

VÍCTOR JIMÉNEZ RODRÍGUEZ

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SUMMARY

Machine learning research engineer with a background in physics and statistics, and a proven track record in both academic and industrial environments. Interested in the assessment and understanding of robustness in machine learning systems, with experience in the development and deployment of agentic retrieval-augmented generation (A-RAG) pipelines in high-risk domains.

EXPERIENCE

Uthereal – Zurich Since Jan. 2024
Founding Research Engineer

- Designed and deployed an end-to-end agentic RAG pipeline for expert-level technical documents in high-risk domains (legal and medical).
- Built an experimental evaluation framework to assess model robustness, knowledge certifiability, agentic workflow reliability, and deployment readiness of the system.
- Collaborated with academic partners on joint research initiatives and grant proposals related to model robustness and document intelligence.

Institute for Machine Learning (ETH) – Zurich Since Oct. 2025
Medical Data Science – Prof. Dr. Julia Vogt
Scientific Assistant

Led and contributed to multiple R&D projects integrating A-RAG pipelines in the medical domain, working across research and engineering stakeholders.

Institute for Machine Learning (ETH) – Zurich Apr. 2025 – Oct. 2025
Statistical Machine Learning – Prof. Dr. Fanny Yang
Scientific Assistant

Research project focused on the derivation of finite-sample robustness guarantees in high-dimensional compositional settings under arbitrarily large subpopulation shifts.

Institute for Machine Learning (ETH) – Zurich Nov. 2023 – Sep. 2024
Information Science and Engineering – Prof. Dr. Joachim M. Buhmann
Research Intern

Master's thesis with honors: *Improved robustness of deep learning models through posterior agreement based model selection*. Manuscript derived from the thesis was published in TMLR (02/2026).

Department of Physics (TUM) – Munich Feb. 2022 – Oct. 2022
Physics of Energy Conversion and Storage – Prof. Dr. Aliaksandr Bandarenka
Research Trainee

Bachelor's thesis with honors: *EIS characterization of lithiated TiO₂-coated LICGC electrolytes for the stabilization of the SEI in all-solid-state lithium batteries*. Contributed to published work.

EDUCATION

Master's degree in Statistics and Operations Research 2022 – 2024
Facultat de Matemàtiques i Estadística – UPC (Barcelona)

Completed track in statistical inference, optimization theory, and machine learning. [9.05/10]

Bachelor's degree in Engineering Physics 2018 – 2022
ETSETB – UPC (Barcelona)

Elective coursework included computational electromagnetism, advanced materials, simulation of condensed matter, quantum optical technologies, photonics, and computational biophysics. Engineering courses covered control theory, circuit theory, signal processing, and antenna design.

Scientific-Technological Baccalaureate
Maristes Sants-Les Corts (Barcelona)

2016 – 2018

Ranked in the top 0.1% of PAU exams, securing a full-tuition scholarship for the first year of studies.

LANGUAGES

Catalan, Spanish	Native
English	Proficient
German	Intermediate

TECHNICAL SKILLS

Python	Machine learning, data analysis, computational physics.
UNIX/Linux	Command-line operations, file management, system configuration in Ubuntu.
HPC systems	Experience with Euler (CSCS): job scheduling, parallel computing.
R	Statistical inference, statistical learning.
MATLAB	Numerical methods for mathematics, physics and engineering. Includes dynamical systems, FEM analysis, signal processing, IPM optimization.
AMPL	MILP optimization, large-scale optimization, stochastic programming.
Stan	Bayesian analysis.
Scala	FOOP, Spark RDDs.
SAS	Statistical data analysis.
Fortran	Molecular dynamics and Monte-Carlo simulations.
C, C++	Analog and digital circuit control.

OTHER PROJECTS

Lasso and Bayes: a demostration using real estate market data Bayesian analysis.	2023
Modelling and design of a Paul Ion Trap Computational electromagnetism, finite element method, EM momentum method.	2021
Calcium-mediated regulation of astrocytes response in the brain Computational biophysics, dynamical systems modelling.	2021
Design and implementation of a sound recorder, processor and player in the electronics laboratory. TD-PSOLA and Phase Vocoder algorithms in a STM32 microprocessor. Signal processing, analog and digital circuits, PWM conversion.	2021
BB84 guarantees for QKD in free-space-link communication systems Quantum physics, cryptography, free-space-link communication.	2018