Jaume **Ivars Grimalt**

RESEARCH ENGINEER · MACHINE LEARNING ENGINEER

Valencia, Spain --- Open to: London, Zurich, US

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Profile

Research Engineer with a strong theoretical foundation in mathematics, statistics, and physics, combined with end-to-end ML engineering capability. Specialized in computer vision, semantic segmentation, and object detection. Currently architecting production-grade ML systems—from custom model design to scalable cloud inference—in both academic research and biotech startup environments. Seeking to contribute to fundamental AI research at the intersection of rigorous theory and deployable engineering.

Experience

MIALAB — Medical Imaging Analysis Laboratory, UPV
Valencia, Spain

RESEARCH ENGINEER — *May 2024 – Present*

- Architected a semantic segmentation pipeline for brain MRI analysis (700k+ volumes) using U-Net variants with Attention Mechanisms, achieving state-of-the-art parcellation accuracy.
- Optimized legacy research code for training and inference, significantly reducing computation time and preparing models for production deployment on the VolBrain neuroimaging platform.
- Validated segmentation models against expert neuroanatomical annotations, ensuring clinical-grade reliability across heterogeneous MRI acquisitions.
- Modernized lab engineering practices: implemented private Gitlab, modular code architecture, and reproducible experiment tracking to a previously ad-hoc research workflow.

Mycrospace — Biotech Startup
Valencia, Spain

CO-FOUNDER & CTO — *Jan. 2024 – Present*

- Designed and deployed a proprietary Computer Vision system for automated microbial colony counting, achieving 95% median MAPE against expert microbiologist ground truth.
- Engineered custom model architectures—YOLO-based detectors and Density Map Regressors—to handle high-density overlapping objects (>300 colonies per plate).
- Curated a specialized dataset of 3,500 annotated images across 12 microbial species, validating ground truth labels in collaboration with domain microbiologists.
- Built the full ML infrastructure: data ingestion pipelines, PyTorch training framework, and scalable inference API deployed on Google Cloud Platform with Docker.
- Delivered full-stack product development (Next.js, Cloud) as a secondary enabler, enabling rapid iteration from research prototype to production SaaS.

Vesta-Z
Valencia, Spain

PRODUCT DEVELOPER — INTERNSHIP — *2023*

- Developed full-stack cloud-based product features, gaining production experience in scalable web architectures and deployment workflows.

Neurocatching
Valencia, Spain

AI RESEARCH INTERN — INDUSTRIAL BACHELOR'S PROJECT — *2022 – 2023*

- Developed ML models for ocular movement analysis applied to neuromarketing, engineering end-to-end pipelines from raw gaze data to predictive inference.

Sciling
Valencia, Spain

ML ENGINEERING INTERN — *2022*

- Gained early exposure to large language models (GPT-2/3), Diffusion Models, and IBM Watson, contributing to applied NLP and generative AI projects.

Education

Universitat Politècnica de València (UPV)
Valencia, Spain

M.SC. IN ARTIFICIAL INTELLIGENCE, COMPUTER VISION & DIGITAL IMAGE — *2023 – 2024*

- Grade: 8.7/10. Master's Thesis completed with Honours.
- Coursework: Advanced Machine Learning, Computer Vision, Image Segmentation, Deep Learning.

Universitat Politècnica de València (UPV)
Valencia, Spain

B.SC. IN COMPUTER SCIENCE — *2018 – 2023*

- Grade: 8.3/10. Received 2 Honor Mentions in Machine Learning and Statistics.
- Elected 5-time Class Delegate; coordinated student-administration response during the COVID-19 emergency.

Technical Skills

ML / Science	PyTorch, TensorFlow, OpenCV, NumPy, Pandas, Scikit-learn, Matplotlib, MONAI
Engineering	Python, Docker, Git, GCP, CI/CD, Linux, SQL, REST APIs
Web / Product	Next.js, TypeScript, React, Node.js, PostgreSQL
Research	Mechanistic Interpretability, Computer Vision, Object Detection, Deep Learning Theory, Loss Landscapes
Theory	Neural ODEs, Algebraic Geometry, Chaos Theory, Quantum Mechanics, Statistics

Honors & Awards

2024	**1st Prize,** IdeasUPV Startup Competition (Mycrospace)	*Valencia, Spain*
2015	**Selected Member (Direct 3rd-Year Entry),** Escuela de Matemáticas de la Marina Alta (EMMA) — High-Performance Math Program	*Alicante, Spain*
2015	**Invited Speaker (Age 15),** Lectures on Geometry, Hyperbolic Trigonometry, and AI — including University of Alicante	*Alicante, Spain*