

Manuel Navarro Catalán, M.Sc.

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EDUCATION

Rensselaer Polytechnic Institute	Masters of Science, Electrical Engineering GPA: 3.7/4.0 Specialization: Power Systems	Spring 2020
The University of Texas at Austin	Bachelors of Science, Electrical Engineering Specialization: Power Systems	Spring 2018
KTH Royal Institute of Technology	Exchange Program, Stockholm, Sweden	Spring 2017
Peking University	Globex Exchange Program, Beijing, China	Summer 2016

EXPERIENCE

Operations Analysis Intern - <i>Electric Reliability Council of Texas (ERCOT), Austin, TX</i>	05/20-Present
<ul style="list-style-type: none">- Created Python based Data Analysis scripts for ancillary service requirements.- Designed a program and method to read ERCOT's load and generation minute data, calculate ancillary service requirements, display results and determine service requirements with no user input.- Determined regulation requirements for coming years.- Analyzed, processed and performed Python based data analysis on 1 minute interval electric load/generation data.	
Research Assistant - <i>Rensselaer Polytechnic Institute, Troy, NY</i>	08/18-Present
<ul style="list-style-type: none">- Conducting research for ALSET Laboratory under the supervision of Dr. Luigi Vanfretti.- Test and develop applications for electrical models for computer simulation.- Research on cyber-physical systems, exploring the transition of electric systems to the digital world.- Developing a mass model translation Python based application for Smart Grids (from PSSE to Modelica) for New York Power Authority.	
Renewable Energy Intern - <i>Pan American Energy, Buenos Aires, Argentina</i>	06/18-08/18
<ul style="list-style-type: none">- Mapped the electrical system of Argentina using ArcMap.- Created action plans for the future expansion of the renewable energy division within Pan American Energy.- Created a georeferenced database of the wind energy sources in Argentina.	
Engineering Intern – <i>KFW Engineers and Surveying, San Antonio, TX</i>	07/17-08/17
<ul style="list-style-type: none">- Built GIS maps and exhibits for project distribution and completion.- Acted as network administrator, support, and IT technician for the company.- Created a Mexico GIS map that graphically displayed Mexico's geographical and demographic features.- Upgraded, installed and monitored over 140 computers.	
Engineering Intern – <i>Perkins Design Inc, Beijing, China</i>	06/16-07/16
<ul style="list-style-type: none">- Redesigned and improved all of the company's presentations.- Innovated and upgraded the marketing side of the company.- Created Spanish, Chinese, French and English presentations for company promotion.	
First Year Interest Group Mentor – <i>Equal Opportunity in Engineering, Austin, TX</i>	09/15-05/16
<ul style="list-style-type: none">- Guided 28 first year students through challenging transition to university life.- Planned and executed a weekly seminar providing various strategies to succeed during their first year.- Taught students collaboration, problem solving, and perseverance through a difficult electrical engineering program.- Achieved over a 96% student retention rate in the two most vulnerable semesters of an electrical engineering degree.	

LEADERSHIP & ACTIVITIES

Undergraduate Research Assistant – <i>KTH Royal Institute of Technology, Stockholm, Sweden</i>	04/17-05/18
<ul style="list-style-type: none">- Worked under the supervision of Dr. Luigi Vanfretti at the Electric Power and Energy Department.- Created a Linux installation manual for Dymola and OpenModelica software.- Created a user manual for OpenModelica and for Dymola under Linux of computer assignments for a Modelica course.- Created a user manual of the OpenIPSL library under Linux using OpenModelica and Dymola.	
Community Sub Group Co Lead, Travel Team Member – <i>Engineers Without Borders, Perú Project</i>	11/14-01/17
<ul style="list-style-type: none">- Traveled to Santa Cruz, Perú for an irrigation water project to interpret between the EWB team and the local community.- Updated project manuals for future project use as well as manuals and paperwork from the project headquarters in Austin to be delivered to the community in Perú for their benefit.- Traveled to Sienkyn, Panamá for a water purification project to interpret between the EWB team and the local community.	

TEACHING

Teaching Assistant – *Dominion Energy, Richmond VA*

May 2019

- Course: Introduction to Power Systems Modeling and Simulation using the Modelica Language.

Teaching Assistant – *McMaster University, Hamilton ON*

May 2019

- Course: Introduction to Modeling and Simulation using the Modelica Language.

PUBLICATIONS

M. Navarro Catalan and L. Vanfretti, “Over Current Relay Modeling using Modelica with Cross-Verification against a Validated Model,” 7th Workshop on Modeling and Simulation of Cyber-Physical Energy Systems, 15 April 2019, Montreal, Canada.

S. Dorado Rojas, **M. Navarro Catalan**, M. de Castro Fernandes and L. Vanfretti, “Performance Benchmark of Modelica Time-Domain Power System Automated Simulation using Python” 2nd American Modelica Conference, 23-25 March 2019, Boulder, Colorado.

SKILLS

Technical Skills: MS Office, Windows, Linux, Data Visualization, Data Analysis, PSS/E.

Programming Languages: C, C++, MatLab, Octave, Modelica, Python, SQL, Latex, Git, Markdown.

Languages: Fluent in English, Spanish, and French, basic knowledge of Mandarin Chinese.

GitHub Profile: <https://github.com/ManuelNvro>