

Juan Maroñas Molano

PhD in Computer Science: Probabilistic Machine Learning and Deep Neural Networks

Education

Sep 2017 – Sep 2021	PhD in Computer Science: Probabilistic Machine Learning and Deep Neural Networks. <i>Universidad Politécnica de Valencia</i> International Mentior
Sep 2015 – Sep 2016	Master in Computer <i>Universidad Politécnica</i> Rank 1st
Sep 2011 – Jun 2015	Bachelor in Electric essing. 8.3/10. <i>Universidad Autónoma</i> Rank 1st of my bachelor's academic branch and 4th of the whole bachelor.

Leadership and Teaching Experience

Practical Lectures

2023-2024	Bachelor in Mathematical Engineer and Artificial Intelligence 1st Course: Python Programming 1st Course: Algorithms and Data Structures 2nd Course: Machine Learning I Double Bachelor in Business Analytics and International Relationships 2nd Course: Python Programming
2022-2023	Bachelor in Mathematical Engineer and Artificial Intelligence 1st Course: Python Programming Bachelor in Industrial Engineer 1st Course: C Programming

Master Thesis

Sep 2024	Training Spanish Large Language Model Evaluators <i>Eduardo Miguel Riederer</i> <i>Mark: ongoing</i>
Sep 2023	Deep Transformed Gaussian Processes <i>Francisco Javier Sáez Maldonado</i> <i>link not available yet</i> <i>Mark: 9.5</i>
Apr 2022	Thyroid ultrasound image classification and recognition system, based on deep learning techniques to support the diagnostic process according to the EU-TIRADS scale <i>Yhary Estefania Arias Trillos</i> <i>https://riunet.upv.es/handle/10251/183084</i> <i>Mark: 9</i>

- | | |
|----------|--|
| Sep 2021 | <p>Classification and correction of human postures on mobile devices
 <i>Ferrán Pérez Esteve</i>
 https://m.riunet.upv.es/handle/10251/175049
 Mark: 10
 Got honorable mention award.</p> |
| Sep 2021 | <p>Facial Super Resolution using Deep Learning
 <i>Jorge Alcañiz Villanueva</i>
 https://m.riunet.upv.es/handle/10251/175078
 Mark: 8</p> |
| Apr 2021 | <p>Real Time Semantic Urban Scene Segmentation and Lane Recognition.
 <i>Janik Jilka</i>
 https://riunet.upv.es/handle/10251/166099
 Mark: 8.5</p> |
| Jul 2020 | <p>Expressive Calibration Techniques for multiclass classifiers.
 <i>Sergio Alvarez Balanya</i>
 https://repositorio.uam.es/handle/10486/692529
 Mark: 9.5
 Got honorable mention award.</p> |

Bachelor Thesis

- | | |
|----------|--|
| Jul 2021 | <p>Analyzing the calibration of ensembles of calibrated Convolutional Deep Neural Networks
 <i>Jorge Hernán Urgel</i>
 https://repositorio.uam.es/handle/10486/698387
 Mark: 8.7</p> |
|----------|--|

Software Skills

This is demonstrated by looking to my github account.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Pytorch • Tensorflow • C • CUDA • Python • Matlab • Docker • Google Cloud Platform | <ul style="list-style-type: none"> • Prophet • Gpflow • Gpytorch • Stan • Standard python libraries: Pandas, Numpy, Scipy, matplotlib, sklearn etc • VHDL • Linux |
|---|--|

Work Experience

I have worked in very multidisciplinary environments, with people from different countries. I have worked, mainly, with audio signals, images, time series and tabular data. Apart from research work, I have participated in Machine Learning competitions and developed libraries for high-performance computing for graphics processor units and other electronic devices such as microcontrollers. I have also performed external consulting and academic training.

