

Daniel Fernández Martínez

PHD STUDENT IN FLUID MECHANICS

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| GRADUATE STUDIES | University of Extremadura, Badajoz, Spain Master of Science, Simulation in Science and Engineering | Nov' 21 |
| | University of Extremadura, Badajoz, Spain Bachelor of Science, Industrial Electronics and Control Engineering, | Jul' 20 |

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| RESEARCH INTERESTS | Fluid Mechanics, CFD Simulation, Microfluidics Bioengineering, Data-Driven Models, Machine Learning, Optimization |
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| RESEARCH EXPERIENCE | Singular capillary flows of complex liquids: fundamentals and applications Supervisor: Dr. JM. Montanero & Dr. C. Ferrera | Feb' 24 - Present |
| | - Position: PhD Student, Fluid Mechanics Group, School of Industrial Engineering (UEX), Badajoz, Spain - Funding: FPI Spanish National Grant | |

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| | Fluid dynamics technology applied to diagnosis and personalized treatment of high-mortality cardiovascular pathologies Supervisor: Dr. Conrado Ferrera | Feb' 22 - Jan'24 |
| | - Position: Research Assistant, Fluid Mechanics Group, School of Industrial Engineering (UEX), Badajoz, Spain - Funding: Ayudas destinadas a la realización de proyectos de investigación en los centros públicos de I+D+I de la Comunidad Autónoma de Extremadura | |

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| | An AI-based recommendation system for “green routes” in sustainable urban environments Supervisor : Dr. Filippo Bistaffa | Oct' 21 - Nov' 21 |
| | - Position: JAE Intro Fellow, Group of Multiagent Systems, Artificial Intelligence Research Institute (IIIA-CSIC), Spanish National Research Council, Barcelona, Spain - Funding: JAE Intro ICU Fellowship, Spanish National Research Council | |

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| | Electrical load forecasting with advanced machine learning techniques Supervisor: Dr. M.A. Jaramillo Morán | Nov' 20 - Feb' 22 |
| | - Position: Research Support Engineer, Group of Industrial Applications of Artificial Intelligence, School of Industrial Engineering (UEX), Badajoz, Spain - Funding: Ayudas para el fomento de la contratación de personal de apoyo a la investigación en la Comunidad Autónoma de Extremadura | |

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| INDEXED JOURNAL PUBLICATIONS | Fernández-Martínez, D., González-Fernández, M.R., Nogales-Asensio, J.M., Ferrera, C. Impact of Minimal Lumen Segmentation Uncertainty on Patient-Specific Coronary Simulations: A Look at FFR _{CT} . <i>International Journal for Numerical Methods in Biomedical Engineering</i> . 2024;e3822. DOI: 10.1002/cnm.3822 | |
| | Fernández-Martínez, D., Jaramillo-Morán, M.A. Multi-Step Hourly Power Consumption Forecasting in a Healthcare Building with Recurrent Neural Networks and Empirical Mode Decomposition. <i>Sensors</i> 2022, 22, 3644. | |

DOI: [10.3390/s22103664](https://doi.org/10.3390/s22103664)

Jaramillo-Morán, M.A., **Fernández-Martínez, D.**, García-García, A., Carmona-Fernández, D. Improving Artificial Intelligence Forecasting Models Performance with Data Preprocessing: European Union Allowance Prices Case Study. *Energies* 2021, 14, 7845.
DOI: [10.3390/en14237845](https://doi.org/10.3390/en14237845)

BOOK
CHAPTERS

Fernández-Martínez, D., Jaramillo-Morán, M.A., Carmona-Fernández, D, Rodríguez-Méndez, D. EIIGraph: conexiones Universidad - Empresa mediante la teoría de grafos. Propuestas y experiencias para mejorar la educación y el empleo. Octaedro, 01/07/2022. ISBN 978-84-19312-50-1

