Cai Selvas Sala

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Education

Technical University of Munich (TUM) | Munich, Germany **Oct. 2025 – Mar. 2026**

Erasmus+ Exchange Program (24 ECTS) Grade: 1.33 (German scale; 1.0 = best)

- Graduate-level coursework in deep learning, 3D/4D vision, detection, segmentation, tracking, and machine learning for business analytics.

Universitat Politècnica de Catalunya (UPC) | Barcelona, Spain **Sep. 2022 – Present**

Bachelor of Science in Artificial Intelligence (240 ECTS) GPA: 8.83/10

- Honors: *Unsupervised and Reinforcement Learning*, *Programming and Algorithms I*
- Mentor for first-year students.

Publications

CVPR 2026 (Main Conference) | First Author (Accepted) **2026**

Cai Selvas-Sala, Lei Kang, and Lluis Gomez (2026). "SALMUBench: A Benchmark for Sensitive Association-Level Multimodal Unlearning". In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*

Experience & Research

Computer Vision Center (CVC) | Research Intern (BSc Thesis) **Feb. 2026 – Present**

- Elena Maseras Fellowship; Learning and Machine Perception (LAMP) group.
- Bachelor's Thesis: *Low-Rank Continual Learning for Foundation Models.*
- Research on parameter-efficient continual learning for foundation models using low-rank adaptations.
- Supervisors: Dr. Joost van de Weijer (CVC), Dr. Ramon Sangüesa (UPC).

Computer Vision Center (CVC) | Research Intern **Apr. 2025 – Aug. 2025**

- Rosa Sensat Fellowship; supervised by Dr. Lluis Gomez.
- First-authored a paper accepted to CVPR 2026 (Main Conference).
- Built a benchmark for machine unlearning in CLIP-style models; trained ViT-B/16 from scratch on 400M image-text pairs.
- Constructed a 60k-pair synthetic evaluation set using identity-preserving diffusion models and LLM-based paraphrasing.

Honors, Fellowships, and Awards

- **Elena Maseras Fellowship** (CVC), Feb. 2026.
- **Rosa Sensat Fellowship** (CVC), Mar. 2025.
- **Santander Erasmus Scholarship** (UPC & Banco Santander), Jun. 2025.
- **Honors (2x)** (UPC): *Unsupervised and Reinforcement Learning*, *Programming and Algorithms I.*
- **Hackathon Winner (3x)**: Aina Hack (BSC) 2024; Challenge IA i Auditoria 2024; Bunge's Challenge (HackUPC) 2023.

Projects

NanoMoE: From-Scratch Sparse Mixture-of-Experts | Personal Project **Dec. 2025 – Feb. 2026**

- Implemented a sparse MoE Transformer in PyTorch with Noisy Top-K gating and custom BPE tokenizer (500M tokens).
- Analyzed expert utilization and load-balancing losses; compared convergence and compute efficiency to dense baselines.

GPTasty: Intelligent Nutritional Recommender | University Project **Feb. 2025 – May 2025**

- Designed and implemented a full-stack intelligent decision support system for personalized nutritional planning, integrating user profiles, dietary restrictions, and available ingredients.
- Engineered a hybrid recommender system combining recipe embeddings (SBERT), knowledge-based rules (fuzzy logic, ontology), and an image recognition module to generate and justify daily meal plans.

LaIA: Administrative Assistant | Hackathon Project **Nov. 2024**

- Winning project at Aina Hack 2024, organized by Barcelona Supercomputing Center (BSC).
- AI assistant for public administration supporting document and image inputs, web search, and multimodal responses.

Other Projects & Hackathons

- Participated in 10+ hackathons applying AI to real-world problems, including LauzHack, HackaTUM, HackUPC, and more.
- Additional AI projects available on GitHub and Hugging Face.

Skills

Programming Languages: Python, C/C++, R, SQL, MATLAB, PDDL.

Libraries & Frameworks: PyTorch, TensorFlow, NumPy, Scikit-learn, OpenCV, Spark, Git, Docker.

Expertise: Foundation Models, Continual Learning, Deep Learning, Computer Vision, Reinforcement Learning.

Languages: English (C2 CEFR Level, 2025), Spanish (Native), Catalan (Native), German (Elementary).