



# Jaume Ivars Grimalt

RESEARCH ENGINEER · ML & COMPUTER VISION

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

☎ (+34) 6900183644 | ✉ jaumeig95@gmail.com | 🌐 jaumeivars.com | 📱 jaume2000 | 📄 jaume-ivars-grimalt

## Profile

ML Engineer with end-to-end experience building production computer vision systems from mathematical formulation to deployed applications. At a biotech startup, designed density estimation architectures from first principles, built training pipelines, and shipped complete ML-powered products (models + APIs + UIs). Strong theoretical foundations (computer vision in 2D and 3D, neural ODEs, mechanistic interpretability, loss landscape analysis) applied to real-world problems in microbiology and medical imaging where reliability is critical. Seeking Research Engineer roles to deepen expertise at the intersection of rigorous ML understanding and production systems.

## Technical Skills

### ML Engineering

PyTorch, NumPy, Scikit-learn, TensorFlow, Docker, Git, CI/CD

### Applied Research

Semantic Segmentation, Attention Mechanisms, Density Estimation, U-Net Architectures, Medical Imaging, Object Detection, Backbone Architectures, Multi-scale Feature Extraction

### Systems & Infrastructure

Python, TypeScript (Next.js, Nest.js, Prisma), Linux, GCP, AWS, PostgreSQL, MongoDB

### Theoretical Interests

Mechanistic Interpretability, Neural ODEs, Normalizing Flows, GANs, Diffusion Models, Loss Landscape Analysis, Physics-informed NNs

## Experience

### Mycrospace — Biotech Startup

Valencia, Spain

Co-FOUNDER & CTO

Jan. 2024 – Present

- Formulated the high-density colony counting problem (>300 overlapping colonies per plate) as a density estimation task and designed proprietary Density Map Regressors with bayesian priors.
- Designed and trained Object Detection models, achieving 95% median accuracy against expert microbiologist annotations.
- Built complete production system end-to-end: PyTorch training framework, data pipelines, containerized inference (Docker/GCP), REST APIs (NestJS/Prisma), and user-facing web application (Next.js/TypeScript).
- Curated domain-specific dataset of 3,500 annotated images across 12 microbial species; co-designed annotation protocols with microbiologists to ensure ground-truth integrity.
- Delivered full-stack ML product from concept to deployment, owning model design, training infrastructure, API development, database architecture, and frontend implementation.

### MIALAB — Medical Imaging Analysis Laboratory, UPV

Valencia, Spain

RESEARCH ENGINEER

May 2025 – Jan 2026

- Trained and evaluated nnU-Net models for volumetric brain MRI segmentation, experimenting with different multi-scale feature extraction strategies.
- Contributed to optimizing the inference pipeline for the VolBrain platform (which contains 700k+ MRI volumes), analyzing bottlenecks in data flow from NIfTI ingestion to voxel-level predictions.
- Established systematic experiment tracking and modular code architecture, enabling reproducible ablation studies and standardized evaluation for the research group.

### Neurocatching

Valencia, Spain

ML ENGINEER INTERN — INDUSTRIAL BACHELOR'S PROJECT

2022 – 2023

- Built ML models for temporal gaze-pattern analysis: extracted features from raw ocular movement sequences, designed predictive pipelines, and evaluated against behavioural ground truth.

### Sciling

Valencia, Spain

DATA SCIENCE INTERN

2022

- Early exposure to large language models (GPT-2/3) and Diffusion Models; contributed to applied NLP and generative modelling 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.
- Focus: Deep Learning Theory, Attention Mechanisms, Semantic Segmentation, Medical Image Analysis, Optimization.
- Class Delegate: Represented cohort in academic and administrative matters.

- Grade: 8.3/10. Honor Mentions in Machine Learning and Statistics (top 10% of class).
- Strong elective focus on mathematical foundations: Linear Algebra, Numerical Methods, Probability Theory, Discrete Mathematics.
- 5-time elected Class Delegate; coordinated remote learning during COVID-19 pandemic. Coordinator of VideoGame Development Club. ACM Student Member.

## Honors & Awards

---

2024    **1st Prize, IdeasUPV Startup Competition**, Mycrospace — €10,000 grant for biotech innovation

*Valencia, Spain*

2024    **Master's Thesis with Honours**, M.Sc. in AI, Computer Vision & Digital Image (Grade: 8.7/10)

*UPV, Valencia,*

*Spain*

2023    **Honor Mentions in Machine Learning & Statistics**, B.Sc. in Computer Science (top 10% of class)

*UPV, Valencia,*

*Spain*