Jaramillo-Morán, M.A., **Fernández-Martínez, D.**, Carmona-Fernández, D, Rodríguez-Méndez, D. Predicción del precio de los derechos de emisión del CO2 con un Perceptron Multicapa (MLP). Propuestas y experiencias para mejorar la educación y el empleo. Octaedro, 01/07/2022. ISBN 978-84-19312-50-1

CONFERENCE
PUBLICATIONS

Fernández-Martínez, D., Montanero, J.M., López-Herrera, J.M., Herrada, M.A. Evolution of the surfactant monolayer in a bubble rising in water with traces of surfactant. *10th International Bifurcations and Instabilities in Fluid Dynamics (BIFD) Symposium* Jun' 24 - Jun' 28, Edinburgh, Scotland.

Fernández-Martínez, D., Nogales-Asensio, J.M., González-Fernández, M.R., Ferrera, C. Tuning patient-specific coronary lumped parameter models in presence of severe aortic stenosis. *28th Congress of the European Society of Biomechanics* Jul' 09 - Jul' 12, Maastricht, The Netherlands.

Fernández-Martínez, D., Montanero, J.M., Nogales-Asensio, J.M., González-Fernández, M.R., Ferrera, C. Impact of interobserver lumen segmentation uncertainty in FFR_{CT} : the location of the stenosis matters. *28th Congress of the European Society of Biomechanics* Jul' 09 - Jul' 12, Maastricht, The Netherlands.

Fernández-Martínez, D., Montanero, J.M., González-Fernández, M.R., Nogales-Asensio, J.M., Ferrera, C. Quantitative assessment of the variability of FFR_{CT} due to minimal uncertainty in lumen segmentation threshold. *VII ECCOMAS Young Investigators Conference YIC2023* Jun' 13 - Jun' 23, Porto, Portugal.

Fernández-Martínez, D., Agujetas, R., Nogales-Asensio, J.M., Tena, A.F., Ferrera, C. Influence of the location point for the Fractional Flow Reserve measurement. A computational study. *SFMC22 I Spanish Fluid Mechanics Conference* Jun' 19 - Jun' 22, Cádiz, Spain

RESEARCH STAYS **Visiting Researcher**, Faculty of Mechanical Engineering, Universidade do Minho *Jul' 22*

FELLOWSHIPS &
AWARDS

FPI PhD Fellowship, Spanish Ministry of Science, Innovation and Universities *Dec' 23*
JuntaEx PhD Fellowship, Junta de Extremadura, renounced due to incompatibility with FPI PhD Fellowship *Sep' 24*
JAE Intro ICU, Spanish National Research Council (CSIC) *Oct' 21*
Erasmus Grant (Hybrid), European Commission *Sep' 19*
SICUE National Exchange Programme, CRUE Universidades Españolas *Sep' 18*

SEMINARS &
TALKS

A new emitter for electrospray and electrohydrodynamic jet printing, Advances in Fluid Mechanics, University of Extremadura *Nov' 24*
Evolution of the surfactant monolayer in a bubble rising in water with traces of surfactant, Advances in Fluid Mechanics, University of Extremadura *Jun' 24*

FFR-CT: Role of Global Lumen Segmentation Uncertainty, Advances in Fluid Mechanics, University of Extremadura *Mar' 23*
FFR-CT as a non-invasive procedure for the detection of significant coronary lesions, University Hospital of Badajoz *Feb' 23*
Fluids in the era of Data: Opportunities and Challenges, Advances in Fluid Mechanics, University of Extremadura *Apr' 22*

TRAININGS **Advances in fluid mechanics**, University of Extremadura *Jan' 23*
Introduction to 3D printing, University of Extremadura *Jul' 21*
Deep Learning Specialization, deeplearning.io *Mar' 20 - May' 20*
Object Oriented Programming in JAVA, University of Extremadura *Feb' 16 - Jun' 16*

DISSEMINATION **Noche Europea de Investigadores e Investigadoras**, Badajoz *Sep' 23*
ACTIVITIES

LANGUAGES **Spanish**, Native proficiency
English, Full professional working proficiency
Portuguese, Elementary proficiency