


# JOAN VENDRELL GALLART

Ph.D. in ML&Optimization at University of California Irvine

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 joanvendrell

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## EXPERIENCE



Machine Learning Research Scientist Intern

Los Alamos National Laboratory

-  Jun 2025 – present
-  Los Alamos, New Mexico
- Developing novel Agentic AI framework for research: URSA - The Universal Researc and Scientific Agent.



Research Scientist Intern

Los Alamos National Laboratory

-  Jun 2024 – Aug 2024
-  Los Alamos, New Mexico
- Probabilistic methods over graphs for electric power grid optimization on PowerModelsDistribution.jl.



Python Full-stack software developer

011h

-  Apr 2022 – Jul 2022
-  Barcelona, Spain
- Full-stack development of a web-app for a wood construction company.



Optimization Research intern

Cooperative Laboratory-UCI

-  Sep 2021 – Mar 2022
-  Irvine, California
- Balsells Mobility Award: Applying Quantum inspired algorithms to solve motion planning problems in multi-agents systems.



Machine Learning Research intern

Institut de Robòtica Informàtica industrial (IRI CSIC-UPC)

-  Sep 2019 – Jul 2021
-  Barcelona, Spain
- JAЕ Intro Grant: ML and Computer Vision internship at Perception and Manipulation Group.

Technology Consultant

Institut Idelfons Cerda

-  Jan 2019 – Jul 2019
-  Barcelona, Spain
- Consultant of technology for sustainable urban development of Barcelona area.

## PUBLICATIONS


👥 Conference Proceedings

- J. V. Gallart, M. Grosskopf, and R. Bent, “Hierarchical distillation and adaptive fine-tuning for resource-constrained large language models within agentic ai systems,” in *Proceedings for ICML 2026*, 2026.

## EDUCATION

Ph.D. in Machine Learning and Optimization

University of California Irvine

-  Sept 2022 – On going
- Thesis title: Trustworthy Decision-Making via Embodied Submodular Theory

M.Sc. in Machine Learning, Robotics and Control

Universitat Politecnica de Catalunya







-  Sept 2019 – Abr 2022

B.Sc. in Electric Engineering

Universitat Politecnica de Catalunya

-  Sept 2015 – June 2019

## MOST PROUD OF

-  **Holmes fellowship**  
for navigation optimization
-  **Henry Samueli Endowed fellowship**  
for discrete optimization
-  **UCI-LANL fellowship**  
for power systems optimization
-  **Balsells Fellowship**  
for funding my PhD studies
-  **Catalan Young Researcher**  
national award for my research projects
-  **Distinction with honours**  
for my bachelor's thesis

## STRENGTHS

- Python

Matlab

JavaScript

React
- Machine Learning

AI

PyTorch
- TensorFlow

Qiskit

Cirq

Git
- Pandas

SQL

Big Data
- Data Structures

Graphs

Optimization
- Quantum Algorithms

Finance

- J. V. Gallart, A. Kuhnle, and S. Kia, "Resque greedy: Rewiring sequential greedy for improved submodular maximization," arXiv, 2025. DOI: 10.48550/ARXIV.2505.13670.
- M. Grosskopf, N. A. Debardeleben, R. Bent, *et al.*, "URSA: The Universal Research and Scientific Agent," in *Proceedings for ICLR 2026*, OpenReview preprint, 2025. eprint: openreview:28739.
- R. B. Joan Vendrell and S. Kia, "Forward: Feasibility oriented random-walk inspired algorithm for radial reconfiguration in distribution networks," in *American Automatic Control Council*, 2025. DOI: 10.48550/arXiv.2410.14080.
- J. Vendrell, "Monte carlo sampling and qaoa over probabilistic submodular models," in *Quantum Algorithms in Pre-Fault Tolerant Hardware Basq-IBM conference*, Poster, 2025.
- M. Dimiccoli, S. Felicioni, and J. Vendrell, "Recognizing social interaction patterns in the wild from a first-person perspective," in *Proceedings*, 2024.
- J. Vendrell and S. Kia, "Optimality gap of decentralized submodular maximization under probabilistic communication," in *Conference on Decision and Control*, 2024. DOI: 10.48550/arXiv.2409.09979.

## Journal Articles

- J. Vendrell, S. Kia, M. Grosskopf, and R. Bent, "Chain-based adaptive reconfiguration over lattices for hallucination reduction," *Proceedings for JMLR 2026*, 2026.
- C. Sun, D. Henry, J. Vendrell, V. Puig, and E. Bonet, "Data-driven approaches for pipe life prognosis in water distribution networks: The barcelona water distribution network case study," *Journal of Hydroinformatics*, vol. 27, no. 6, pp. 1003–1018, Jun. 2025, ISSN: 1465-1734. DOI: 10.2166/hydro.2025.003.
- J. Vendrell and S. Kia, "Quantum-inspired evolutionary algorithm for optimal service-matching task assignment," *Information*, vol. 13, p. 438, 2022.
- D. Henry, C. Sun, J. Vendrell, V. Puig, and E. Bonet, "Pipe life prognosis in water distribution networks using reliable data-based approaches," *2021 5th International Conference on Control and Fault-Tolerant Systems (SysTol)*, pp. 187–192, 2021.

## Books

- J. Vendrell and C. Sun, *Fuzzy clustering application on failure rate prediction in water distribution networks*. Barcelona: IRI, 2020.
- J. Vendrell and C. A. Bahun, *Generative Adversarial Neural Networks for High Frequency stocks prediction*. Barcelona: UPC, 2019.

## PROJECTS

### HoneyAnt

#### Start-up

📅 On going

- Agentic AI system for consultancy. HoneyAnt.

### Academic advisor bot

#### ETSEIB - UPC

📅 2017

Hard-working

Learning

Research

Fuzzy Logic

Time-serie structures

## LANGUAGES

English



Spanish



Catalan



Portuguese



## REFEREES

**Prof. Solmaz Kia**

@ University of California Irvine

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**Prof. Russell Bent**

@ Los Alamos National Lab

✉ rbent@lanl.gov

**Prof. Ramin Bostanabad**

@ University of California Irvine

✉ ramimb@uci.edu

**Dr. Congcong Sun**

@ WUR

✉ sccyycg@gmail.com

**Ricard Gine**

@ 011h

✉ ricard.gine@011h.com

**Mariella Dimiccoli**

@ IRI CSIC

✉ mdimiccoli@iri.upc.edu

- Processing of academic data with pandas library in Python and implementation of a Web App for smartphones.

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## Algorithmic Trading: Backtest, Optimize & Automate in Python

**Bloom Team**

📅 2019

Development of algorithmic trading platform with Python and alert messages/control through Telegram.

## ACADEMY

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### Adjunct Professor - Machine Learning

**Universitat Carlemany**

📅 On going

- Professor of Machine Learning in the Mathematics Bachelor's of the Universitat Carlemany

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### Adjunct Professor - Discrete Mathematics

**Universitat Carlemany**

📅 On going

- Professor of Discrete Mathematics in the Mathematics Bachelor's of the Universitat Carlemany

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### Teaching Assistant 150 - Solid Mechanics

**UCI-MAE**

📅 2024

- In charge of 200 students, teaching about tension and stress in materials.

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### Teaching Assistant 170 - Advance Control

**UCI-MAE**

📅 2024

- In charge of 200 students, teaching about control and dynamics.