



Joaquim de Curtò i Díaz

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Date of document: 24/09/2024

v 1.4.3

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Joaquim de Curtò i Díaz

Surname(s): **de Curtò i Díaz**
 Name: **Joaquim**
 ORCID: **0000-0002-8334-4719**
 Date of birth: **19/09/1988**
 Gender: **Male**
 Personal web page: **<https://web.comillas.edu/profesor/jdecurto>**

Current professional situation

- 1** **Employing entity:** Centro Nacional de Supercomputación **Type of entity:** R&D Centre
Department: Grupo de Tecnologías duales
Professional category: Recognised Researcher (R2)
Start date: 01/03/2024
Dedication regime: Full time
- 2** **Employing entity:** Universidad Pontificia Comillas **Type of entity:** University
Department: Departamento de Electrónica, Automática y Comunicaciones, Escuela Técnica Superior de Ingeniería (ICAI)
Professional category: Profesor Colaborador Asociado - Doctor
Start date: 15/01/2024
Dedication regime: Part time

Previous positions and activities

	Employing entity	Professional category	Start date
1	GOETHE-University Frankfurt am Main	Research Associate (E13 - Level 3)	01/03/2023
2	Centre for Intelligent Multidimensional Data Analysis, HK Science Park	Research Assistant	13/01/2022
3	The Chinese University of Hong Kong	Research Assistant	11/10/2017
4	Carnegie Mellon University, USA	Research Assistant	01/06/2017
5	City University of Hong Kong	Senior Research Assistant	11/01/2017
6	City University of Hong Kong	Research Associate	15/07/2015
7	ETH Zurich	Scientific Assistant	01/04/2015
8	Carnegie Mellon University, USA	Research Associate 1	10/06/2014

- 1** **Employing entity:** GOETHE-University Frankfurt am Main **Type of entity:** University
Professional category: Research Associate (E13 - Level 3)
Start date: 01/03/2023 **Duration:** 10 months



- 2** **Employing entity:** Centre for Intelligent Multidimensional Data Analysis, HK Science Park
Professional category: Research Assistant
Start date: 13/01/2022 **Duration:** 1 year
- 3** **Employing entity:** The Chinese University of Hong Kong
Professional category: Research Assistant
Start date: 11/10/2017 **Type of entity:** University
Duration: 5 months
- 4** **Employing entity:** Carnegie Mellon University, USA
Professional category: Research Assistant
Start date: 01/06/2017 **Type of entity:** University
Duration: 1 month - 17 days
- 5** **Employing entity:** City University of Hong Kong
Professional category: Senior Research Assistant
Start date: 11/01/2017 **Type of entity:** University
Duration: 5 months - 15 days
- 6** **Employing entity:** City University of Hong Kong
Professional category: Research Associate
Start date: 15/07/2015 **Type of entity:** University
Duration: 15 days
- 7** **Employing entity:** ETH Zurich
Professional category: Scientific Assistant
Start date: 01/04/2015 **Type of entity:** University
Duration: 1 year - 6 months
- 8** **Employing entity:** Carnegie Mellon University, USA
Professional category: Research Associate 1
Start date: 10/06/2014 **Type of entity:** University
Duration: 2 months - 12 days



Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

- 1 University degree:** Higher degree
Name of qualification: MSc Multimedia Information Technology
Degree awarding entity: City University of Hong Kong
Date of qualification: 15/02/2015
- 2 University degree:** Higher degree
Name of qualification: Ingeniero de Telecomunicación
Degree awarding entity: Universitat Autònoma de Barcelona
Type of entity: University
Date of qualification: 17/07/2013
- 3 University degree:** Higher degree
Name of qualification: Ingeniero de Telecomunicación
Degree awarding entity: Universitat Politècnica de Catalunya
Type of entity: University
Date of qualification: 17/07/2013

Doctorates

Doctorate programme: Informática
Degree awarding entity: Universidad Politécnica de Valencia
Type of entity: University
Date of degree: 21/12/2023

