Francisco ROLDÁN SÁNCHEZ

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EDUCATION

2025 PhD in Artificial Intelligence, Dublin City University, Ireland

2018 MSc in Computer Vision, Universitat Autònoma de Barcelona, Spain

2017 BSc in Telecommunications Engineering, Universitat Politècnica de Catalunya, Spain

APPOINTMENTS

2026– Télécom Paris, Institut Polytechnique de Paris, France
Postdoctoral researcher in safe autonomous systems working with Georgios Bakirtzis.

RESEARCH OUTPUT

Preprint

2026 F. Roldán Sánchez, P. de las Heras Molins, D. Fridovich-Keil, and G. Bakirtzis. "Cross-entropy optimization with prioritized constraints".

Journal articles

2024 Q. Wang, R. McCarthy, D. Cordova Bulens, F. Roldán Sánchez, K. McGuinness, N. E. O'Connor, and S. J. Redmond. "Identifying Expert Behavior in Offline Training Datasets Improves Behavioral Cloning of Robotic Manipulation Policies". *IEEE Robotics and Automation Letters*.

2023 Q. Wang, F. Roldán Sánchez, R. McCarthy, D. Cordova Bulens, K. McGuinness, N. O'Connor, M. Wüthrich, F. Widmaier, S. Bauer, and S. J. Redmond. "Dexterous robotic manipulation using deep reinforcement learning and knowledge transfer for complex sparse reward-based tasks". *Expert Systems*.

Conference proceedings

2024 F. Roldán Sánchez, Q. Wang, D. Cordova Bulens, K. McGuinness, S. J. Redmond, and N. E. O'Connor. "Learning and reusing primitive behaviours to improve Hindsight Experience Replay sample efficiency". *ICARA*.

2023 Q. Wang, R. McCarthy, D. Cordova Bulens, F. Roldán Sánchez, K. McGuinness, N. E. O'Connor, N. Gürtler, F. Widmaier, and S. J. Redmond. "Improving behavioural cloning with positive unlabeled learning". *CoRL*.

2023 F. Roldán Sánchez, Q. Wang, D. Cordova Bulens, K. McGuinness, S. J. Redmond, and N. E. O'Connor. "Hierarchical reinforcement learning for in-hand robotic manipulation using Davenport chained rotations". *ICARA*. BEST SESSION PRESENTATION AWARD

2022 F. Roldán Sánchez, S. Redmond, K. McGuinness, and N. O'Connor. "Towards advanced robotic manipulation". *IRC*. 2nd BEST PHD WORKSHOP PAPER AWARD

2022 S. Bauer, M. Wüthrich, F. Widmaier, et al.. "Real Robot Challenge: A robotics competition in the cloud". *NeurIPS Competitions and Demonstrations Track*.

2021 R. McCarthy, F. Roldán Sánchez, Q. Wang, D. Cordova Bulens, K. McGuinness, N. O'Connor, and S. Redmond. "Solving the real robot challenge using deep reinforcement learning". *AICS*.

Conference proceedings (continued)

2019 A. Cardoso Duarte, F. Roldán, M. Tubau, J. Escur, S. Pascual, A. Salvador, E. Mohedano, K. McGuinness, J. Torres, and X. Giró-i-Nieto. "WAV2PIX: Speech-conditioned Face Generation using Generative Adversarial Networks". *ICASSP*; *CVPR Workshops*.

Theses

2025 F. Roldán Sánchez. "Sample and time efficient strategies for off-policy reinforcement learning in robotic manipulation tasks". PhD thesis, Dublin City University.

2018 F. Roldán Sánchez. "Speech-conditioned Face Generation with Deep Adversarial Networks". MSc thesis, Universitat Autònoma de Barcelona.

2017 F. Roldán Sánchez. "Visual Question Answering 2.0". BSc thesis, Universitat Politècnica de Catalunya.

PROFESSIONAL EXPERIENCE

2025-2026 BeChained, Barcelona, Spain (hybrid)

As a reinforcement learning researcher, I developed digital twins of plastic injection molding and compressed air systems and used PPO, DQN, DDPG, and SAC to optimize these processes for energy efficiency. I also co-supervised Maria Guasch's industrial PhD at UPC–BeChained with Antonin Sebastien Ponsich and Sara Hatami.

2024–25 CodeOp, Barcelona, Spain (remote)

As a data science lecturer, I taught Python programming, data science, and artificial intelligence in a course organized for the Servei d'Ocupació de Catalunya (SOC).

2018–19 Crisalix Labs S.L., Barcelona, Spain

As a deep learning engineer, I developed techniques for 3D face reconstruction in aesthetic surgery. I used a VGG network to identify four facial landmarks from depth-sensor normals and RGB images and automate sensor–camera calibration, replacing a manual step in which errors could lead to unsuccessful reconstructions.

2018 Barcelona Technology School, Barcelona, Spain

As a Python programming lecturer, I designed and taught an optional preparatory course for the Master of Big Data Solutions.

2016–17 i2CAT Foundation, Barcelona, Spain

As a software engineering intern, I developed a statistical module for a WebRTC application using Node.js.

TEACHING AND SERVICE

2017–18 Teaching Assistant, NVIDIA Deep Learning Institute workshops
Assisted Xavier Giró-i-Nieto in Munich (May 2017) and Dublin (May 2018).

2017–19 Teaching Assistant, CFIS Deep Learning Seminar, UPC, Barcelona
Assisted Xavier Giró-i-Nieto at the Summer School on Deep Learning for Computer Vision and Winter School of Deep Learning for Artificial Intelligence.

REFERENCES

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