

GUILLERMO TERRÉN-SERRANO, PH.D. CANDIDATE

PERSONAL INFORMATION

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KEY SKILLS AND MAIN INTERESTS

Machine Learning · Optimization Theory · Big Data
MATLAB · Python · Parallel Computing · GPU Computing · High
Performance Computing
Image Processing · Computer Vision · Deep Learning
OpenCV · TensorFlow · PyTorch · Scipy · Scikit-Learn
Data Analytics · Statistical Learning · Bayesian Modeling · Time Series
Analysis
R · Stan
Renewable Energy · Smart Grids · Micro Grids
ETAP · OpenDSS · NREL: Energy Analysis · HOMER
Energy Efficiency · MEP · Sustainable Architecture · BIM
Revit · Green Building Studio
Data Acquisition · Virtual Instrumentation
C++ · LabVIEW · Raspberry · Arduino

WORK EXPERIENCE

<i>The University of New Mexico & CEET</i>	<p><i>2015–Present</i> Graduate Assistant, UNIVERSITY OF NEW MEXICO — NM, USA</p> <p>Teaching and Research Assistant at Electrical and Computer Engineering Department. Research areas related with smart grid and machine learning at Center for Emerging Energy Technologies (CEET). Teaching Assistant in Circuit Analysis, Electronic Circuits, Signals and Systems, and Data Structure & Algorithms.</p>
<i>Enerland Group</i>	<p><i>2012–2013</i> Project Engineer Intern - EPC Tenders, ENERLAND GROUP — Zaragoza, Spain</p> <p>Renewable energy EPC company - Management of turn-key projects. Intern engineer at Enerland Group headquarters developing Photovoltaic (PV) plants technical and commercial proposal for EPC contract. Power rate of the projects tendered during my internship: 56MWp, 1MWp, 600kWp, and 2.5MWp.</p>
<i>LACTEC</i>	<p><i>Feb-Jul 2012</i> Research Intern, LACTEC — Curitiba, Brazil</p> <p>Assistant engineer at Electronic Department in the Institute of Technology for the Development LACTEC. Projects implemented along my internship: installation of a 30kWp PV system on-grid connected, and SG that measures real-time HVAC parameters to optimize the distribution on energy in power lines.</p>

EDUCATION

Philosophy Doctor in Electrical Engineering	2015-Present	University of New Mexico, NM, USA	GPA: 3.95/4 · <i>Machine Learning, Computer Vision & Big Data</i> · School: ECE, School of Engineering Description: On the framework of smart grid, microgrid and renewable energy; implementation of machine learning techniques to develop predictive control algorithms for energy management. Core Courses: Advance Neural Networks, Big Data, Optimization Theory, Statistical Learning, Bayesian Modelling, and Time Series Analysis. Advisors: Prof. Manel MARTÍNEZ-RAMÓN
	2015-2016	University of New Mexico, NM, USA	GPA: 3.85/4 · <i>Emphasis in Power & Energy</i> · School: ECE, School of Engineering Thesis: <i>Machine Learning Approach for Global Solar Radiation Time-Series Forecasting</i> . Description: The thesis analyzes the performances of different machine learning algorithms to forecast time series. The dataset is from a meso-scale weather model. The techniques explored are support vector machines, Gaussian processes, and supervised artificial neural networks. In addition to unsupervised deep learning for dimensionality reduction. Core Courses: Advance Machine Learning, Photovoltaic, Smart Grids, and Power Electronics. Advisors: Prof. Manel MARTÍNEZ-RAMÓN
Bachelor Project & Academic Exchange	2011-2012	Pontifical Catholic University of Paraná, Curitiba, Brazil	Score: 7.5/9 · <i>Energy-Efficient University Campus in Southern Brazil</i> . · School: Polytechnic School Description: Design of self-sustained University Campus accommodated to the Southern Brazil climate. The design includes renewable energy, energy-efficient lighting, and sustainable passive architecture techniques. On the framework of energy net-balance, the aim was to balance the energy demanded and generated by the system. The power system was composed by thermal loads, dynamic electrical loads, and lighting loads. Advisors: Prof. Maria G. TE-VAARWERK
	2006-2011	University of Zaragoza, Zaragoza, Spain	Score: 6.75/10 · <i>Specialization in Industrial Electricity</i> · School: EINA Bachelor Project: <i>Energy-Efficient University Campus in Southern Brazil</i> . Description: Designing of power systems and devices for energy generation, transportation, distribution and usage. Core Courses: Power Networks, Transformers and Drivers, Control Theory, Electronic Circuits, Electrical Design, and Power Plants. Advisors: Prof. Pedro IBÁÑEZ-CARABANTES
Bachelor of Science in Technical Industrial Engineering			