Teaching experience

General teaching experience

- 1 Name of the course:** Aerospace Electronics
University degree: Graduado o Graduada en Ingeniería de Tecnologías Industriales
Start date: 15/01/2024
End date: 31/07/2024
Entity: Universidad Pontificia Comillas
Type of entity: University
Faculty, institute or centre: ICAI
- 2 Name of the course:** Aerospace Electronics
University degree: Graduado o Graduada en Ingeniería de Tecnologías de Telecomunicación
Start date: 15/01/2024
End date: 31/07/2024



Entity: Universidad Pontificia Comillas
Faculty, institute or centre: ICAI

Type of entity: University

Scientific and technological activities

Scientific production

H index: 10

Date of application: 24/09/2024

Source of H-Index: GOOGLE SCHOLAR

Publications, scientific and technical documents

- 1 Isomorphic Structures and Operator Analysis in Mimetic Discretizations. IEEE Access. IEEE, 13/08/2024.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 2 Hybrid State Estimation: Integrating Physics-Informed Neural Networks with Adaptive UKF for Dynamic Systems. Electronics. 13 - 11, MDPI, 05/06/2024.
Type of production: Scientific paper **Format:** Journal
- 3 Spectral Properties of Mimetic Operators for Robust Fluid–Structure Interaction in the Design of Aircraft Wings. Mathematics. 12 - 8, MDPI, 18/04/2024.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 4 Analysis of Transportation Systems for Colonies on Mars. Sustainability. 16 - 7, MDPI, 05/04/2024.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 5 Large Language Model-Informed X-ray Photoelectron Spectroscopy Data Analysis. Signals. 5 - 2, MDPI, 27/03/2024.
Type of production: Scientific paper **Format:** Journal
- 6 Optimizing Propellant Distribution for Interorbital Transfers. Mathematics. 12 - 6, MDPI, 19/03/2024.
Type of production: Scientific paper **Format:** Journal
- 7 Optimized Financial Planning: Integrating Individual and Cooperative Budgeting Models with LLM Recommendations. AI. 5 - 1, MDPI, 25/12/2023.
Type of production: Scientific paper **Format:** Journal
- 8 Adaptive Truck Platooning with Drones: A Decentralized Approach for Highway Monitoring. Electronics. 12 - 24, MDPI, 06/12/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes



- 9** LLM Multimodal Traffic Accident Forecasting. Sensors. 23 - 22, MDPI, 16/11/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 10** Drone-Based Decentralized Truck Platooning with UWB Sensing and Control. Mathematics. 11 - 22, MDPI, 13/11/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 11** UWB and MB-OFDM for Lunar Rover Navigation and Communication. Mathematics. 11 - 18, MDPI, 07/09/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 12** Cascading and Ensemble Techniques in Deep Learning. Electronics. 12 - 15, MDPI, 05/08/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 13** LLM Adaptive PID Control for B5G Truck Platooning Systems. Sensors. 23 - 13, MDPI, 25/06/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 14** Emergent Cooperation and Strategy Adaptation in Multi-Agent Systems: An Extended Coevolutionary Theory with LLMs. Electronics. 12 - 12, MDPI, 18/06/2023.
Type of production: Scientific paper **Format:** Journal
- 15** Optimizing Neural Networks for Imbalanced Data. Electronics. 12 - 12, MDPI, 14/06/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 16** LLM-Informed Multi-Armed Bandit Strategies for Non-Stationary Environments. Electronics. 12 - 13, MDPI, 25/05/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 17** Signature and log-signature for the study of empirical distributions generated with GANs. Electronics. 12 - 10, MDPI, 11/05/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 18** Summarization of Videos with the Signature Transform. Electronics. 12 - 7, MDPI, 05/04/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 19** Semantic Scene Understanding with Large Language Models on Unmanned Aerial Vehicles. Drones. 7 - 2, MDPI, 08/02/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 20** Detection of glaucoma using three-stage training with EfficientNet. Intelligent Systems with Applications. 16 - 200140, Elsevier, 12/10/2022.
Type of production: Scientific paper **Format:** Journal



Corresponding author: Yes

- 21** On the applicability of the Hadamard as an input modulator for problems of classification. Software Impacts. 13 - 100325, Elsevier, 02/06/2022.

