Augusto Delavald Marques

Graduate Research Assistant
University of Central Florida
Orlando, FL

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EDUCATION

UCF – University of Central Florida
Ph.D. in Mechanical Engineering
Aug 2022 – expected 2026
Orlando, Fl

UFRGS – Universidade Federal do Rio Grande do Sul
M.Sc. in Mechanical Engineering
Mar 2020 – Mar 2022
Porto Alegre, Brazil

UFRGS – Universidade Federal do Rio Grande do Sul
B.Sc. in Mechanical Engineering
Jan 2014 – Jan 2020
Porto Alegre, Brazil

IMT Mines Albi – École des Mines d'Albi-Carmaux
Master 2 in Eco Activités et Énergies
Sep 2017 – Aug 2018
Albi, France

UFRGS – Universidade Federal do Rio Grande do Sul
B.Sc. in Computer Engineering (Not completed)
Aug 2012 – Jan 2014
Porto Alegre, Brazil

PROFESSIONAL EXPERIENCE

Probabilistic Mechanics Laboratory (PML),
Graduate Research Assistant
Aug 2022 – now
Orlando, Fl

- Currently working on physics-informed neural networks.

Thermal and Aerodynamic Testing Laboratory (Laboratório de Ensaios Térmicos e Aerodinâmicos - LETA),
Graduate Research Assistant
Mar 2020 – Mar 2022
Porto Alegre, Brazil

- Developed a steam generator model by using a multi-fidelity model.
- Published research outcomes in top journals and conferences.

Thermal and Aerodynamic Testing Laboratory (Laboratório de Ensaios Térmicos e Aerodinâmicos - LETA),
Undergraduate Research Assistant
Sep 2018 – Mar 2020
Porto Alegre, Brazil

- Published research outcomes in top journals and conferences.

Key project:
- *Smart Pecém:* Conceptualized a tool for improving the Steam Generator's performance at the Pecém Thermoelectric Plant located in Ceará, Brazil.

Albioma SA,
Project Engineering Intern

Mar 2018 – Aug 2018
Puteaux, France

Key project:
- *Energy transition:* modeled and simulated thermoelectric plants for adapting coal boilers to wood pellets.

Thermal and Aerodynamic Testing Laboratory (Laboratório de Ensaios Térmicos e Aerodinâmicos - LETA),
Undegraduate Research Assistant

Mar 2016 – Aug 2017
Porto Alegre, Brazil

- Published research outcomes in conferences.

Key project:
- *Coal and solid waste cofiring:* Implemented a desulfurization model. Process simulation using EES (Engineering Equation Solver) software.

RELEVANT SKILLS

- Fluent in Portuguese, French, and English
- Basic understanding of Spanish
- Programming languages: Python, C, Fortran
- Software: EES, Ebsilon, Thermoflex, SolidWorks

PUBLICATIONS

- Vieira, L. W., Marques, A. D., Duarte, J., Zanardo, R. P., Schneider, P. S., Viana, F. A. C., ... & Siluk, J. C. M. (2022). Operational guide to stabilize, standardize and increase power plant efficiency. *Applied Energy*, *315*, 118973.
- Delavald Marques, Augusto; Vieira, L. W., Duarte J., Hunt J. and Schneider P. S.. Steam generator efficiency simulation with a multi-fidelity approach. In: 26 International Congress of Mechanical Engineering, 2021. Proceedings Of The 26th International Congress of Mechanical Engineering, 2021.
- Duarte, J., Vieira, L. W., Marques, A. D., Schneider, P. S., Pumi, G., & Prass, T. S. (2021). Increasing power plant efficiency with clustering methods and Variable Importance Index assessment. *Energy and AI*, *5*, 100084.
- Hunt, J. D., Zakeri, B., de Barros, A. G., Leal Filho, W., Marques, A. D., Barbosa, P. S. F., ... & Farenzena, M. (2021). Buoyancy Energy Storage Technology: An energy storage solution for islands, coastal regions, offshore wind power, and hydrogen compression. *Journal of Energy Storage*, *40*, 102746.
- Vieira, L. W., Marques, A. D., Schneider, P. S., da Silva Neto, A. J., Viana, F. A. C., Abdel-jawad, M., ... & Siluk, J. C. M. (2021). Methodology for ranking controllable parameters to enhance the operation of a steam generator with a combined Artificial Neural Network and Design of Experiments approach. *Energy and AI*, *3*, 100040.
- Vieira, L. W., Marques, A. D., Duarte, J., Zanardo, R. P., Schneider, P. S., Siluk, J. C. M., & Oliveira, G. L. B. D. (2020). A surrogate modeling approach to standardize a steam generator operation: a case study of the PECEM power plant. In *Iberian Latin-American Congress on Computational*

