



UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Escola Superior d'Enginyeries Industrial,
Aeroespacial i Audiovisual de Terrassa

Discovering new scaling laws in turbulent boundary layers via multi-expression programming

Document:

Budget

Author:

Irene Simó

Director /Co-director:

Arnau Miró

Bernat Font

Degree:

Bachelor in Aerospace Engineering

Examination session:

Spring 2022

BACHELOR FINAL THESIS

This document contains the budget for the developed dissertation. The project budget has been broken down into the production costs. It should be noted that this work has been developed as a unitary and particular project focused on the analysis of dimensional groups and mathematical expression relevant to the problem of study, then only the hours of work and the approximate monthly infrastructure costs for the computational operations during the time that the project has been carried out are accounted for.

1. For the hours of work, the total number established by Universitat Politècnica de Catalunya for a final bachelor dissertation and the minimum price per hour this institution proposes for internships have been used. The expenses associated to formal contract establishments are not accounted for as the budget is merely orientative and the modality of contract is not studied.
2. The price of electricity and others is also quite orientative, as the price has been fluctuating notably during the time this study has been carried out. It is estimated that up to an 90% of the work hours have been carried out using a computer, whether this is writing code, in virtual meetings, researching, creating figures or writing. Laptops consume between 15 and 60 kW with a price of approximately 0.0031 €/h.
3. Given the various assumptions made, and in order to present a flexible budget, a contingency of 10% of the estimated total price is added to the total.

Item	Description	Price per unit	Total units	Total price
1	Hours of work	8 [€/h]	360 [h]	2880 [€]
2	Electricity	0.0031 [€/kWh]	50 · 324 [kWh]	5,02 [€]
3	Contingency (10%)			288,5 [€]
Total				3173,52 [€]