Fernando Dorado Rueda

📍 **Address**: Calle San Bernardo n21, 41018, Sevilla, Spain

✉ **Email address:** fdorado.rueda@gmail.com 📞 **Phone number:** (+34) 648236272

🌐 **Website:** https://www.linkedin.com/in/fernando-dorado-rueda-3a010215b/

🌐 **Website:** https://www.researchgate.net/profile/Fernando_Dorado3?ev=hdr_xprf

🌐 **Website:** https://github.com/FernandoDorado

🟢 **Whatsapp Messenger:** +34648236272

Date of birth: 01/04/1997   **Nationality:** Spanish

WORK EXPERIENCE

[30/09/2021 – Current] **Independent Consulting (Mentor) - MLOps, Data Streaming, Data Architect, Cloud and Deep Reinforcement Learning Nanodegrees**

Udacity

City: Mountain View, California
Country: United States
Main activities and responsibilities:
As a consultant to educational platform, such as Udacity, I utilize my specialized knowledge in the field of MLOps, Data Streaming, Data Architect, Cloud , Deep Reinforcement Learning and my strong communication skills to provide project reviews and other student support services.

[31/12/2020 – Current] **MLOps Engineer**

IDENER

City: Seville
Country: Spain
Main activities and responsibilities:
- Implement end-to-end solutions based on microservices for batch and real-time algorithms along with requisite tooling around monitoring, logging, automated testing, performance testing.
- Production life cycle management. The initial model deployment is the beginning of a long life cycle of updates to keep a machine learning model running.
- Supporting and continuously enhance ML software infrastructure: CI/CD, data stores, cloud services, network configuration, security, system monitoring.
- Decrease risk to the organization by standardizing and putting in place robust governance checks and balances, and best practices for machine learning projects in production.
- Scale AI initiatives broadly by quickly and easily embedding machine learning into existing business processes and systems across the enterprise.
- Identify new opportunities to improve business processes and improve consumer experiences, and prototype solutions to demonstrate value with a crawl, walk, and run mind set.

[09/07/2019 – 30/12/2020] **R&D Machine Learning Engineer**

IDENER

Address: Sevilla, Spain
Country: Spain

Main activities and responsibilities:
- Research and implementation of state-of-art Deep-Learning algorithms to renewable systems (energy demand forecasting, anomaly detection). These tasks were performed from data collection, processing, to model implementation.
- State-of-art of AI in renewable systems.
- Data Analytics for renewable system data and IoT.
- Implementation of Deep-Reinforcement Learning algorithms into industry applications.
- Data engineering tasks needed to to collect, ingest and process large data.
- Researching and writing scientific papers related to AI and renewable systems.

[19/06/2017 – 22/08/2017] **Electrical supervisor**

Fundación Unicaja

Address: Málaga, Spain
Main activities and responsibilities:
- Responsible for electronic activities
- Drones Supervision and Maintenance

PROJECTS

[31/05/2020 – 31/05/2024] **Digital intelligence for collaborative ENergy management in Manufacturing**

Task in the project: Main developer in the data-architecture and MLOps pipeline.

Tools used: Apache Kafka, Apache Hadoop (HDFS, HIVE, YARN), Apache Spark, Apache Druid, TensorFlow Extended (TFX)

Manufacturing is one of the largest energy-consuming sectors and responsible for approximately a third of the global energy demand. Therefore, energy management is key to ensuring that manufacturing remains competitive as well as being sustainable as part of the global energy transition. The EU-funded DENiM project is developing an integrated toolchain for the provision of advanced digital services including secure-edge connectivity leveraging the Internet of Things (IoT), data analytics, digital twin, energy modelling and automation. Digital technologies will play a significant role by providing the ability to automatically monitor and optimise energy usage, while continuously informing users about the environmental and economic impact of decisions made at all stages of the manufacturing process.

https://cordis.europa.eu/project/id/958339/es

[30/04/2019 – 29/04/2022] **SDN - microgrid reSilient Electrical eNergy SystEm**

Task in the project: Machine Learning developer.

Tools used: Numpy, pandas, sklearn, Tensorflow.

The smart energy ecosystem is the next step of the conventional electrical grid, offering increased reliability, augmented service quality and efficient exploitation of existing infrastructures. However, it generates significant security and privacy problems as it contains a combination of heterogeneous, coexisting smart and legacy technologies. The EU-funded SDN-microSENSE project will provide secure, privacy-enabled and resistant-to-cyberattacks tools to ensure electrical power and energy system (EPES) operation and the integrity and confidentiality of communications. The project will adopt an SDN-based technology and implement risk assessment processes to identify the risk level of each EPES component, self-healing abilities to isolate the critical parts of the network, large-scale detection tools, prevention mechanisms and a privacy protection structure.

https://cordis.europa.eu/project/id/833955/es

[31/08/2019 – 09/2023] Agent-based support tool for the development of agriculture policies

Task in the project: Machine Learning developer.

Tools used: Numpy, pandas, sklearn, Tensorflow.

