João Pedro Peters Barbosa

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BRIEF

Power Systems Electrical Engineer, obtaining bachelor's (2021) and master's (2023) degrees from the Federal University of Juiz de Fora (UFJF), Minas Gerais. He has programming experience in different programming languages and also modeling and simulation skills in software related to Electric Power Systems.

He served as a research student in different projects throughout the undergraduate course and, still as an undergraduate student, carried out an academic exchange semester at Temple University, Philadelphia. During his masters, he developed research in the area of voltage stability considering steady-state analysis of electrical power systems. Currently, he is a doctoral student in Electrical Engineering at the School of Engineering of São Carlos-USP (EESC-USP), where he develops research in the area of stability of electrical power systems.

Adventurous in programming, following software engineering best practices to improve computational skills. He doesn't mind making mistakes and always seeks to promote a safe work environment, valuing collaboration between peers.

SOCIAL

LinkedIn: https://www.linkedin.com/in/joaoppeters/
GitHub: https://www.github.com/joaoppeters
GitHub.io: https://joaoppeters.github.io/

EXPERIENCES

Jun 2023 – now	**Graduate Research Assistant @ EESC-USP**	São Carlos, SP

May 2021 – May 2023	**Graduate Research Assistant @ UFJF**	Juiz de Fora, MG

• Research development on electrical equipment modeling and simulation, considering the Smooth Power Flow formulation and its impacts on the voltage stability of electrical power systems. Article presented, published, and awarded at SBSE2022.

Mar 2020 – Apr 2021	**Undergraduate Research Assistant @ UFJF**	Juiz de Fora, MG

• Research development in the area of Distributed Energy Resources (DERs) to provide new services to the electricity grid.
• Research project partnership between UFJF and PETROBRAS.

Aug 2018 – Jul 2019	**Undergraduate Research Assistant @ UFJF**	Juiz de Fora, MG

• Research development in the area of current control in static buck-boost converters connected to the network, applying PID controlling techniques on a laboratory prototype.

Aug 2017 – Jul 2018	**Undergraduate Research Assistant @ UFJF**	Juiz de Fora, MG

• Research development in the area of current control in static converters connected to photovoltaic panel systems. Article presented, published and awarded at COBEP2017.

Aug 2016 – Jul 2017   **Undergraduate Research Assistant @ UFJF**   Juiz de Fora, MG

• Research development in the application of sorting methods for MMC modules.

EDUCATION

May 2021 – now   **Doctorate Graduate Degree - Power Systems @ EESC-USP**   São Carlos, SP

GPA: xx/4.0

May 2021 – May 2023   **Master Graduate Degree – Energy Systems @ UFJF**   Juiz de Fora, MG

GPA: 3.75/4.0

Aug 2015 – Apr 2021   **Power Systems Electrical Engineering Undergraduate Degree @ UFJF**   Juiz de Fora, MG

IRA: 78.47/100

Aug 2019 – Dez 2019   **UFJF Academic Exchange Semester @ Temple University**   Philadelphia, PA

GPA: 3.74/4.0

Jul 2018 – Dez 2018   **Technical Qualification @ SENAI**   Juiz de Fora, MG

SKILLS

Leadership and Teamwork	**Microsoft Office, Latex**
Organization and Efficiency	**Python, MatLab, C, C++**
Flexibility and Adaptability	**ANAREDE, ANAFAS, ANTEM**
Analytical skills	**OpenDSS, PSCAD, PSIM, OpenModelica**
Problem-solving	**Git, GitHub**

LANGUAGES

Portuguese	Native	**French**	Basic
English	Fluent	**German**	Basic
		Spanish	Basic

