Augusto Delavald Marques

Graduate Research Assistant
University of Central Florida
Orlando, FL

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EDUCATION

UCF – University of Central Florida — Aug 2022 – expected 2027
Ph.D. in Mechanical Engineering, GPA 3.96 — Orlando, FL

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

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

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

PROFESSIONAL EXPERIENCE

Center for Advanced Turbomachinery and Energy Research (CATER), — May 2025 – Present
Graduate Research Assistant — Orlando, FL

- Working on cycle analysis using molten salt for steam generation.
- Assembly and operation of a molten salt rig coupled to a supercritical CO2 cycle.

Computational Biomechanics Lab (CBL), — Feb 2023 – May 2025
Graduate Research Assistant — Orlando, FL

- Patient-specific heart models using MR images to compute strains.
- Applied machine learning for automatic segmentation.

Probabilistic Mechanics Laboratory (PML), — Aug 2022 – Feb 2023
Graduate Research Assistant — Orlando, FL

- Developed physics-informed neural networks for solving the Navier-Stokes equations in 2D flow in an AWS-funded project.

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 using a multi-fidelity approach.

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

Sep 2018 – Mar 2020
Porto Alegre, Brazil

- *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

- *Energy transition:* modeled and simulated thermoelectric power 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

- *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.

PUBLICATIONS

- Marques, Augusto Delavald, et al. "Steam generator efficiency optimization under uncertainty through multi-fidelity modeling." ***Journal of Computational Science*** 79 (2024): 102307.
- Weber, N.D.A.B., Hunt, J.D., Zakeri, B., Schneider, P.S., Parente, F.S.A., Marques, A.D. and Junior, A.O.P., 2024. Seasonal pumped hydropower storage role in responding to climate change impacts on the Brazilian electrical sector. ***Journal of Energy Storage***, *87*, p.111249.
- 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.
- 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., 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.