Guillem Ramírez Santos

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👤 Presentation

I love being challenged, and I want to be continuously learning in any field. I seek multidisciplinary solutions for multidisciplinary problems: I have a background in Mathematics, Physics and Computer Science, and have done internships in Photonics and Biochemistry groups. I am fond of riddles and wordplay in general.

🎓 Education

MSc in **Artificial Intelligence**

2020-2021 · The University of Edinburgh, UoE (Edinburgh, UK)

I took courses about Natural Language Processing (NLP), Machine Learning and modelling, practical Deep Learning, Quantum Computing, Game Theory.

Visiting student at Prof. Marin Soljacic's group

2019-2020 · 10.0/10.0 · Massachusetts Institute of Technology, MIT (Cambridge, USA)

Worked for an academic year on Word Embeddings alignment in the framework of Natural Language Processing (NLP). I defended my Bachelor's final thesis *Rethinking Wasserstein-Procrustes for Aligning Word Embeddings Across Languages* at MIT, obtaining a distinction. Find online.

Dual BSc in **Mathematics** and in **Engineering Physics**

2015-2020 · 8.3/10.0 and 8.4/10.0 · Technical University of Catalonia, UPC (Barcelona, Spain)

Double degree coordinated by the Center of Superior Interdisciplinary Formation (CFIS) at UPC. CFIS is a five years excellence program which offers obtaining two independent degrees.

International Baccalaureate Diploma Program and **Spanish Baccalaureate**

2012-2014 · IB: 40/45 · SB: 9.8/10.0 · Institut Jaume Vicens Vives (Girona, Spain)

Member of the 2nd promotion of the CiMs+Cellex Program to study the IB Diploma in one of Catalonia's top high schools and a summer research experience.

🔧 Skills

Relevant coursework	Problem modelling, linear and non-linear optimization; Algebraic structures; Numerical Analysis; Topology; Probability Theory and Statistics.
	Statistical Physics; Thermodynamics; Quantum Field theory.
	Signal Theory; digital electronic design, Arduino programming, project development.
Programming	Algorithmics (C++, Java), high-level programming (Python, Matlab), data analysis (R), database management (SQL) and modelization (AMPL). Experience with AWS, multiprocessing, GPUs, Google Cloud, Unix.
Machine Learning	First prize in the accuracy track in the 1st CFIS Alumni Datathon (2018), organized by Kernel Analytics.
	Experience with Pytorch, Tensorflow, Pandas and other ML related packages.
	Theoretical and practical experience with NLP (research and other projects).

🌐 Languages

Catalan, Spanish	Native	**English**	TOEFL: 112/120	**German**	Elementary level

🎙 Interests

AI, Robotics, NLP. Autonomous cars.

QFT and Thermodynamics. Astrophysics and Astronomy. Simulation of physical systems.

Financial Maths and Statistics. Security and Cryptography. Problem-solving algorithms.

⚗ Research experience

Camp participant at Dr. Javier Barrio's team

Classification of galaxies using Machine Learning methods.

Jul 2017 · International Astronomy Youth Camp, Campos de Montemayor (Spain)

Invited student at Dr. Francisco Zárate's group

Resolution of basic problems on elasticity using the finite element method.

Sep 2016 · International Centre for Numerical Methods in Engineering (CIMNE) (Barcelona, Spain)

Invited student at Prof. Sylvia McLain's group

Optimization of computational parameters in order to simulate a box of FSO_3H.

Jul 2015 · Department of Biochemistry of Oxford University, Oxford (United Kingdom)

Visiting Student at XLAB International

Some experience with Laser Physics and Analytical Chemistry.

Jul 2014 · International Science Camp (Göttingen, Germany)

Visiting Student at Dr. Feixa's group

Computational simulations to predict the folding of the molecule aconitase in an iron-free environment.

Feb-Nov 2014 · Institute of Computational Chemistry and Catalysis - University of Girona (Girona, Spain)

💼 Job experience

Summer intern at QUSIDE Technologies

Theoretical formulation of the rate equations of a laser and computational simulation of an entropy generator.
Numerical simulation of Stochastic Differential Equations.

Jun 2019 - Aug 2019 · QUSIDE (Barcelona, Spain)

Summer intern at Base Technology & Information Services

Implementation of a Database on the cloud using AWS and Microsoft Azure. Automatization of the extraction of information from CVs (name, skills, contact details) and update of the company's intranet via bots.

Jun 2018 - Sep 2018 · BaseTIS (Barcelona, Spain)

Teaching Assistant at Faculty of Mathematics and Statistics (FME)

Teacher-assistant of the subjects Calculus I and Discrete Mathematics. My work consisted in solving student's doubts and correcting some problems.

Sep 2017 - June 2019 · Technical University of Catalonia, UPC (Barcelona, Spain)

🖥 Participation in scientific fairs and congresses

April 2015	First prize at Catalan Society of Chemistry's Poster Presentation, Barcelona (Spain).
April 2015	Catalan Biology Society special prize at *ExpoRecerca Jove*, Barcelona (Spain).
March 2015	First prize at the X PRBB Prize to the best research project in natural sciences, Barcelona (Spain).

🏆 Prizes and scholarships

February 2016	Scholarship from the Catalunya-La Pedrera Foundation for the best university access grades.
September 2015	Prize for the top 30 students in the "Extraordinary Excellence exams" in Catalonia. These exams are intended to select the best students in the country.
May 2013	Youth and Science scholarship from Catalunya-La Pedrera Foundation, covering international research experiences during three years.