Mar 2023 - Ongoing	Cognizant Machine Learning Scientist <ul style="list-style-type: none">• Large Language Models.
Sep 2022 - Ongoing	Universidad Pontificia de Comillas Machine Learning and programming Lecturer.
Feb 2022 - Ongoing	Universidad Autónoma de Madrid Post Doctoral Researcher <ul style="list-style-type: none">• <i>Bayesian Inference, Stochastic Processes.</i>• <i>Hierarchical Bayesian Models.</i>• <i>Forensic Science, probability calibration, model robustness.</i>
Nov 2020 - Mar 2023	Solver Intelligent Analytics Senior Machine Learning External Consultant <ul style="list-style-type: none">• <i>Hierarchical Models, Monte Carlo Simulations.</i>• <i>Forecasting models with Prophet.</i>
Sep 2017 - Jan 2022	Universidad Politécnica de Valencia Doctoral Researcher <ul style="list-style-type: none">• <i>Research in Probabilistic Machine Learning: Generative models, Bayesian Neural Networks, Deep Neural Networks, Gaussian Processes, probability calibration..., medical diagnosis, computer vision and forensic science.</i>• <i>PhD supported by FPI PhD Fellowship.</i>• <i>Worked in different research projects such as Deep Health or developed a high performing CUDA library (https://github.com/jmaronas/CULAYERS).</i>
Oct 2016 - Jun 2017	Universidad Autónoma de Madrid Researcher <ul style="list-style-type: none">• <i>Deep Neural Networks for speech enhancement.</i>
Nov 2015 - Jul 2016	Universidad Politécnica de Valencia Researcher <ul style="list-style-type: none">• <i>Semi supervised learning with ladder networks and adversarial noise regularization.</i>
May 2015 - Sep 2015	Excellentia Managment and Solutions Electronics Engineer <ul style="list-style-type: none">• <i>Developed networks of sensors and actuators to detect contaminated water using microcontrollers using Arduino.</i>

Research Internships

Feb 2020 - May 2020	Alan Turing Institute, London, UK. <ul style="list-style-type: none">• <i>Developed efficient and more expressive algorithms that current state of the art that helped in the prediction of air quality in the city of London. This work was published in AISTATS 2021 (CORE A*).</i>
Apr 2019 - Jun 2019	AImage Lab. Università degli Studi di Modena e Reggio Emilia, Modena, Italy <ul style="list-style-type: none">• <i>Second position in the 2019 ISIC challenge for skin cancer detection. Our team implemented a solution based in Deep Neural Networks which was then published in a JCR Q2 Journal.</i>• <i>Research project related to the use of machine learning models to predict kidney disease which lead to a publication in the ICPR 2020 (CORE B)</i>

One-off jobs

Jul 2020 - Nov 2020	Forja External Academic Training and Consulting <ul style="list-style-type: none">• <i>General Machine Learning.</i>
Apr 2019 - Aug 2019	Fixr External Academic Training and Consulting <ul style="list-style-type: none">• <i>Bayesian Deep Learning.</i>

Publicly Funded Research Projects

Sep 2023 - Aug 2026	Del Entrenamiento a la Interpretacion en Aprendizaje Automatico (TRE2IN)
Feb 2022 - May 2023	Aprendizaje automático: Interpretabilidad, algoritmos avanzados y aplicaciones
Sep 2020 - Dec 2022	Aprendizaje Profundo en Voz para Aplicaciones Forenses y de Seguridad
Feb 2020 - May 2020	London Air Quality (https://www.turing.ac.uk/research/research-projects/london-air-quality)
Jan 2019 - Dec 2021	Deep-Learning and HPC to Boost Biomedical Applications for Health.
Sep 2017 - Jan 2018	Comprension del lenguaje en los medios de comunicación social representando contextos de forma continua.

Awards - Public Grants/Projects Awarded

Nov 2023	Beca Juan de la Cierva Formación.
Feb 2018 - Jan 2022	PhD Fellowship from Universidad Politécnica of Valencia.
Summer 2019	Second runner-up in the 2019 ISIC cancer detection competition, by using Deep Convolutional Neural Networks.
2009	Honorable mention award in compulsory secondary education, 2009.