ACADEMIC AWARDS

Iberdrola Foundation	January 2015	Iberdrola Graduate Scholarship of the University of New Mexico	Iberdrola Scholarship for graduate studies at the Department of Electrical and Computer Engineering of The University of New Mexico in the United States of America, within the grant King Felipe VI Chair of the University of New Mexico, sponsored by the Iberdrola Foundation.
	June 2011	Santander Bank & the University of Zaragoza Americampus Cooperation Scholarship	Cooperation grant between the University of Zaragoza and Santander Bank for students getting involved in an exchange year at Latin-American universities.
Americampus			

My personal goal was to study sustainable architecture and apply my knowledge on renewable energy to develop self-sustainable energy systems.

COMPUTER SKILLS

<i>Programming</i>	PYTHON – MATLAB AND SIMULINK – R – C/C++ – LABVIEW – HTML
<i>OS</i>	WINDOWS – LINUX – MacOS – RASPBAN
<i>Power Systems & Renewable Energy</i>	OPENDSS – ETAP – HOMER – NREL: ENERGY ANALYSIS – WINDPRO – PV-SIST
<i>Energy Efficiency & MEP</i>	GREEN BUILDING STUDIO – REVIT – AUTOCAD 2D/3D – SCAKETCHUP – SOLIDWORKS – DIALUX
<i>Volunteer Work</i>	Spring & Fall 2020 · Parent-teacher conferences translator for Spanish speakers at South Valley Academy (SVA), Albuquerque, NM.
<i>Languages</i>	SPANISH · Mother tongue ENGLISH · Proficient PORTUGUESE · Proficient
<i>Hobbies & Interests</i>	Guitar · Hiking · Running · Rugby · Tennis · Travel · Reading · Cactus and Succulents · Landscape Photography

PUBLICATIONS ON JOURNALS

<i>March 2018</i>	Engineering Applications of Artificial Intelligence
ELSEVIER	Evaluation of Dimensionality Reduction Methods Applied to Numerical Weather Models for Solar Radiation Forecasting.
<i>May 2019</i>	Solar Energy
ELSEVIER	An Experimental Method to Merge Far-field Images from Multiple Long-wave Infrared Sensors for Short-term Solar Forecasting.
<i>Dec 2020</i>	Applied Energy
ELSEVIER	Multi-Layer Wind Velocity Field Visualization in Infrared Images of Clouds for Solar Irradiance Forecasting.
<i>Dec 2020</i>	Renewable Energy
ELSEVIER	Comparative Analysis of Methods for Cloud Segmentation in Ground-Based Infrared Images.
<i>Dec 2020</i>	Data in Brief
ELSEVIER	Girasol, a Sky Imaging and Global Solar Irradiance Dataset.
<i>March 2021</i>	Applied Energy (In Press)
ELSEVIER	Processing of Global Solar Irradiance and Ground-Based Infrared Sky Images for Solar Nowcasting and Intra-Hour Forecasting Applications
<i>March 2021</i>	Solar Energy (In Press)
ELSEVIER	Geospatial Perspective Reprojections for Ground-Based Sky Imaging Systems.
<i>May 2021</i>	Journal of Cleaner Production (In Press)
ELSEVIER	Detection of Multiple Wind Velocity Fields using Ground-based Infrared Sky Imagers

PUBLICATIONS ON CONFERENCES

- Jun 2021* Energy Reports. Conference on Electrical Engineering and Green Energy, Munich, Germany (In Press)
- ELSEVIER* Explicit Basis Function Kernel Methods for Cloud Segmentation in Infrared Images.
- Oct 2021* IEEE Xplore. IEEE PES Conference on Innovative Smart Grid Technologies, Espoo, Finland (In Press)
- IEEE* Segmentation Algorithms for Ground-Based Infrared Cloud Images.
- Oct 2021* IEEE Xplore. IEEE PES Conference on Innovative Smart Grid Technologies, Espoo, Finland (In Press)
- IEEE* Wind Flow Estimation in Thermal Sky Images for Sun Occlusion Prediction.

September 19, 2021