UNICAMP

AERO RENEWABLE
Laboratory of Aerodynamics and Renewable Energy Applications

Position title: Master's student position in Aerodynamics and Machine Learning

The Research: The Aero Renewable Laboratory at the University of Campinas (website: https://sites.google.com/unicamp.br/aero-renewable-lab) has an open position for a Master's student in the areas of Computational Fluid Dynamics, Aerodynamics, and Machine Learning. In this project, the student will work on optimizing the performance of oscillating foil-arrays for energy harvesting through a combination of high-fidelity simulations and machine learning techniques for the development of reduced-order models.

The optimization of foil-arrays is a challenging task due to the wide range of parameters involved in the system, such as the foil kinematics (flapping frequency, heave, and pitch amplitudes), inter-foil phase, and spacing between foils. Wake-foil interactions have been shown to significantly impact the performance of trailing foils and, consequently, the array performance. The areas of interest in this project are broad, ranging from the decomposition of gust-foil interactions to the development of optimization algorithms.

Profile and Job Description: We are looking for highly motivated candidates with an interest in computational fluid dynamics, aerodynamics, and machine learning. The project will have a duration of 2 years with the possibility of a 6-month exchange abroad for collaboration with other research groups. The candidate will work in-person in a research group in the School of Mechanical Engineering at the University of Campinas. The position is open to Brazilian and foreign candidates. The selected candidate will receive a monthly stipend of R$ 3.270,00 from FAPESP and is expected to start in July/August 2026.

Interested candidates should send a CV to Prof. Bernardo Ribeiro at beluiz@unicamp.br