europass

João Eduardo Mota Ferreira

Date of birth: 28/09/1999 | **Nationality:** Portuguese | **Phone number:** (+33) 0768786917 (Mobile) | **Phone number:** (+351) 910817998 (Home) | **Email address:** 99jemf@gmail.com | **Website:** linkedin.com/in/joaomotafer

ABOUT ME

Focused, hard-working and competitive, throughout several years I have balanced the lives of a mechanical engineering student and an athlete, back in Aveiro, Portugal. Eager to be part of the progress and change of the automotive sector towards a more sustainable world, I spent the last year of my Master's studies in an Erasmus+ experience in Modena, Italy, partaking in automotive engineering classes and ultimately developing a dissertation comprising literature review and 3D-CFD analysis related to hydrogen internal combustion engines. Afterwards, due to a continuous learning desire and enthusiasm for the topic, I started a Research Engineering position at the PRISME laboratory in Orléans, France, with main focus on research and development for a hydrogen internal combustion engine demonstrator. My role consisted on performing fluid dynamics numerical simulations to study in-cylinder flow and hydrogen-air mixing, allowing for further geometry optimizations. Despite all the learnings, deviations between numerical and experimental results could still be identified, providing motivation towards developing improvements to such modelling strategies. This background places myself as a suitable candidate for the Ph.D. to which I am applying for, the subject consisting precisely of further developing such modelling strategy. The perspective of positively contributing for the development of future hydrogen engines in particular, and towards a more sustainable world in general, constitutes a great source of motivation for me.
Having lived in Portugal, Italy and France, I hold a certain ease of adaptation to new surroundings, promoted by my exploratory nature and a passion for learning languages.

WORK EXPERIENCE

PRISME (UNIVERSITY OF ORLÉANS) & IFPEN (RUEIL-MALMAISON) – PARIS, FRANCE

PHD STUDENT – 01/10/2024 – CURRENT

Development of LES approach for direct injection H_2 engines with moderate computational cost

PRISME (UNIVERSITY OF ORLÉANS) – ORLÉANS, FRANCE

RESEARCH ENGINEER – 01/09/2022 – 30/09/2024

- Development of methodologies to carry out numerical simulations of hydrogen jets and hydrogen internal combustion engine cycles, by means of the solver CONVERGE, as well as experimental comparison and validation. Post-treatment, analysis and presentation of results make use of Tecplot, Matlab and Microsoft Office packages.
- Studies within the Hyceval project for development of a hydrogen internal combustion engine demonstrator include: numerical exploration of alternative piston geometries and hydrogen injection targetting, for optimized hydrogen-air mixing.
- Scientific production.

ATENA - AUTOMAÇÃO INDUSTRIAL, LDA – PALHAÇA, PORTUGAL

SUMMER INTERNSHIP – 06/2020 – 09/2020

A hands-on internship on electrical and mechanical assembling, as well as, conventional and CNC lathing and milling. The aims were developing engineering comprehension on the assembling and production sides to enhance mechanical design knowledge.

MANJAR DO MARQUÊS – POMBAL, PORTUGAL

TABLE WAITER – 2015 – 2019

A Summer job during several years. Being one of the most famous restaurants of my home region, dealing with a daily enormous amount of clients resulted in developing communication and fast thinking skills, besides team working and working under pressure.

EDUCATION AND TRAINING

08/2021 – CURRENT Modena, Italy

ERASMUS+, ADVANCED AUTOMOTIVE ENGINEERING Università degli studi di Modena e Reggio Emilia

Study subjects:

- Design and Modelling of High Performance Combustion Systems
- Design Guidelines for Chassis Components
- Hydrogen and Fuel Cells in Electric Transportation
- Vehicle Conceptual Design

Master Thesis:

- Extensive literature review on hydrogen internal combustion engines
- 3D-CFD study converting a high performance gasoline spark ignition engine case for hydrogen operation, at different operating conditions

Address Dipartimento di Ingegneria "Enzo Ferrari", Via Pietro Vivarelli, 10/int. 1, 41125, Modena, Italy |

Website https://www.unimore.it/

08/2017 – 2022 Aveiro, Portugal

MECHANICAL ENGINEERING (INTEGRATED MASTERS) Universidade de Aveiro

Main fields of study:

- Materials and Manufacturing Processes
- Mechanics of Fluids, Solids and Structures
- Energy and Thermodynamics
- Automation, Computer Vision and Control Systems
- Technical Drawing and CAD
- Computational Mechanics and CAE
- Mechanical Systems and Project
- Product Development

Extracurricular activities:

- Engenius UA - Formula Student Team:
  - Design of oil and water catch cans
  - Production of suspension links parts in a lathe
  - Design and simulation of air intake restrictor and plenum, afterwards 3D-printed
  - Redesign of differential housing
- Automec (automation team):
  - Traffic signs detection programming in Python

Extra courses: Logistics, German-III

Address Departamento de Engenharia Mecânica, Campus Universitário de Santiago, 3810-193, Aveiro, Portugal |

Website https://www.ua.pt/

LANGUAGE SKILLS

Mother tongue(s): **PORTUGUESE**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C1	C2
FRENCH	B2	B1	A2	A2	A2
ITALIAN	B1	B1	A1	A2	A1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SKILLS

Technical Software

CONVERGE | Mathworks MATLAB/SIMULINK | Tecplot | DS SolidWorks | Siemens Star CCM+ | DS Simulia Abaqus CAE | MSC Marc Mentat

Office

Microsoft Excel | Microsoft Powerpoint | Microsoft Word | LaTeX

Programming

Python | Matlab/Simulik | Basic knowledge of C/C++

DRIVING LICENCE

Driving Licence: B

HOBBIES AND INTERESTS

Athletics

From 2009 to 2021, I have been a national level middle-distance runner, with the main focus on 800m races. I have participated in several 1st and 2nd divisions national championships, achieving podiums in 4x400m relay events. Since such activity was performed throughout my study years at university, a fine scheduling balance was required in order to succeed in both endeavours.

COMMUNICATION AND INTERPERSONAL SKILLS

Effective presentation skills

Experience in presenting my work at international conferences.