Design of agricultural policies is a long process involving the configuration of all local and global parameters. A new approach based on advanced technology is needed. The EU-funded AGRICORE project aims to use an agent-based approach to improve on traditional methods with modelling and information and communication technology (ICT). It will use computational modelling to simulate farmers' actions as autonomous or collective entities, with contexts ranging from local to global scales. Artificial intelligence, Big Data, cloud services will be involved in the process. This open source tool will permit more efficient, optimised policies with its predictive and monitoring capabilities while ensuring transparency and constant improvement.

https://cordis.europa.eu/project/id/816078

EDUCATION AND TRAINING

[14/09/2015 – 30/06/2020] Robotics, Electronics and Mechatronics Engineering

Universidad de Sevilla

Address: Sevilla, Spain
Field(s) of study: Robotics, computer vision

[29/08/2019 – 2022] MicroMaster : Statistics and Data Science

MIT on edX   https://micromasters.mit.edu/ds/

[30/06/2019 – 27/08/2019] Specialized Program: Advanced Data Science with IBM

IBM

[14/08/2019 – 04/10/2019] Specialized Program: Deep Learning

DeepLearning.ai

[10/08/2020 – 17/10/2020] Specialized Program: Natural Language Processing

DeepLearning.ai

[30/09/2019 – 01/02/2020] NanoDegree: Deep Reinforcement Learning

Udacity

OPEN-SOURCE PROJECTS

OpenMined

○ Contributions to SyferText as NLP Engineer

https://www.openmined.org/

LANGUAGE SKILLS

Mother tongue(s): Spanish

Other language(s):

English

LISTENING C1 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION B1 **SPOKEN INTERACTION** B2

DRIVING LICENCE

Motorbikes: AM
Motorbikes: A1
Cars: B

ORGANISATIONAL SKILLS

Organisational skills
- Organized and structured
- Good working as a team thanks to the experience doing projects in the university.

JOB-RELATED SKILLS

Job-related skills

- Deep-Learning: Experience with Tensorflow, PyTorch and Matlab

- Programming languages: C, Python, Scala (basic level), R, VHDL, Matlab

- Data-related frameworks: Spark, Kafka (and Kafka-Streams), Pandas, Matplotlib, dask, Numpy, hadoop ecosystem (HDFS, mapreduce, YARN, Pig, Hive)

- Databases: Experience using ElasticSearch and Apache Druid

- ML frameworks: MLFlow and Kubeflow (basic level)

- Experience with scalable-ML by using Docker and Kubernetes

PUBLICATIONS

[2021]

Short-Term Load Forecasting Using Encoder-Decoder WaveNet: Application to the French Grid

https://www.researchgate.net/publication/351174665_Short-Term_Load_Forecasting_Using_Encoder-Decoder_WaveNet_Application_to_the_French_Grid

The prediction of time series data applied to the energy sector (prediction of renewable energy production, forecasting prosumers' consumption/generation, forecast of country-level consumption, etc.) has numerous useful applications. Nevertheless, the complexity and non-linear behaviour associated with such kind of energy systems hinder the development of accurate algorithms. In such a context, this paper investigates the use of a state-of-art deep learning architecture in order to perform precise load demand forecasting 24-h-ahead in the whole country of France using RTE data. To this end, the authors propose an encoder-decoder architecture inspired by WaveNet, a deep generative model initially designed by Google DeepMind for raw audio waveforms. WaveNet uses dilated causal convolutions and skip-connection to utilise long-term information. This kind of novel ML architecture presents different advantages regarding other statistical algorithms. On the one hand, the proposed deep learning model's training process can be parallelized in GPUs, which is an advantage in terms of training

times compared to recurrent networks. On the other hand, the model prevents degradations problems (explosions and vanishing gradients) due to the residual connections. In addition, this model can learn from an input sequence to produce a forecast sequence in a one-shot manner. For comparison purposes, a comparative analysis between the most performing state-of-art deep learning models and traditional statistical approaches is presented: Autoregressive-Integrated Moving Average (ARIMA), Long-Short-Term-Memory, Gated-Recurrent-Unit (GRU), Multi-Layer Perceptron (MLP), causal 1D-Convolutional Neural Networks (1D-CNN) and ConvLSTM (Encoder-Decoder). The values of the evaluation indicators reveal that WaveNet exhibits superior performance in both forecasting accuracy and robustness.

[2020]

Energy Demand Forecasting Using Deep Learning: Applications for the French Grid

https://www.researchgate.net/publication/341137004_Energy_Demand_Forecasting_Using_Deep_Learning_Applications_for_the_French_Grid

This paper investigates the use of deep learning techniques in order to perform energy demand forecasting. To this end, the authors propose a mixed architecture consisting of a convolutional neural network (CNN) coupled with an artificial neural network (ANN), with the main objective of taking advantage of the virtues of both structures: the regression capabilities of the artificial neural network and the feature extraction capacities of the convolutional neural network. The proposed structure was trained and then used in a real setting to provide a French energy demand forecast using Action de Recherche Petite Echelle Grande Echelle (ARPEGE) forecasting weather data. The results show that this approach outperforms the reference Réseau de Transport d'Electricité (RTE, French transmission system operator) subscription-based service. Additionally, the proposed solution obtains the highest performance score when compared with other alternatives, including Autoregressive Integrated Moving Average (ARIMA) and traditional ANN models. This opens up the possibility of achieving high-accuracy forecasting using widely accessible deep learning techniques through open-source machine learning platforms.

COMMUNICATION AND INTERPERSONAL SKILLS

Communication and interpersonal skills

- Good communicator thanks to my experience supervising dangerous activities