

Daniel Fernández Martínez

PHD CANDIDATE IN FLUID MECHANICS

GRADUATE STUDIES	<p>University of Extremadura, Badajoz, Spain <i>Master of Science</i>, Simulation in Science and Engineering <i>Nov' 21</i></p> <p>University of Extremadura, Badajoz, Spain <i>Bachelor of Science</i>, Industrial Electronics and Control Engineering, <i>Jul' 20</i></p>
RESEARCH INTERESTS	Fluid Mechanics, Microfluidics, CFD Simulation, Bioengineering, Data-Driven Models, Machine Learning, Optimization
CURRENT POSITION	<p>Singular capillary flows of complex liquids: fundamentals and applications Supervisor: Dr. JM. Montanero & Dr. C. Ferrera <i>Feb' 24 - Present</i></p> <ul style="list-style-type: none">- Position: PhD Student, Fluid Mechanics Group, School of Industrial Engineering (UEX), Badajoz, Spain- Funding: FPI Spanish National Grant
PREVIOUS RESEARCH EXPERIENCE	<p>Fluid dynamics technology applied to diagnosis and personalized treatment of high-mortality cardiovascular pathologies Supervisor: Dr. Conrado Ferrera <i>Feb' 22 - Jan'24</i></p> <ul style="list-style-type: none">- 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 <p>An AI-based recommendation system for “green routes” in sustainable urban environments Supervisor : Dr. Filippo Bistaffa <i>Oct' 21 - Nov' 21</i></p> <ul style="list-style-type: none">- 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 <p>Electrical load forecasting with advanced machine learning techniques Supervisor: Dr. M.A. Jaramillo Morán <i>Nov' 20 - Feb' 22</i></p> <ul style="list-style-type: none">- 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
INDEXED JOURNAL PUBLICATIONS	<p>Fernández-Martínez, D., Cabezas, M.G., López-Herrera, J.M., Herrada, M.A., Montanero, J.M. Transient bubble rising in the presence of a surfactant at very low concentrations. <i>International Journal of Multiphase Flow</i>. 188 (2025); 105205. DOI: 10.1016/j.ijmultiphaseflow.2025.105205</p> <p>Fernández-Martínez, D., González-Fernández, M.R., Nogales-Asensio, J.M., Ferrera, C. Impact of Minimal Lumen Segmentation Uncertainty on Patient-Specific Coronary Simulations:</p>

A Look at FFR_{CT}. *International Journal for Numerical Methods in Biomedical Engineering*. 2024;e3822.
DOI: [10.1002/cnm.3822](https://doi.org/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. *Sensors* 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, Portugal
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

SEMINARS & TALKS	A new emitter for electrospray and electrohydrodynamic jet printing , Advances in Fluid Mechanics, University of Extremadura	<i>Nov' 24</i>
	Evolution of the surfactant monolayer in a bubble rising in water with traces of surfactant , Advances in Fluid Mechanics, University of Extremadura	<i>Jun' 24</i>
	FFR-CT: Role of Global Lumen Segmentation Uncertainty , Advances in Fluid Mechanics, University of Extremadura	<i>Mar' 23</i>
	FFR-CT as a non-invasive procedure for the detection of significant coronary lesions , University Hospital of Badajoz	<i>Feb' 23</i>
	Fluids in the era of Data: Opportunities and Challenges , Advances in Fluid Mechanics, University of Extremadura	<i>Apr' 22</i>
TRAININGS	Advances in fluid mechanics , University of Extremadura	<i>Jan' 23</i>
	Introduction to 3D printing , University of Extremadura	<i>Jul' 21</i>
	Deep Learning Specialization , deeplearning.io	<i>Mar' 20 - May' 20</i>
	Object Oriented Programming in JAVA , University of Extremadura	<i>Feb' 16 - Jun' 16</i>
DISSEMINATION ACTIVITIES	Noche Europea de Investigadores e Investigadoras , Badajoz	<i>Sep' 23</i>
LANGUAGES	Spanish , Native proficiency	
	English , Full professional working proficiency	
	Portuguese , Elementary proficiency	
