Daniel Fernández Martínez

PhD Student in Fluid Mechanics

School of Industrial Engineering
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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*

Research Interests

Fluid Mechanics, CFD Simulation, Microfluidics
Bioengineering, Data-Driven Models, Machine Learning, Optimization

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

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

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

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

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}. *International Journal for Numerical Methods in Biomedical Engineering. 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. *Sensors 2022, 22, 3644.*

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.*

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., 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 Fellow**, Spanish Ministry of Science, Innovation and Universities	*Dec' 23*
	JAE Intro ICU Fellow, 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

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	**Core Writing**, UPV-EHU University of Vasc Country	*May' 24*
	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 ACTIVITIES

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

LANGUAGES

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