Sílvio Cândido

Curriculum Vitae

Ph.D. Candidate in Mechanical Engineering
University of Beira Interior
Covilhã, Portugal

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Webpage @ github ✧
silviomrcandido ✧

EDUCATION

2019/– **Ph.D. in Mechanical Engineering**, University of Beira Interior, Portugal
Thesis: Atomization of Electrohydrodynamic Jets - modulation, performance and applications.

2017/19 **M.Sc. in Electromechanical Engineering**, University of Beira Interior, Portugal
Dissertation: Numerical studies about multiphase uniformity of the flow inside mixing chambers using CFD – Analysis of the chamber of the CLOUD experience at CERN.

2014/17 **B.Sc. in Electromechanical Engineering**, University of Beira Interior, Portugal

EXPERIENCE

2022/– **Vice-President Fiscal Council**, Happy Wish Junior Initiative (HW), Portugal
Supervising the financial management of the HW Junior Initiative and performing a report about financial activities.

2021/– **Finance Department Associate**, Happy Wish Junior Initiative (HW), Portugal
Support the financial management of the HW Junior Initiative.

2020/– **Project Researcher**, University of Beira Interior, Portugal
Individual research grant for Ph.D., from the Portuguese Foundation for Science and Technology.
Grant no 2020.04517.BD

2023 **Doctoral Research Internship** under ERASMUS+, Universitatea de Vest din Timisoara Facultatea de Fizica, Romania
Short-term doctoral mobility scholarship where develop work in Lattice Boltzmann Methods for Fluid dynamics and also GPU computations for parallel acceleration of complex calculations.

2019/20 **Project Researcher**, University of Beira Interior, Portugal
Research in complex multi-physics flow, more specifically in electro-hydrodynamic flows with significant tension surfaces.
Project IndTech 4.0 – POCI-01-0247-FEDER-026653

2017 **Researcher trainee**, University of Beira Interior, Portugal

Computational modulation of a disc pump, type Tesla. Utilization of the tools of Solidworks Flow Simulation for calculate the characteristics of the 3D flow in the disc pump.

CERTIFICATIONS

04/2023 **Lean Six Sigma Yellow Belt**
The Lean Six Sigma Company Portugal.

07/2018 **Certified SolidWorks Associate - CSWA**
Certification from the Dassault Systèmes for Mechanical Design in SolidWorks.

TARGET SKILLS

Programming & Software

Coding	Python, C++, MATLAB, R, and LaTeX writing.
Modelling	OpenFOAM (C++), Ansys Fluent, SolidWorks
Data	PowerBI, SQL
Web	Git, HTML, CSS, Jekyll

Languages

Portuguese: Native English: C1 French: A2

COMPEMENTARY FORMATION

11/2022 **Power BI**
Instituto CRIAP, Portugal . . . . . 31h e-learning Course.

02/2022 Hands on **Machine Learning for Fluid Dynamics**
von Karman Institute for Fluid Dynamics, Belgium . . . . . 2 ECTS e-learning course.

02/2022 **Machine Learning, Maths & Ethics**: Hands-on (MOOC)
Instituto Superior Técnico, Portugal . . . . . E-learning course.

01/2022 **Energy sustainability**
DECO - Portuguese Association for Consumer Protection, Portugal . . . . . E-learning Course.

11/2021 Introduction to **SQL**
DataCamp . . . . . 4h E-learning Course.

05/2018 **Python Fundamentals & Data Science**
CFIUTE, University of Beira Interior, Portugal . . . . . Professional course of 28:00 hours.

12/2017 **Python Fundamentals for engineering applications**
CFIUTE, University of Beira Interior, Portugal . . . . . Professional course of 20:00 hours.

REVIEWER ACTIVITY

1 review Physics of Fluids | AIP ✧ (IF 4.980)

1 review International Journal of Energy Research | Hindawi ✧ (IF 4.672)

PUBLICATIONS

Journal Publications

2023b *Optimization of Painting Efficiency Applying Unique Techniques of High-voltage Conductors and Nitrotherm Spray: Developing Deep Learning Models Using Computational Fluid Dynamics Dataset*
Physics of Fluids, 2023. *Accepted*
M. Pendar, **S. Cândido**, J. Páscoa

2023a *Dynamics of three-dimensional electrohydrodynamic instabilities on Taylor cone jets using a numerical approach*
Physics of Fluids, 2023. https://doi.org/10.1063/5.0151109
S. Cândido, J. Páscoa

2022d *Development of a Background Oriented Schlieren (BOS) system for thermal characterization of plasma actuators induced flow*
Energies, 2022. https://doi.org/10.3390/en16010540
M. Moreira, F. Rodrigues, **S. Cândido** , J. Páscoa, G. Santos

Peer-Reviewed Conference Proceedings

2023d *Numerical Analysis of Interfacial Electrohydrodynamic Flow With Modal Decomposition*
International Mechanical Engineering Congress and Exposition, New Orleans, LA. October 29 — November 2, 2023.
Accepted
S. Cândido, M. Pendar, J. Páscoa

2023c *A Three-Dimensional Numerical Investigation of Taylor Cone Jet Instabilities Using the VOF Method*
International Mechanical Engineering Congress and Exposition, New Orleans, LA. October 29 — November 2, 2023.
Accepted
S. Cândido, J. Páscoa

2022c *Numerical Simulation of Axisymmetric Electrohydrodynamic Jets with Volume of Fluid Method*
ICEUBI - International Congress on Engineering, Covilhã, Portugal, November 28, 29 and 30, 2022. Paper no. 5527
S. Cândido, J. Páscoa

