CURRICULUM VITAE

| Julio Silva-Rodríguez | Scholar | Github | ✉ jusiro95@gmail.com |

EDUCATION

PhD in Computer Vision and Deep Learning. **Nov. 2022**
Universitat Politècnica de València, Spain. *Title:* Learning from limited labelled data: contributions to weak, few-shot and unsupervised learning. *Supervisor:* Prof. Valery Naranjo. *Grade: summa cum laude.*

MSc in Biomedical Engineering. **Sept. 2018**
Universitat Politècnica de València, Spain.

BSc in Biomedical Engineering. **July 2017**
Universitat Politècnica de València, Spain.

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher. **Jan. 2023 - Present**
Institution: ÉTS Montréal, Canada. *Supervisors:* Prof. Jose Dolz and Prof. Ismail Ben Ayed.
- Vision-language foundation models, few-shot adaptation, and medical image analysis (retina, radiology, and histology).
- Uncertainty quantification in vision-language models.
- Foundation models for volumetric segmentation (CT scans): pre-training and parameter-efficient fine-tuning.
- Co-supervision of PhD and MSc students in their research projects and publications.

Applied Scientist. **Jan. 2023 - Present**
Institution: Diagnos Medical Systems, Canada. - part-time, collaboration.
- Collaboration with ophthalmologists to deploy machine learning solutions for eye disease screening.
- Developed **FLAIR**, the first vision-language foundation model for retina (fundus) image analysis.
- Translational research to adapt pre-trained models to rare disease detection in low-data regimes.

Adjunct Professor. **May. 2023 - July. 2025**
Institution: Valencian International University, Spain - part-time, remote.
- Teaching MSc courses (26 hours each), both theoretical and practical.
- Foundations of machine learning, deep learning, and reinforcement learning.
- Supervision of MSc thesis.

Doctoral Researcher. **April. 2019 - Dec. 2022**
Institution: Universitat Politècnica de València, Spain. *Supervisors:* Prof. Valery Naranjo.
- Computer vision, deep learning, and histology gigapixel image analysis (whole-slide images).
- Weakly supervised learning, e.g., archived SoTA performance on local Gleason grading using weak supervision.
- Active participation in national and international projects (SICAP, AI4Skin, CLARIFY, etc.).
- Participation in writing technical proposals for national and European research projects.
- Collaboration with pathologists from Hospital Clínic Universitari de València.

Teaching Assistant. **Sept. 2019 - Nov. 2022**
Institution: Universitat Politècnica de València, Spain - Communications Department.
- Teaching BSc/MSc laboratory sessions (60 hours/year).
- Signal processing, medical image analysis, and machine learning.
- Co-supervision of BSc/MSc thesis.

Algorithm Engineer. **Aug. 2017 - April 2019**
Company: ContinUse Biometrics (later rebranded as Donisi Health), Tel Aviv, Israel.
- Experience in a startup developing optical systems for contact-free health monitoring.
- Active participation in designing real-time signal processing algorithms deployed in final products and patents.

SELECTED PUBLICATIONS

Legend: (○) First authorship. (⋆) Co-supervision of PhD/MSc students. - An extended list is found in **Scholar**.

2025
- ○ **MedIA** - Towards Foundation Models and Few-Shot Efficient Fine-Tuning for Volumetric Organ Segmentation.
- ○ **CVPR** - Conformal Prediction for Zero-Shot Models.

◦ **IPMI** - Full Conformal Adaptation of Medical Vision-Language Models.
◦ **IPMI** - A Reality Check of Vision-Language Pre-training in Radiology: Have We Progressed Using Text?
◦ **MedIA** - A Foundation Language-Image Model of the Retina (FLAIR): Encoding Expert Knowledge in Text Supervision.

2024
⋆ **MICCAI** - Few-Shot Adaptation of Medical Vision-Language Models.
⋆ **MICCAI** - Class and Region-Adaptive Constraints for Network Calibration.
⋆ **ECCV** - Robust Calibration of Large Vision-Language Adapters.
◦ **CVPR** - A Closer Look at the Few-Shot Adaptation of Large Vision-Language Models.
⋆ **CMIG** - Uninformed Teacher-Student for Hard-Samples Distillation in Weakly Supervised Mitosis Localization.

2023
⋆ **CMIG** - Labeling Confidence for Uncertainty-aware Histology Image Classification.

2022
◦ **MedIA** - Constrained Unsupervised Anomaly Segmentation.
◦ **CMIG** - Proportion Constrained Weakly Supervised Histopathology Image Classification.

2021
◦ **JBHI** - Self-learning for Weakly Supervised Gleason Grading of Local Patterns.
◦ **CMIG** - A weakly-supervised convolutional neural network for the semantic segmentation of Gleason grades.

2020
◦ **CMPB** - Going deeper through the Gleason scoring scale: An automatic system for histology prostate grading.

ACADEMIC SERVICES

Conference reviewer: MICCAI'25 - MIDL'24 - CVPR'25 - NeurIPS'24 - ECCV'24 - MICCAI'24 - MIDL'24 - CVPR'24 - MICCAI'23.

Conference program committee:
- Special Session in Foundation Models for Medicine (FMM) at IJCNN'25.
- Tutorial on Foundation Models For Medical Imaging (FOMMIA) at MICCAI'24.

Journal reviewer: Medical Image Analysis - IEEE Transactions on Medical Imaging - IEEE Transactions on Image Processing - Computerized Medical Imaging and Graphics.

AWARDS, RECOGNITIONS, FUNDING

Outstanding reviewer: MICCAI'24 - MIDL'24 - MICCAI'23.

Best Paper Award:
- 1st Int. Workshop on Foundation Models for General Medical AI. MICCAIw'23 (MedAGI).

Best PhD Thesis Award: Received from Universitat Politècnica de València (Rank: 3/112).

Competitive individual grants:
- Postdoctoral Scholarship for Foreign Students (PBEEE) from Fonds de recherche du Quebec (FRQ), 2023.
- PhD training grant (FPI) from the Spanish Government, 2019-2022.

OTHER

Datasets: **SICAPv2**, a dataset of prostate WSIs with local and global annotations **(+1K downloads)**.

Open code: Implementations and models of my projects are available on **Github** **(+250 stars, +25 forks)**.

Tutorials:
- "Foundation Models for Volumetric Medical Image Segmentation". MICCAI'24 Tutorials (**FOMMIA**).
- "Hands On: Few-Shot Adaptation of Medical VLMs". Summer School **DLMI'24** - MICCAI Endorsed.

Talks:
- "Towards Multi-Modal Foundation Models for Retinal Image Analysis". **APTOS'25**, invited faculty symposium.
- "Full Conformal Adaptation of Medical Vision-Language Models". IPMI'25.
- "Few-Shot Adaptation of Medical Vision-Language Models". MICCAI'24 Spotlight.
- "Foundation Models and Few-Shot Efficient Fine-Tuning for Volumetric Organ Segmentation". MICCAIw'23 (MedAGI).