Javier Jiménez González

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Research interests: world models · robot learning · training dynamics of neural networks

EDUCATION

University of Seville — Double Bachelor's Degree in Mathematics and Physics — Sep 2022 – exp. Jun 2027

- **Relevant coursework:** Linear Algebra I–II, Multivariable Calculus, Differential Equations I–II, Numerical Analysis I–II, Numerical Methods & Simulation, Mathematical Programming (Optimisation), Probability Theory, Probability & Statistics, Mathematical Modelling, Discrete Mathematics.
- **Physics:** Classical Mechanics, Analytical Mechanics, Thermodynamics, Electric Circuits & Instrumentation, Physical Electronics, Experimental Techniques I–II.

University of Münster (Germany) — Erasmus+ exchange, Mathematics and Physics — Sep 2025 – Jul 2026

- Lectures in German, examinations in English. Coursework incl. Signal Processing, Experimental and Theoretical Physics, and advanced laboratory courses (applied, nuclear and materials physics).

RESEARCH

Research Student — Dept. of Differential Equations & Numerical Analysis, University of Seville — Oct 2026 – present

Invariant Learning Dynamics in Transformers

- Studying a theoretical framework for how inductive-reasoning abilities emerge in Transformer language models.
- Describing training dynamics through a low-dimensional invariant manifold in place of the full high-dimensional parameter space, so the problem can be studied both theoretically and experimentally.

Undergraduate Thesis — *Application of Discrete Dynamical Systems to Neural Networks* — 2026 – 2027 · in progress

- Modelling gradient-based training as a discrete dynamical system to study how optimisation choices, such as the learning rate, shape training behaviour.
- Combining mathematical analysis with computational experiments on small neural networks in Python.

PROJECTS

AI-generated video series — independent project — 2025

- Created a recurring character and video series entirely with generative image and video models.
- Grew the series to 400k followers on TikTok and 80M+ views across TikTok and Instagram.

AI & automation software for small businesses — freelance — Oct 2025 – Apr 2026

- Delivered one project each for six independent clients: two websites, two customer-service chatbots built on the Claude API and two review-management automations.
- Built with Claude Code and n8n, integrating external APIs.

EXPERIENCE

Seasonal work — Zürich, Switzerland — Summers 2022 & 2023

- Moved to Zürich on my own at 18 and worked in construction (incl. plastering) and removals, in a German-speaking environment, for Keller bis Dach, Toggenburger, Pepa AG Bau and Immark AG.

HONOURS

Excellence Scholarship, Junta de Andalucía — awarded for Matrícula de Honor in Bachillerato — 2022

University entrance exam: 13.7 / 14 (top 0.5%) — 2022

SKILLS & LANGUAGES

Programming	Python, MATLAB, R · currently learning PyTorch for thesis work
Methods	Numerical methods and simulation, optimisation, probability & statistics, ODE modelling, experimental data analysis
Certification	NVIDIA Deep Learning Institute — Fundamentals of Accelerated Data Science (Oct 2026)
Languages	Spanish (native) · English (C1, IELTS Academic 8.0) · German (B1, Universität Münster) · French (B1, DELF)