade do Porto **2010–2016**

M.Sc. Degree in Electrical and Computer Science Engineering
Specialization in Renewable Energy

- Dissertation - Previsão de Variabilidade de Produção em Centrais Fotovoltáicas [1].
  – Classification: 19 (in a scale of 1 to 20)

Academia de Música de São João da Madeira **1998–2010**

Beginner - Advanced Musical Education & Piano Classes

[1] https://repositorio-aberto.up.pt/handle/10216/82786

Awards and Honors

EEM2016 - COMPLATT - Energy Price Forecast Competition **April 2017**

International competition[2] with the demanding exercise of forecasting the Iberian Electricity Market (MIBEL) hourly spot energy price up to 120 hours ahead. In a rolling basis fashion, forecasts were submitted over a period of 14 days. A weighted mean absolute error metric was used to evaluate the forecasts of each participant.

- Final Classification: 4^{th} place (44 participants at final stage)

INESC TEC BIP - "Fora de Série" / Limelight **May 2017**

Monthly award that honors collaborators for an exceptional contribution in his/her area of activity. More information available at BIP Bulletin INESC TEC [3].

Languages and Technologies

- Software: PSS/E, Power World, AutoCad, Microsoft Office, PyCharm, RStudio, pgAdmin III, DataStax DevCenter.
- Programming Languages: Python, JavaScript, MATLAB, LaTeX, C++, SQL
- Technologies: Pandas, NumPy, scikit-learn, statsmodels, TensorFlow, Keras, Matplotlib, Seaborn, Git.
- Natural Languages: Portuguese and English proficient.

Publications

1. Andrade, J.; Bessa, R. (2017). Improving renewable energy forecasting with a grid of numerical weather predictions. IEEE Trans. Sustain. Energy 2017, 8, 1571–1580.

2. Andrade, J.; Filipe, J.; Reis, M.; and Bessa, R. (2017). Probabilistic Price Forecasting for Day-Ahead and Intraday Markets: Beyond the Statistical Model. Sustainability, vol. 9, no. 11, p. 1990, Oct. 2017.

[2] http://complatt.smartwatt.net/

[3] http://bip.inesctec.pt/en/184/fora-de-serie.html