

Alejandro Dopico-Castro

PhD Researcher in Frugal AI | Continuous & Federated Learning

 A Coruña, Spain
  alexdopico2001@gmail.com
  alejandrodopico2.github.io
  AlejandroDopicoCastro

 AlejandroDopico2

Education

- | | | |
|------------|---|-----------------------|
| PhD | University of A Coruña (UDC) , Computer Science
Funded PhD on Frugal and Sustainable AI (continual, federated, few-shot learning). | Mar 2025 – present |
| MSc | University of A Coruña (MIA-UDC) , Artificial Intelligence
• Thesis: Efficient Single-Step Framework for Incremental Class Learning | Sept 2023 – Feb 2025 |
| BSc | University of A Coruña , Computer Science
• Thesis: Object detection for sports images | Sept 2019 – June 2023 |

Experience

- | | | |
|---|---|---|
| INESC TEC, University of Porto , Research Stay (Visiting Researcher) | <ul style="list-style-type: none"> Research stay with João Gama (University of Porto) and Pedro Henriques Abreu (University of Coimbra). Collaboration on deep learning and continual learning for resource-efficient settings. | Porto, Portugal
Mar 2026 – present |
| LIDIA Group, University of A Coruña , PhD Researcher | <ul style="list-style-type: none"> Research on frugal AI methods (continual, federated, few-shot learning) for resource-constrained systems. Development of adaptive learning modules within the EU PILLAR-Robots project. | A Coruña, Spain
Mar 2025 – present
1 year |
| LIDIA Group, University of A Coruña , Research Support Technician (MSc Internship) | <ul style="list-style-type: none"> Developed class-incremental learning models for dynamic environments within the PILLAR-Robots project. Work evolved into current PhD research on Frugal AI. | A Coruña, Spain
Jan 2024 – Feb 2025
1 year 2 months |
| Cinfo Company , AI Software Developer | <ul style="list-style-type: none"> Designed and optimized deep learning models (YOLO, SSD) for automated sports production. Integrated C++ real-time inference with Python-based training pipelines. | A Coruña, Spain
Oct 2022 – June 2023
9 months |

Publications

- | | | |
|---|--|------|
| FedHENet: A Frugal Federated Learning Framework for Heterogeneous Environments | Single-round, hyperparameter-free federated image classification with homomorphic encryption.
Alejandro Dopico-Castro, Óscar Fontenla-Romero, Bertha Guijarro-Berdiñas, Amparo Alonso-Betanzos, Ivan Perez Digón
(ESANN 2026) | 2026 |
| Efficient Single-Step Framework for Incremental Class Learning | Lightweight class-incremental method without fine-tuning, reducing cost while keeping strong accuracy
Alejandro Dopico-Castro, Óscar Fontenla-Romero, Bertha Guijarro-Berdiñas, Amparo Alonso-Betanzos
arxiv.org/abs/2509.11285 (Neurocomputing (Under Review, 2025)) | 2025 |

Skills

Programming: Python, SQL, C++, Shell

ML Frameworks: PyTorch, TensorFlow, Scikit-Learn, OpenCV, HuggingFace

Tools: Docker, Git, MLFlow, DVC, CI/CD

Cloud: AWS (EC2, S3)

Research Areas: Continual Learning, Federated Learning, Frugal AI, Edge AI, Computer Vision