

# JOAN VENDRELL GALLART

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

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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 Research 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

- JAE Intro Grant: ML and Computer Vision internship at Perception and Manipulation Group.

### Technology Consultant

**Institut Idelfons Cerdà**

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.

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

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**Prof. Ramin Bostanabad**

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**Dr. Congcong Sun**

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**Ricard Gine**

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**Mariella Dimiccoli**

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## 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. Bahon, *Genertive 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

- 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.