Buenos Aires
Argentina

December 15, 2023

Dear members of the selection committe,

I am writing to express my strong interest in the PhD position in meteorology with a focus on high-fidelity offshore wind farm modeling at the Department of Earth Sciences. With a background in CFD simulation, particularly focused on wind power, and nearing completion of my Master's Degree in Mechanical Engineering at the University of Buenos Aires, I am confident that my profile and experience are a great match for your PhD position.

At the moment, I am working on my Master's thesis titled 'Parametric analysis of disk actuators models to simulate wind farms,' directed by Alejandro Otero and Dimas Barile, from the Renewable Energies Research Group at CSC (Center of Computational Simulations) in Buenos Aires. I have attached a recommendation letter to my application. Through its development, I have acquired and applied my skills in OpenFOAM, as well as in Python scripting to post-process the output data from the CFD simulation. Additionally, in order to simulate disk actuators that the research group hadn't developed, I have learned C++ programming to be able to understand and modify parts of OpenFOAM's code. In the near future, I will be developing disk actuators to compare them in a multitude of aspects.

At the same time, at Stämm Biotech, an Argentine biotechnology startup, I am carrying out the role of 'Numeric Simulations Specialist'. This role has allowed me in a short time to further enhance my OpenFOAM skills, particularly with its meshing tool snappyHexMesh, extending their application in a different setting than wind power simulation. Furthermore, I have gained knowledge and practice in Object-Oriented Programming, both in further developing in-house simulation programs and applying them in my own post-processing scripts. This role has provided valuable interdisciplinary experiences, learning from people with backgrounds as varied as Biology, Chemistry, and Software Engineering, as well as teaching them from my own expertise in my field of study.

My Master's thesis is due to be finished by the end of July 2024, so I wouldn't be able to start by the date specified in the PhD position announcement. Despite this, due to the special interest I have in the position and in confidence that my profile is suited for the position, I kindly request the start date to be postponed until August 2024.

My interests are aligned with continuing learning and developing my CFD simulation and development skills. In particular, wind power simulation is a field of special interest, which I have been lucky enough to get to work in through my Master's thesis. I hope my profile is fit for the position and to hear from you in the near future.

Sincerely,

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