

Alejandro Almodóvar

PhD Student in Causal Deep Learning for Health · Assistant professor · Madrid, Spain

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EDUCATION

PhD in Communication Systems and Technologies <i>Universidad Politécnica de Madrid</i>	Currently Madrid, Spain
Visiting Researcher <i>Saarland University, Probabilistic Machine Learning Lab</i>	May–Sep 2024 Saarbrücken, Germany
M.S. in Telecommunication Engineering <i>Universidad Politécnica de Madrid</i>	Jun 2022 Madrid, Spain
B.S. in Telecommunication Engineering <i>Universidad Politécnica de Madrid</i>	Jun 2020 Madrid, Spain
Highlighted courses	
Advanced Counfounded Adjustment <i>1-week summer school. Harvard University. In person.</i>	Jun 2025 Boston, MA, USA
ELLIS probabilistic machine learning summer school <i>1-week summer school. Cambridge University. In person.</i>	Jul 2025 Cambridge, UK

SKILLS

Programming: Python (primary), R, $\text{\LaTeX}$, MatLAB
Tools: Git/GitHub, PyCharm, RStudio, Torch, tensorflow
Topics: Machine learning, Bayesian inference, probabilistic methods, causal learning, statistics
Languages: Spanish (native), English (fluent)

PUBLICATIONS

Journal Articles

Propensity Weighted Federated Learning for Treatment Effect Estimation <i>Almodóvar, A., Parras, J., Zazo, S. Computers in Biology and Medicine, 178, 108779.</i>	2024
Inverse Reinforcement Learning to Mitigate Intelligent Backoff Attacks <i>Parras, J., Almodóvar, A., Apellániz, P.A., Zazo, S. IEEE Internet of Things Journal, 9(24), 24790–24799.</i>	2022
Attentive Neural Processes for Few-Shot Learning Anomaly-Based Vessel Localization Using Magnetic Sensor Data <i>Fernández-Salvador, F., Vilallonga-Tejela, B., Almodóvar, A., Parras, J., Zazo, S. Journal of Marine Science and Engineering 13(9), 1627.</i>	2025

TOP conferences

DeCaFlow: A Deconfounding Causal Generative Model <i>Almodóvar, A., Javaloy, A., Parras, J., Zazo, S., Valera, I. NeurIPS 2025, SPOTLIGHT.</i>	2025 San Diego, USA
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Preprints

CausalKANs: interpretable treatment effect estimation with Kolmogorov-Arnold networks <i>Almodóvar, A., Apellániz, P.A., Zazo, S., Parras, J. arXiv preprint 2509.22467.</i>	2025
Interpretable Clinical Classification with Kolgomorov-Arnold Networks <i>Almodóvar, A., Apellániz, P.A., Garrido, A., Fernández-Salvador, F., Zazo, S., Parras, J. arXiv preprint 2509.16750.</i>	2025

**Deep Survival Analysis in Multimodal Medical Data: A Parametric and Probabilistic Approach with Competing Risks**Garrido, A., **Almodóvar, A.**, Apellániz, P.A., Zazo, S., Parras, J. *arXiv preprint* [2507.07804](#).

2025

Workshop Contributions and other Conferences**Federated Learning for Causal Inference using Deep Generative Disentangled Models****Almodóvar, A.**, Parras, J., Zazo, S. *Workshop on Deep Generative Models for Health, NeurIPS*.

2023

New Orleans, USA

Development, implementation, and validation of an open-source Federated Learning platform to accelerate innovation and boost personalized medicine in rare and ultra-rare haematological diseases: an initiative by GenoMed4All ConsortiumAsti, G. et al., *American Society of Hematology annual meeting, Blood*.

2025

Orlando, USA

PROFESSIONAL EXPERIENCE**Assistant Professor**Universidad Politécnica de Madrid | 98 lecture hours | 3 Master's thesis advised | 1 Bachelor's thesis advised | **Courses:** Digital Signal Processing | Probability and Random Signals | Advanced Data and Signal Processing | Machine learning Lab

Apr 2024 – Present

Madrid, Spain

PhD Grant (Programa Propio UPM)

Universidad Politécnica de Madrid

Feb 2023 – Apr 2024

Madrid, Spain

Teacher Assistant

Universidad Politécnica de Madrid | 38 lecture hours | 1 Master's thesis advised

Sep 2022 – Apr 2024

Madrid, Spain

TALKS**Seminar: AI introduction: present and future**

Merck Sharp and Dohme Spain. Organised by industry.

Jul 2024

Madrid, Spain

Seminar: Generative models for causal inference

Great Talks @ Teleco. Internal doctoral event.

Jul 2024

Madrid, Spain

Poster: Federated learning for causal inference

NeurIPS 2023. Deep Generative Models for Health workshop.

Dec 2023

New Orleans, USA

Conference: Causal estimation in federated environments

Young Scientists Open Meeting (YSOM).

Jun 2023

Madrid, Spain

Seminar: ML and AI: future challenges

Asociación para el Desarrollo de la Ingeniería de Organización (ADINGOR).

Mar 2023

Madrid, Spain

PROJECTS**Synthia**

Synthetic control arm validation for AI healthcare, European Commission project

2024–

Madrid, Spain

Synthema

Survival analysis with synthetic data in federated settings, European Commission

2022–

Madrid, Spain

REPO4EU

Drug repurposing using knowledge graphs, European Commission

2022–

Madrid, Spain

MadridDataSpace4Pandemics

Causal estimation of COVID-19 treatments, Community of Madrid

2022–2023

Madrid, Spain

Genomed4all

Federated platform for genomic and clinical data, European Commission

2022–2025

Madrid, Spain