

# Manuel Navarro Catalán, M.Sc.

## EDUCATION

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

## EXPERIENCE

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**Operations Analysis Intern** - *Electric Reliability Council of Texas (ERCOT), Austin, TX* 05/20-Present

- 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** - *Rensselaer Polytechnic Institute, Troy, NY* 08/18-Present

- 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** - *Pan American Energy, Buenos Aires, Argentina*

06/18-08/18

- 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** – *KFW Engineers and Surveying, San Antonio, TX*

07/17-08/17

- 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** – *Perkins Design Inc, Beijing, China*

06/16-07/16

- 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** – *Equal Opportunity in Engineering, Austin, TX*

09/15-05/16

- 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

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**Undergraduate Research Assistant** – *KTH Royal Institute of Technology, Stockholm, Sweden*

04/17-05/18

- 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** – *Engineers Without Borders, Perú Project*

11/14-01/17

- 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

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**Teaching Assistant** – *Dominion Energy, Richmond VA*  
2019

May

- 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

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**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

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**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>