

Juan Pablo Noreña M

GRADUATE STUDENT, M.Sc. ELECTRICAL ENGINEERING, UNALMED

EDUCATION	<p>Universidad Nacional de Colombia Sede Medellín, Facultad de Minas, Depto. de Energía Eléctrica y Automática <i>Bachelor</i>, Electrical Engineering <i>First Term '15 - Second Term '19</i> GPA: 4.3/5 (Overall)</p>
	<p>Universidad Nacional de Colombia Sede Medellín, Facultad de Minas, Depto. de Energía Eléctrica y Automática <i>M.Sc.</i>, Electrical Engineering <i>First Term '20 - Second Term '21 (Expected)</i> Dissertation proposal: PMU Digital Twins for Application in Power System Control Centers Supervisor: Prof. Ernesto Pérez González</p>
EMPLOYMENT EXPERIENCE	<p>Junior Researcher - Laboratory of Real-Time Systems for the research groups <i>Grupo de Automática de la Universidad Nacional de Colombia (GAUNAL)</i> and <i>Programa de Investigación Sobre Adquisición y Análisis de Señales (PAAS-UN)</i> working on R&D projects. <i>Dedication:</i> 48 hours weekly <i>January '18 - Present</i></p>
RESEARCH INTERESTS	<p>Real-time Cosimulation, Real-time Control and Supervision of Large Dynamic Systems, Applied Mathematics for Dynamic Systems.</p>
RESEARCH & DEVELOPMENT	<p>UNPowerEstimator: Library for Power System State Estimation <i>Supervisor: Prof. Jairo Espinosa Oviedo</i> <i>February '18 - January '19</i></p> <ul style="list-style-type: none"> - .NET Framework Class Library oriented to power system state estimation including CIM standard files processing and linear and non-linear state estimation algorithms. - Including GPA - Project Alpha adapters for the phasor data concentrator. - In association with the colombian national power system network operator XM the project was tested and validated on Sabanalarga substation with a view to escalate the project to the colombian national interconnected system. <p>eGridStorm: Storm Tracking for Minimization of Risk in Power System Operation Based on Real-Time Lighting Information <i>Supervisor: Prof. Ernesto Pérez González</i> <i>May '18 - February '19</i></p> <ul style="list-style-type: none"> - Development of a software with tools that allows to take real-time decisions minimizing the risk over a power system operation based on thunderstorm following, grouping and processing. - A web service using the Keraunos lighting information system to show a risk index calculation in real-time for transmission lines operation. - Funded by Colciencias. <p>Real-Time Cosimulation Laboratory for the Scientific Ecosystem “Energética 2030” <i>Supervisor: Prof. Ernesto Pérez González</i> <i>February '19 - Present</i></p> <ul style="list-style-type: none"> - Development and implementation of cosimulation laboratory as a service for the scientific ecosystem, that allows to perform real-time simulation of multi-domain systems including the penetration of distributed energy resources. - Also participate XM, Internexa and FEIN Aachen e.V. - Funded by Colciencias.

Intelligent Traffic Lights Programming Recommender Based on Real-Time Information

Supervisor: Prof. Jairo Espinosa Oviedo

July '19 - March '20

- Development of a software that combines AI and model based optimization, capable of finding the current traffic regime, based of patterns in the movility, and dynamically suggest the most convenient green times plan.
- In association with Secretaría de Movilidad de Medellín.

CONFERENCE PUBLICATIONS

J. Noreña et al., “Optimal Assignment of Resources for Distributed Computing in Real-Time Applications,” 2019 4th IEEE Colombian Conference on Automatic Control (CCAC).

J. Noreña et al., “A software-in-the-loop testbed platform implementation for new PMU-based wide area control strategies for future system operation,” 2020 48th CIGRE Paris Session.

J. Noreña et al., “Online risk assessment of power system transmission lines based on multi-variate analysis of lightning and weather data,” 2020 48th CIGRE Paris Session.

AWARDS & ACHIEVEMENTS

- Exempt from paying tuition the first 2 year of the undergrad. program (Best overall GPA by program).

COMPUTER SKILLS

Languages:

- C / C++ [6/10]
- C# / .NET Framework [7/10]
- Python [8/10]

Simulation tools:

- PowerFactory [4/10]
- OpenModelica [5/10]
- Matlab/Simulink [5/10]
- RT-LAB suite [6/10]
- DPsim [7/10]

Other tools:

- RTOS (Linux PREEMP_RT) [5/10]
- openHistorian2 [7/10]
- InfluxDB & Grafana [6/10]
- ELK Stack [4/10]
- DevOps (Git, Vagrant & Ansible) [7/10]
- VILLASnode Framework [7/10]

OTHER INFORMATION

Languages:

- Native Spanish.
 - Advanced English.
 - Basic French.
-