José Ricardo Santos Andrade

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Experience

INESC TEC - Institute for Systems and Computer Engineering, Technology and Science
2016–Present

R&D Engineer - Energy Analytics and Forecasting Unit

Projects:

- ***CORAL*** - *Sustainable Ocean Exploitation: Tools and Sensors*

  Project contributions:

  – 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.*

  Project contributions:

  – Participated on the development of the software used to retrieve weather information (measurements and forecasts) from multiple weather providers.

  – Participated on the development of RESTful APIs for data ingestion.

  – Development of data visualization tools.

  – Development and integration of machine learning models for Medium Voltage loads and renewable energy sources (wind/solar).

  – Development and integration of machine learning models for Iberian Electricity Market (MIBEL) energy prices for day-ahead and intraday sessions.

  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)

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

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

Beginner - Advanced Musical Education & Piano Classes

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, Dash, Plotly, Flask.
- 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.
3. R.J. Bessa, D. Rua, C. Abreu, P. Machado, J.R. Andrade, R. Pinto, C. Gonçalves, and M. Reis, "Data economy for prosumers in a smart grid ecosystem," in Proc. of the e-Energy '18: The Nineth International Conference on Future Energy Systems, June 12–15, 2018, Karlsruhe, Germany.

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

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