CERTIFICATES

2023	**Scientific Computing with Python – freeCodeCamp**
2021	**Graduate Record Examinations (GRE) – Educational Testing Services (ETS)**
2021	**TOEFL iBT – Educational Testing Services (ETS)**
2020	**Data Analysis with Python – freeCodeCamp**
2020	**Introduction to Git and GitHub – Coursera**
2019	**Modeling and Simulation of Distribution Systems Using OpenDSS – UFJF**
2016	**Certificate of Advanced English (CAE) – University of Cambridge**
2014	**First Certificate of English (FCE) – University of Cambridge**

REWARDS

2022	**Best Article Master's Category**	IX Simpósio Brasileiro de Sistemas Elétricos (SBSE)
	Avaliação e aprimoramento de metodologias para representação de CER no problema de fluxo de potência	
2017	**Best Article Undergraduate's Category**	XIV Congresso Brasileiro de Eletrônica de Potência (COBEP)
	Design and implementation of a predictive current controller applied to regulate a battery bank's power flow connected to a DC microgrid	
2016	**Best Article Undergraduate's Category**	XXII Seminário de Iniciação Científica da UFJF (SEMIC/UFJF)
	Síntese de conversores MMC para aplicação em sistemas de geração fotovoltaicos e sistemas de transmissão em corrente contínua	

SCIENTIFIC PUBLICATIONS

2026	**Curtailment Mitigation in Wind Power Integration via Coordinated Reactive Power Control with FACTS and Wind Farms**	IEEE PES IM

Ano	Título	Publicação
2025	**Análise Probabilística da Margem de Segurança na Integração de Hidrogênio Verde em Sistemas com Geração Intermitente**	SNPTEE
2025	**Estimação de Parâmetros de Modelos Dinâmicos Genéricos para Representação de Parques Eólicos do Subsistema Nordeste**	SNPTEE
2025	**Curtailment Mitigation Via Coordinated Control of Reactive Power Support among Wind Farms**	IEEE INDUSCON
2025	**Benchmark System for Frequency Stability Studies Based on the Northeastern Power Subsystem of Brazil**	IEEE INDUSCON
2025	**Definition of contingency criticality based on violation probability of voltage security margin considering correlated uncertainties in system loads and wind power generation**	Journal of Modern Power Systems and Clean Energy (JMPCE)
2025	**Voltage stability assessment through modal analysis using a smooth formulation of the power flow problem based on sigmoid functions**	IEEE Access Journal
2024	**New methodologies for SVC modeling in the power flow problem based on sigmoid functions**	Electrical Engineering Journal
2023	**Assessment of methodologies for modeling SVCs in the power flow problem**	IX Simpósio Brasileiro de Sistemas Elétricos (SBSE)
2023	**New methodologies for SVC modeling in the power flow problem based on sigmoid functions**	Electrical Engineering Journal
2022	**Avaliação e aprimoramento de metodologias para representação de CER no problema de fluxo de potência**	IX Simpósio Brasileiro de Sistemas Elétricos (SBSE)
2020	**Síntese de conversores MMC para aplicação em sistemas de geração fotovoltaicos e sistemas de transmissão em**	PRINCIPIA, v.19

	corrente contínua	
2017	**Design and implementation of a predictive current controller applied to regulate a battery bank's power flow connected to a DC microgrid**	XIV Congresso Brasileiro de Eletrônica de Potência (COBEP)

PROJECTS

PyANA: development of Python code to support students and researchers in studies of steady state analysis of electrical power systems, based on reading data from ANAREDE files.

INTERESTS

Electrical Power Systems: static and transient analysis, voltage stability, mathematical modeling of electrical equipment, operation, optimization, planning, distributed energy resources

Computational Programming: online learning, reinforcement learning, optimization techniques, software engineering best practices, open-source project development, machine learning, artificial intelligence

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OTHER RELEVANT INFORMATION

- Member of the IEEE Power and Energy Society (IEEE PES) since 2023
- Member of the Sociedade Brasileira de Automática (SBA) since 2022
- Member of the Conselho Regional de Engenharia e Agronomia de Minas Gerais (CREA-MG) since 2021
- Member of the Institute of Electrical and Electronics Engineers (IEEE) since 2020