



**UNIVERSIDADE FEDERAL DE UBERLÂNDIA
FACULDADE DE ENGENHARIA MECÂNICA
GRADUAÇÃO EM ENGENHARIA AERONÁUTICA**

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Uberlândia, MG, Brazil

31 October 2025

To whom it may concern,

I am an associate Professor at the School of Mechanical Engineering of Federal University of Uberlândia, in Brazil. In 2019, I have met M. Laura Pereira de Castro as my student at the Machinery Design course. She was very hard-working and completed this course among the five best students.

In 2020 she was selected to become a member of the EPTA (Propulsion and Aerospace Technology Team), a team of students, coordinated by me, that is focused in designing, fabrication and testing mini rockets. During her time at EPTA, Ms. Castro demonstrated outstanding competence in computational modeling, data analysis, and machine learning. She designed and implemented advanced Python-based workflows for the treatment of large experimental and numerical datasets, integrating libraries such as NumPy, pandas, TensorFlow, and scikit-learn to allow aerodynamics coefficient prediction based on a trained neural network. This allowed EPTA to implement this model and upgrade our flight simulator. This research culminated in a co-authored scientific article published in a peer-reviewed Congress, the 25th International Mechanical Engineering Congress (COBEM 2019).

In addition to her research activities, Ms. Castro took the initiative to design and teach a fundraising Python short course for undergraduate students, covering a wide range of introductory topics. The course received highly positive feedback and helped foster a culture of computational literacy within our department. Her pedagogical clarity and enthusiasm for knowledge sharing were evident, as was her ability to adapt complex technical content to diverse audiences. Throughout her time at EPTA, Ms. Castro consistently stood out for her intellectual curiosity, programming expertise, and capacity to bridge theory and practice. Her contributions combined rigor of research, technical background in engineering and advanced programming skills.

Therefore, I strongly recommend Ms. Castro for both academic and industrial environments.

Sincerely,

Dr. Alexandre Zuquete Guarato

Associate Professor
School of Mechanical Engineering
Federal University of Uberlândia



FEDERAL UNIVERSITY OF UBERLÂNDIA
Faculty of Mechanical Engineering

Uberlândia, October 15, 2020.

DECLARATION

I declare for all due purposes that the student **Laura Pereira de Castro**, CPF [Brazilian tax identification number],
[REDACTED] registration number **11721EAR015**, was a member of the Team of
Propulsion and Aerospace Technology (EPTA) from November 14, 2018 until
October 6, 2020, with a commitment of 20 hours per week, totaling 1980
hours.

Yours sincerely,

A handwritten signature in blue ink that reads "Alexandre Z Guarato".

Prof. Dr. Alexandre Zuquete Guarato,
Coordinator of the EPTA team,
Process No. 23117.005748/2018-24, SEI No. 0383563