Highlighted Publications

- 2024 | 1. Lin, Z., **Maroñas, J.**, Li, Y., Yin, F. & Theodoridis, S. *Towards Efficient Modeling and Inference in Multi-Dimensional Gaussian Process State-Space Models* in *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing* (2024).
- 2023 | 2. **Maroñas, J.** & Hernández-Lobato, D. *Efficient Transformed Gaussian Processes for Non-Stationary Dependent Multi-class Classification* in *Proceedings of the 40th International Conference on Machine Learning* (eds Krause, A., Brunskill, E., Cho, K., Engelhardt, B., Sabato, S. & Scarlett, J.) **202** (PMLR, 23–29 Jul 2023), 24045–24081. **(CORE A*)**.
- 2021 | 3. **Maroñas, J.**, Hamelijnck, O., Knoblauch, J. & Damoulas, T. *Transforming Gaussian Processes With Normalizing Flows* in *Proceedings of The 24th International Conference on Artificial Intelligence and Statistics* (eds Banerjee, A. & Fukumizu, K.) **130** (PMLR, 13–15 Apr 2021), 1081–1089. **(CORE A*)**.
- 2020 | 4. **Maroñas, J.**, Paredes, R. & Ramos, D. Calibration of deep probabilistic models with decoupled bayesian neural networks. *Neurocomputing* **407**, 194–205 (2020). **(JCR Q1)**.

Review Services

I have reviewed for: AISTATS 2021, ICLR 2022, NeurIPS 2022 and ICML 2023. I have declined invitations to review for Neurips 2023, ICLR 2023, AISTATS 2023 and ICML 2024. I continue declining invitations since I find my reviewer work being unappreciated. Thus I'll only review for conferences I'll submit.

Academic Talks and Seminars

I have given several academic talks and seminars at different institutions and research groups around the world including:

- Warwick Machine Learning Group, *UK*.
- Computational Statistics and Machine Learning Group at University of Cambridge, *UK*.
- Department of Computer Science, Aalto University, *Finland*.
- Data61 research Center, *Australia*.
- University of Sidney, *Australia*.
- AlmageLab at University of Modena and Reggio Emilia, *Italy*.
- Machine Learning group and Audias group at Universidad Autónoma of Madrid, *Spain*
- PRHLT at Universitat Politècnica of València, *Spain*.
- University of Alicante, *Spain*.
- The University of Hong Kong, *China*.
- Spanish Association of Surgeons, *Spain*.

Reference List

David Contreras Bárcena

Associate Professor at Universidad Pontificia de Comillas (ICAI)

email: *davidcbcomillas.edu*

Roberto Paredes Palacios

CTO Solver Intelligent Analytics.

Full Professor Politecnico University of Valencia.

Principal Investigator at Pattern Recognition and Human Language Technology Research Center.

email: *rparedes@dsic.upv.es*

Theodoros Damoulas

Principal Investigator at the Alan Turing Institute and Warwick Machine Learning Group.

Deputy Director of Data Centric Engineer Alan Turing Institute.

Associate Professor at University of Warwick.

email: *t.damoulas@warwick.ac.uk*

Costantino Grana

Full Professor at Reggio Emilia University.

Principal Investigator Almage Laboratory.

email: *costantino.grana@unimore.it*

Daniel Ramos Castro

Associate Professor at Autonomous University of Madrid.

Principal Investigator at Audio Data Intelligence and Speech Research Group.

email: *daniel.ramos@uam.es*

Doroteo Torre Toledano

Full Professor at Autonomous University of Madrid.

Principal Investigator at Audio Data Intelligence and Speech Research Group.

email: *doroteo.torre@uam.es*

Daniel Hernández Lobato

Associate Professor at Autonomous University of Madrid.

Principal Investigator at the Machine Learning Group.

email: *daniel.hernandez@uam.es*

Alberto Escartí Cervera

AI Manager for Southern Europe.

Cognizant

email: *aescarticervera@gmail.com*