

Baldwin Cortes, Ph.D.

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SUMMARY

Seasoned machine learning engineer and data scientist with a Ph.D. in Electrical Engineering, specializing in data analytics, SQL, and Python. Expertise in machine learning for regression, classification, and forecasting, along with extensive experience in large language models (LLMs) and image processing. Proficient in utilizing Pandas for data manipulation and analysis. Developed cutting-edge techniques for optimizing photovoltaic systems using deep reinforcement learning. Adept at leveraging cloud computing platforms such as Microsoft Azure and Huawei Cloud. Recently awarded an AI certification from Huawei and selected for an advanced hands-on AI training program in China.

EXPERIENCE

- Machine Learning Engineer - G2i Inc., USA (In partnership with Scale AI)**Jun 2024 - Present
- Evaluated the quality of AI-generated code, providing human-readable summaries of rationale.
 - Assisted in training LLMs by evaluating responses and providing recommendations on understanding assignments.
- Research Scientist (Ph.D. graduate) - UMSNH, Mexico**Mar 2018 - Feb 2022
- Conducted time series forecasting experiments using deep learning algorithms for local irradiance, surpassing state-of-the-art models by improving prediction accuracy by over 0.8%.
 - Innovated multiple maximum power point tracking techniques for photovoltaic systems utilizing deep reinforcement learning, surpassing the performance of state-of-the-art algorithms by increasing power generation by over 2%.
- Adjunct Professor - UMSNH, Mexico**Oct 2015 - Aug 2019
- Lectured several courses including Digital Electronics, Digital Control, Microcontrollers, and Instrumentation.

EDUCATION

- 2018 - 2022

Ph.D. in Electrical Engineering at **Universidad Michoacana (UMNSH)**

(GPA: 4.0/4.0)
- 2015 - 2017

M.Sc. in Electrical Engineering at **Universidad Michoacana (UMNSH)**

(GPA: 4.0/4.0)
- 2009 - 2014

B.Sc. (*Hons*) in Electronics Engineering at **Universidad Michoacana (UMNSH)**

(GPA: 3.7/4.0)

LANGUAGES

Spanish (Native), English (C1).

CERTIFICATIONS

- Microsoft Certified: Azure Data Scientist Associate

(2024)
- DeepLearning AI Deep Learning Specialization

(2024)
- Huawei Certified ICT Associate-AI

(2024)
- Stanford University & DeepLearning AI Machine Learning Specialization

(2023)
- Google Advanced Data Analytics

(2023)

SKILLS

- Time Series

Analysis, Modelling, Forecasting
- Programming Languages

Python, MATLAB, C, JavaScript, VHDL
- Machine Learning Frameworks

PyTorch, TensorFlow, Keras, Scikit-Learn, LightGBM, XGBoost
- Deep Learning

NLP, Image Processing, Deep Reinforcement Learning
- Big Data Tools

Apache Spark, Databricks
- Cloud Platforms

Microsoft Azure, Huawei Cloud
- Web Development

HTML5, JavaScript, CSS3
- Version Control

Git, GitHub, GitLab
- Database Management

SQL, MongoDB
- Workflow Management

Apache Airflow, Kedro
- Project Management

Agile, Scrum, Kanban, Attlassian Jira

PUBLICATIONS

- Cortés, Baldwin, Roberto Tapia, and Juan J. Flores (2021a). “A Behavioral Cloning based MPPT for Photovoltaic Systems: Learning Through P&O Demonstrations”. In: *2021 IEEE International Autumn Meeting on Power, Electronics and Computing (ROPEC)*. Vol. 5, pp. 1–6. DOI: [10.1109/ROPEC53248.2021.9668084](https://doi.org/10.1109/ROPEC53248.2021.9668084).
- Cortés, Baldwin, Roberto Tapia, and Juan J. Flores (2021b). “System-Independent Irradiance Sensorless ANN-Based MPPT for Photovoltaic Systems in Electric Vehicles”. In: *Energies* 14.16. ISSN: 1996-1073. DOI: [10.3390/en14164820](https://doi.org/10.3390/en14164820). URL: <https://www.mdpi.com/1996-1073/14/16/4820>.
- Cortés, Baldwin, Roberto Tapia, and Juan J. Flores (2020). “Characterization of a polycrystalline photovoltaic cell using artificial neural networks”. In: *Solar Energy* 196, pp. 157–167. ISSN: 0038-092X. DOI: <https://doi.org/10.1016/j.solener.2019.12.012>. URL: <https://www.sciencedirect.com/science/article/pii/S0038092X19312265>.
- Flores, Juan J., Baldwin Cortés, José R. Cedeño González, et al. (2020). “Prediction of the Solar Resource through Differences”. In: *2020 IEEE International Autumn Meeting on Power, Electronics and Computing (ROPEC)*. Vol. 4, pp. 1–6. DOI: [10.1109/ROPEC50909.2020.9258682](https://doi.org/10.1109/ROPEC50909.2020.9258682).
- Flores, Juan J., Josué D. González, Baldwin Cortés, et al. (2019). “Evolving SARIMA Models Using cGA for Time Series Forecasting”. In: *2019 IEEE International Autumn Meeting on Power, Electronics and Computing (ROPEC)*, pp. 1–6. DOI: [10.1109/ROPEC48299.2019.9057132](https://doi.org/10.1109/ROPEC48299.2019.9057132).
- Orozco, Gilberto, Baldwin Cortés, Mario Heras, et al. (2016). “Analysis and comparison of distillation column models considering constant and variable relative volatility”. In: *2016 IEEE International Autumn Meeting on Power, Electronics and Computing (ROPEC)*, pp. 1–6. DOI: [10.1109/ROPEC.2016.7830590](https://doi.org/10.1109/ROPEC.2016.7830590).