Methods in Engineering (41.: 2020: On-line). Proceedings [recurso eletrônico]. São Paulo: ABMEC, 2020.

- Duarte, J., Vieira, L. W., Marques, A. D., Schneider, P. S., & Oliveira, G. L. B. D. (2020). Data-driven identification of operating patterns in a thermal power plant by clustering methods. In *Iberian Latin-American Congress on Computational Methods in Engineering (41.: 2020: On-line). Proceedings [recurso eletrônico]. São Paulo: ABMEC, 2020.*

- Duarte, J.; Vieira, Lara Werncke ; Delavald Marques, Augusto ; Schneider, Paulo Smith ; De Oliveira, Guilherme Lacerda . Big Data Clustering Model for The Identification of a Thermal Power Plant Operating Patterns. In: 18th Brazilian Congress of Thermal Sciences and Engineering - Encit 2020, 2020. 18th Brazilian Congress Of Thermal Sciences And Engineering - Encit 2020, 2020.

- Vieira, L. W., Schneider, P. S., Marques, A. D., & Andriotty, T. H. (2020). Plugin energy penalty model and gypsum production for flue gas desulfurization prediction. *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, *42*(4), 1-11.

- Werncke Vieira, Lara; Delavald Marques, Augusto; Duarte, J.; Zanardo, R. P.; Schneider, Paulo Smith; Siluk, J. C. M.; De Oliveira, Guilherme Lacerda. Design Of Experiments Applied on A 360 Mw Power Plant in Operation: Surrogate Modeling Approach. In: 18th Brazilian Congress of Thermal Sciences and Engineering - Encit 2020, 2020. 18th Brazilian Congress of Thermal Sciences and Engineering - ENCIT 2020, 2020.

- Weber, N. A. B.; Delavald Marques, Augusto; Smith Schneider, Paulo; Hunt, J.. Response Surface Methodology for Process Parameter Optimization of a Coal Pulverizer due to High Moisture Content: Study Case of Pecem. In: 18th Brazilian Congress of Thermal Sciences and Engineering - Encit 2020, 2020. 18th Brazilian Congress Of Thermal Sciences And Engineering - Encit 2020, 2020.

- Delavald Marques, Augusto; Mével, Caroline; Smith Schneider, Paulo; Duarte, Jéssica; Rossi, Guilherme Barth. A First Approach to Modelling a Steam Generator Based on Heat Exchangers Network Method. In: 25th International Congress of Mechanical Engineering, 2019. Proceedings Of The 25th International Congress of Mechanical Engineering, 2019.

- Werncke Vieira, Lara; Haubert Andriotty, Tiago; Smith Schneider, Paulo; Delavald Marques, Augusto; Osowski Tomazi, Jakeline; De Oliveira, Guilherme Lacerda. Energy Penalty Model for Flue Gas Desulfurization Systems. In: Brazilian Congress of Thermal Sciences and Engineering, 2018, Águas De Lindóia. 17th Brazilian Congress of Thermal Sciences and Engineering, 2018.

- Tomazi, Jakeline Osowski, Augusto Delavald Marques, And Paulo Smith Schneider. "Proposal of a Computational Model for A Coal Flue Gas Desulfurizer." V Brazilian Congress Of Mineral Coal. *Proceedings, 2017*