

Ángela López Cardona

PhD Researcher — Universitat Politècnica de Catalunya (UPC) · Telefónica Innovación Digital · Barcelona, Spain
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Profile

Researcher specializing in large language models, multimodal architectures, and cognitive-signal integration for human alignment and interpretability. My work includes reward modeling (RLHF, DPO), dataset creation, and cognitively inspired training pipelines. Before my PhD, I spent four years leading end-to-end development of AI-driven products in the energy sector.

Education

PhD in Computer Science (in progress) — Universitat Politècnica de Catalunya (UPC) 2023–present
Industrial PhD with Telefónica Innovación Digital, supervised by Sergi Abadal and Ioannis Arapakis. Research on LLM alignment with human cognitive signals (eye tracking, EEG). SPAR fellow (2026–): *Detecting Hidden Traits in Synthetic Data*.

MSc in Artificial Intelligence — Universitat Politècnica de Catalunya (FIB)

MSc in Industrial Engineering — Universitat Politècnica de Catalunya (ETSEIB)

BSc in Industrial Engineering — Universitat Politècnica de Catalunya (ETSEIB)

Experience

Industrial PhD Researcher — Telefónica Innovación Digital · UPC 2023–present

- Reward modeling from human behavioral data (RLHF, DPO) using eye-tracking and EEG signals.
- Creation of preference datasets (e.g., OASST-ETC) and cognitively inspired training pipelines for LLM and vision-language model alignment.

Software Engineer (AI products, energy sector) 2019–2023

- Led end-to-end development of AI-driven products and data solutions for the energy sector.

Research Visits

- COLT Group, Universitat Pompeu Fabra (UPF) — 2026
- Digital Linguistics Group, University of Zurich — 2026
- University of Glasgow — 2025

Selected Publications

- A. López-Cardona, C. Segura, A. Karatzoglou, S. Abadal, I. Arapakis. *Seeing Eye to AI: Human Alignment via Gaze-Based Response Rewards for Large Language Models*. **ICLR**, 2025.
- A. López-Cardona, S. Idesis, M. Barreda-Ángeles, S. Abadal, I. Arapakis. *OASST-ETC Dataset: Alignment Signals from Eye-tracking Analysis of LLM Responses*. **ETRA (PACMHCI)**, 2025.
- A. López-Cardona, S. Idesis, M. Masias-Bruns, S. Abadal, I. Arapakis. *Brain–Language Model Alignment: Insights into the Platonic Hypothesis and Intermediate-Layer Advantage*. **UniReps Workshop @ NeurIPS**, 2025.
- A. López-Cardona, P. Emami, S. Idesis, S. Duraisamy, L. A. Leiva, I. Arapakis. *A Comparative Study of Scan-path Models in Graph-Based Visualization*. **ETRA**, 2025.
- A. López-Cardona, S. Idesis, I. Arapakis. *Integrating Cognitive Processing Signals into Language Models: A Review of Advances, Applications and Future Directions*. **IJCNN**, 2025.
- A. López-Cardona, G. Bernárdez, P. Barlet-Ros, A. Cabellos-Aparicio. *Proximal Policy Optimization with Graph Neural Networks for Optimal Power Flow*. **DATA**, 2022.

Service

Reviewer — ICLR 2027, ETRA 2026, UniReps Workshop @ NeurIPS 2026, WiML Workshop @ NeurIPS 2026, IJCNN 2025.

Volunteer — ETRA 2025, WiML Workshop @ NeurIPS 2025.

Invited Talks

- *How cognitive data can improve LLM alignment* — Cohere Labs Community Talks, 2026.
- *Brain-Computer Interfaces for Large Language Models* — WINC Workshop, UPC (2024); CTTC International Student Workshop (2024).
- *Unveiling LLM* — Innovation Week, Campus 42 Barcelona, 2024.