2022b *Development and validation of a background oriented Schlieren (BOS) system for air density and temperature quantification* ICEUBI - International Congress on Engineering, Covilhã, Portugal, November 28, 29 and 30, 2022.
M. Moreira, F. Rodrigues, J. Páscoa, **S. Cândido**

2022a *Numerical Analysis of Interfacial Electrohydrodynamic Flow With Modal Decomposition*
International Mechanical Engineering Congress and Exposition, Columbus, Ohio. October 30 — November 3, 2022.
https://doi.org/10.1115/IMECE2022-95100
S. Cândido, J. Páscoa

2021 *Numerical Simulation of Electrified Liquid Jets Using a Geometrical VoF Method*

International Mechanical Engineering Congress and Exposition, Virtual, Online. 2021.
https://doi.org/10.1115/imece2021-69817
S. Cândido, J. Páscoa

2020 *Numerical Analysis on the Stability Conditions of an Electrohydrodynamic Jet*
International Mechanical Engineering Congress and Exposition, Portland, Oregon. 2020.
https://doi.org/10.1115/imece2020-24101
S. Cândido, J. Páscoa

2019b *CFD Analysis of Flowstructures in a Mixing Chamber*
International Mechanical Engineering Congress and Exposition, Salt Lake City. November 11-14, 2019.
https://doi.org/10.1115/IMECE2019-11747
S. Cândido, J. Páscoa, A. Tomé, A. Amorim, and S. Weber

2019a *3D unsteady RANS computation of the mixing on a T-junction*
International Congress on Engineering, Covilhã, November 27-29, 2019.
https://doi.org/10.18502/keg.v5i6.7076
S. Cândido, J. Páscoa

2018 *Disc Turbine for Energy Harvesting*
International Mechanical Engineering Congress and Exposition, Pittsburgh, November 9-15, 2018.
https://doi.org/10.1115/IMECE2018-88143
J. C. Pascoa, **S. Candido**, F. Charrua-Santos, A. Espirito-Santo and M. Canario

COMMUNICATIONS

Invited Oral Presentation

2023 Numerical Modelling of the Atomization of Electrohydrodynamic Jets,
in *Seminars of the Research Center in Theoretical Physics.* West University of Timisoara (Timisoara, Roménia). Link ✧

Oral Conference Presentation

2022 Numerical Simulation of Axisymmetric Electrohydrodynamic Jets with Volume of Fluid Method,
in *ICEUBI - International Congress on Engineering, Covilhã, Portugal* November 28, 29 and 30, 2022.

2022 Numerical Analysis of Interfacial Electrohydrodynamic Flow With Modal Decomposition
in *IMECE - International Mechanical Engineering Congress and Exposition, Columbus, Ohio*
October 30 — November 3, 2022.

2021 Numerical Simulation of Electrified Liquid Jets Using a Geometrical VoF Method,
in *IMECE - International Mechanical Engineering Congress and Exposition, Virtual, Online,* 2021.

2020 Numerical Analysis on the Stability Conditions of an Electrohydrodynamic Jet,
in *IMECE - International Mechanical Engineering Congress and Exposition, Online* 2020.

2019 3D unsteady RANS computation of the mixing on a T-junction,
in *International Congress on Engineering, Covilhã* November 27-29, 2019.

Other Communication

03/2020 **Talk on Environmental Sustainability**, at UBI, Covilhã (Portugal)
Talk to students of the University of Beira Interior (UBI) on the importance of recycling and aspects of environmental sustainability. In collaboration with the Social Action Services of the University of Beira Interior. Date: 10/03/2020.

COMPEMENTARY FORMATION

2023 **Advanced Computing Project for Research and Innovation**
Project title: *High-Fidelity Simulation of Atomization of Taylor Cone Jets for Electrospinning and Electrospray Application* . . . . . A0 - Experimental Access (6 Months)

GRANTS, AWARDS

2021/23 **Ph.D. Grant** at Center for Mechanical and Aerospace Science and Technologies (C-MAST), Covilhã, Portugal
. . . . . FCT grant no. 2020.04517.BD

2020 **Merit Scholarship**, DGES, Portugal
Due to the classifications of the curricular units obtained in the academic year 2018/2019

PROFESSIONAL MEMBERSHIP

2022/– **Student Fellow** at ASME: The American Society of Mechanical Engineers
. . . . . Member Number: 000103654845

VOLUNTEER EXPERIENCE

Short-term activities

03/2023 **Tutor at STEAM junior academy**, at AJSTEAM UBI, Covilhã (Portugal)
Guide and support young people (high-school) in the closing activities of the UBI STEAM academy. For two days (30h), with organization and orientation activities.

11/2021 **Conference Session Co-Chair**, at Conference IMECE2021 , *ASME* (USA)
Session co-chair at the International Mechanical Engineering Congress and Exposition for the topic: Aerodynamics & Novel Aerospace Propulsion Systems

Long-term activities

2019/— **Volunteer** of Refood Covilhã, *Covilhã (Portugal)*
Volunteer activities during 2h every week. Being in charge of the facilities, receiving food donations from restaurants, and taking care of the appropriate food storage.

2016/17 **Treasurer** of Rotaract Club de Tavira, Tavira (Portugal)
Responsible for maintaining club financial records and dues payments for administrative service accounts.

2013/14 **Founding fellow** of Rotaract Club de Tavira, Tavira (Portugal)
Organizing and participating in fundraising events for support of local associations and international movements (e.g. End Polio Now).

2012/14 **Fellow Volunteer** of Interact Club de Tavira, Tavira (Portugal)
Organizing and participating in fundraising events to support local and international associations (e.g. End Polio Now). Participation in national conferences and leadership training events.

Updated June 2023