Juan Pablo Noreña M

GRADUATE STUDENT, M.SC. ELECTRICAL ENGINEERING, UNALMED

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EDUCATION

Universidad Nacional de Colombia Sede Medellín, Facultad de Minas, Depto. de Energía Eléctrica y Automática
Bachelor, Electrical Engineering   *First Term '15 - Second Term '19*
GPA: 4.3/5 (Overall)

Universidad Nacional de Colombia Sede Medellín, Facultad de Minas, Depto. de Energía Eléctrica y Automática
M.Sc., Electrical Engineering   *First Term '20 - Second Term '21 (Expected)*
Dissertation proposal: PMU Digital Twins for Application in Power System Control Centers
Supervisor: Prof. Ernesto Pérez González

EMPLOYMENT EXPERIENCE

Student Researcher and Contractor - Laboratory of Real-Time Systems for the research groups *Grupo de Automática de la Universidad Nacional de Colombia (GAUNAL)* and *Programa de Investigación Sobre Adquisición y Análisis de Señales (PAAS-UN)* working on R&D projects.
Dedication: 48 hours weekly   *January '18 - Present*

RESEARCH INTERESTS

Real-time Cosimulation, Real-time Control and Supervision of Large Dynamic Systems, Applied Mathematics for Dynamic Systems.

RESEARCH & DEVELOPMENT

UNPowerEstimator: Library for Power System State Estimation
Supervisor: Prof. Jairo Espinosa Oviedo   *February '18 - Junuary '19*

- .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.

eGridStorm: Storm Tracking for Minimization of Risk in Power System Operation Based on Real-Time Lighting Information
Supervisor: Prof. Ernesto Pérez González   *May '18 - February '19*

- 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.

Real-Time Cosimulation Laboratory for the Scientific Ecosystem "Energética 2030"
Supervisor: Prof. Ernesto Pérez González   *February '19 - Present*

- 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.