Antonio **García Garví**

PhD student in Automation, Robotics and Industrial Computer Science

✉ angar25a@doctor.upv.es | ⌂ antoniogarciagarvi.github.io | ⊙ AntonioGarciaGarvi | in antonio-garcía-garví

Experience

Universidad Politécnica de Valencia   *Valencia, Spain*
Predoctoral Researcher   *Dec. 2021 - Now*

- Development of the PhD thesis "Design, development and evaluation of computer vision based techniques for automation of experiments with C. elegans", funded by the Ministry of Universities (ref FPU20/02639).
- Graduate Teaching Assistant for courses in the Department of Systems and Automation Engineering.
- Co-advisor of bachelor thesis.

MRC Laboratory of Medical Sciences, Imperial College London   *London, UK*
Visiting Researcher   *March. 2024 - June. 2024*

- Research stay at Dr Andre Brown's Behavioral Phenomics group (https://tierpsy.com/), funded by the Ministry of Universities (ref EST24/00169)to carry out the project: "Classification of C. elegans movement patterns using artificial neural networks for the discovery of new treatments for rare diseases".

Universidad Politécnica de Valencia   *Valencia, Spain*
Researcher   *Oct. 2020 - Dec. 2021*

- Design, development, evaluation and documentation of new deep learning-based hardware to perform automatic handling and/or inspection of C. elegans nematodes.

Universidad Politécnica de Valencia   *Valencia, Spain*
Collaboration Grant   *Oct. 2018 - Jul. 2019*

- Design, development, evaluation of deep learning algorithms for object classification.

Education

Universidad Politécnica de Valencia   *Valencia, Spain*
PhD in Automation, Robotics and Industrial Computer Science   *Sept. 2021 - Now*

- Competitive predoctoral fellowship "Formación de Profesorado Universitario" (University Professor Training) from the Spanish Government (FPU20/02639)

Universidad Politécnica de Valencia   *Valencia, Spain*
MSc in Automation and Industrial Computing   *Sept. 2019 - Sept. 2020*

- 2 distinctions.

Universidad Politécnica de Valencia   *Valencia, Spain*
BSc in Industrial Electronics and Automation Engineering   *Sept. 2015 - Jul. 2019*

- 8 distinctions.

Skills

Programming	Python, MATLAB, C, JAVA
Machine Learning Libraries	Pytorch, MATLAB, Scikit-learn, Pandas
Languages	Spanish (mother tongue), English (B2 Cambridge)

Grants

2024	**Ayudas complementarias de movilidad destinadas a beneficiarios FPU 2024,** Ministerio de Ciencia, Innovación y Universidades
2020	**FPU,** Ministerio de Ciencia, Innovación y Universidades
2018	**Collaboration grant 2018/42/00001,** Ministerio de Educación y Formación Profesional

Publications

Journal articles

García-Garví, A., Layana-Castro, P.E., Puchalt, J.C., Sánchez-Salmerón, A.J., 2023. Automation of Caenorhabditis elegans lifespan assay using a simplified domain synthetic image-based neural network training strategy. Computational and Structural Biotechnology Journal.DOI:10.1016/j.csbj.2023.10.007

Escobar-Benavides, S, **García-Garví, A.**, Layana-Castro, P.E., Sánchez-Salmerón, A.J., 2023. Towards generalization for Caenorhabditis elegans detection. Computational and Structural Biotechnology Journal.DOI:10.1016/j.csbj.2023.09.039

Layana-Castro, P.E., **García-Garví, A.**, Navarro-Moya, F., Sánchez-Salmerón, A.J., 2023. Skeletonizing Caenorhabditis elegans Based on U-Net Architectures Trained with a Multi-worm Low-Resolution Synthetic Dataset. International Journal of Computer Vision.DOI:10.1007/s11263-023-01818-6

Layana-Castro, P.E., **García-Garví, A.**, Sánchez-Salmerón, A.J., 2023. Automatic segmentation of Caenorhabditis elegans skeletons in worm aggregations using improved U-Net in low-resolution image sequences. Heliyon, vol. 9, no 4. DOI: 10.1016/j.heliyon.2023.e14715.

García-Garví, A., Layana-Castro, P.E., Sánchez-Salmerón, A.J., 2022. Analysis of a C. elegans lifespan prediction method based on a bimodal neural network and uncertainty estimation. Computational and Structural Biotechnology Journal. 21 - 2023, pp. 655 - 664.DOI: 10.1016/j.csbj.2022.12.033

Navarro-Moya, F., Puchalt, J.C.,Layana-Castro, P.E., **García-Garví, A.**, Sánchez-Salmerón, A.J., 2022. A new training strategy for spatial transform networks (STN's). Neural Computing and Applications. 34 - 12, pp. 10081 - 10092.DOI: 10.1007/s00521-022-06993-0

Layana-Castro, P.E., Puchalt, J.C., **García-Garví, A.**, Sánchez-Salmerón, A.J., 2021. Multi-Tracker Based on a Modified Skeleton Algorithm.Sensors. 21 - 16, pp.5622 - 5643.DOI: 10.3390/s21165622

García-Garví, A., Puchalt, J.C., Layana-Castro, P.E., Sánchez-Salmerón, A.J., 2021. Towards Lifespan Automation for Caenorhabditis elegans Based on Deep Learning: Analysing Convolutional and Recurrent Neural Networks for Dead or Live Classification. Sensors. 21 - 14, pp. 4943 - 4960.DOI: 10.3390/s21144943

Conferences

Puchalt, J.C., Talbi, Z., Escobar-Benavides, S., Penyaranda-Jara, J.J., Layana-Castro, P.E, **García-Garví, A.**, Sánchez-Salmerón, A.J., 2024. A modular system for automating Caenorhabditis elegans assays. 2024. IX Spanish Worm Meeting. Sevilla, Spain

Layana-Castro, P.E., **García-Garví, A.**, Kounakis, K.,Gkikas, I., Tsiamantas, I., Tavernarakis, N., Sánchez-Salmerón, A.J., 2023. EleganSeg: Whole body instance segmentation using improved U-Net in Caenorhabditis elegans microscopic images. 2023. 24th International C. elegans Conference. Glasgow, Scotland

Rico, E.J., Layana-Castro, P.E., **García-Garví, A.**, Sánchez-Salmerón, A.J., 2022. Caenorhabditis elegans detection using YOLOv5 and Faster R-CNN networks. 2nd International Conference on Optimization, Learning Algorithms and Applications (OL2A 2022).Póvoa de Varzim, Portugal

Puchalt, J.C., **García-Garví, A.**, Layana-Castro, P.E., Sánchez-Salmerón, A.J., 2022. Towards a fully automated device based on deep learning for Caenorhabditis elegans lifespan. 2023. VIII Spanish Worm Meeting. Logroño, Spain

García-Garví, A.,Layana-Castro, P.E., Puchalt, J.C., Sánchez-Salmerón, A.J., 2022. Automation of Caenorhabditis elegans lifespan assay using deep learning CV4Animals: Computer Vision for Animal Behavior Tracking and Modeling.New Orleans, USA

Layana-Castro, P.E., **García-Garví, A.**, Navarro-Moya, F., Sánchez-Salmerón, A.J., 2022.Skeletonizing Caenorhabditis elegans based on deep learning. CV4Animals: Computer Vision for Animal Behavior Tracking and Modeling. New Orleans, USA