

# José Ricardo Santos Andrade

Porto • Portugal  
jrja2012@gmail.com



## 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 data harvesting algorithms to 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 <sup>1</sup>.
  - Classification: 19 (in a scale of 1 to 20)

---

<sup>1</sup><https://repositorio-aberto.up.pt/handle/10216/82786>

## Awards and Honors

---

### EEM2016 - COMPLATT - Energy Price Forecast Competition

April 2017

International competition<sup>2</sup> 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<sup>th</sup> 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 <sup>3</sup>.

## Languages and Technologies

---

- Software: PSS/E, Power World, AutoCad, Microsoft Office, PyCharm, RStudio, pgAdmin III, DataStax DevCenter.
- Programming Languages: Python, JavaScript, MATLAB, L<sup>A</sup>T<sub>E</sub>X, 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.

---

<sup>2</sup><http://complatt.smartwatt.net/>

<sup>3</sup><http://bip.inesctec.pt/en/184/fora-de-serie.html>