Type of production: Scientific paper

Format: Journal

Corresponding author: Yes

Works submitted to national or international conferences

- 1** **Title of the work:** Comparative Analysis of Reasoning Capabilities in Foundation Models
Name of the conference: IEEE 2nd International Conference on Foundation and Large Language Models (FLLM 2024)
Corresponding author: Yes
City of event: Dubai, United Arab Emirates
Date of event: 26/11/2024
End date: 29/11/2024
Organising entity: IEEE Computer **Type of entity:** Associations and Groups
- 2** **Title of the work:** Algoritmos de Coordinación por Radio Definida por Software en Simulaciones de Combate de Múltiples Entidades
Name of the conference: Congreso Nacional de I+D en Defensa y Seguridad 2024 (DESEID2024)
Corresponding author: Yes
City of event: Jaén, Spain
Date of event: 12/11/2024
Organising entity: Ministerio de Defensa **Type of entity:** Ministerio de Defensa
- 3** **Title of the work:** Dinámica de Estrategias en la Confrontación de Enjambres de Drones
Name of the conference: Congreso Nacional de I+D en Defensa y Seguridad 2024 (DESEID2024)
Corresponding author: Yes
City of event: Jaén, Spain
Date of event: 12/11/2024
End date: 14/11/2024
Organising entity: Ministerio de Defensa **Type of entity:** Ministerio de Defensa
- 4** **Title of the work:** Topological Data Analysis for Sustainable and Smart City Education Systems
Name of the conference: 16th International Conference on Sustainability in Energy and Buildings (SEB-24)
Corresponding author: Yes
City of event: Santa Cruz, Madeira, Portugal
Date of event: 18/09/2024
End date: 20/09/2024
Organising entity: KES
City organizing entity: United Kingdom
- 5** **Title of the work:** Physics-Informed Neural Networks for Enhanced Thermal Regulation in a Spacecraft
Name of the conference: 28th International Conference on Knowledge Based and Intelligent information and Engineering Systems (KES 2024)
Corresponding author: Yes
City of event: Sevilla, Spain
Date of event: 11/09/2024
End date: 13/09/2024



Organising entity: KES
City organizing entity: United Kingdom

6 Title of the work: LLM Multi-agent Decision Optimization
Name of the conference: 18th International Conference on Agents and Multi-Agent Systems: Technologies and Applications (AMSTA 2024)
Corresponding author: Yes
City of event: Santa Cruz, Madeira, Portugal
Date of event: 19/06/2024
End date: 21/06/2024
Organising entity: KES
City organizing entity: United Kingdom

7 Title of the work: Area Estimation of Forest Fires using TabNet with Transformers
Name of the conference: 27th International Conference on Knowledge Based and Intelligent information and Engineering Systems (KES 2023)
City of event: Atenas, Greece
Date of event: 06/09/2023
End date: 08/09/2023
Organising entity: KES
City organizing entity: United Kingdom

8 Title of the work: Socratic Video Understanding on Unmanned Aerial Vehicles
Name of the conference: 27th International Conference on Knowledge Based and Intelligent information and Engineering Systems (KES 2023)
City of event: Atenas, Greece
Date of event: 06/09/2023
End date: 08/09/2023
Organising entity: KES
City organizing entity: United Kingdom

9 Title of the work: UMAP for Geospatial Data Visualization
Name of the conference: 27th International Conference on Knowledge Based and Intelligent information and Engineering Systems (KES 2023)
City of event: Atenas, Greece
Date of event: 06/09/2023
End date: 08/09/2023
Organising entity: KES
City organizing entity: United Kingdom

10 Title of the work: Decentralized Planning of Platoons in Road Transport using Reinforcement Learning
Name of the conference: 2023 IEEE 43rd International Conference on Distributed Systems Workshops (ICDCSW)
Corresponding author: Yes
City of event: Hong Kong, Hong Kong
Date of event: 18/07/2023
End date: 21/07/2023
Organising entity: IEEE Computer
City organizing entity: United States of America



- 11** **Title of the work:** Decentralized Platooning Optimization for Trucks: A MILP and ADMM-based Convex Approach to Minimize Latency and Energy Consumption
Name of the conference: 2023 IEEE 43rd International Conference on Distributed Systems Workshops (ICDCSW)
Corresponding author: Yes
City of event: Hong Kong, Hong Kong
Date of event: 18/07/2023
End date: 21/07/2023
Organising entity: IEEE Computer
City organizing entity: United States of America