

# Martí Jiménez

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## Experience

**AI for high dimensional PDE modeling in oncology, Internship** 3 months, 2023

Laboratory of Pathogen and Host Immunity (LPHI), Montpellier, France

- Developed a n-Dimensional non-linear Partial Differential Equations (PDEs) solver framework employing Physics-Informed Neural Networks (PINNs), resulting in an exponential reduction of time complexity compared to traditional methods.
  - Successfully solved a complex 4D non-linear PDE system that captures the evolution of melanoma tumor heterogeneity, utilizing the finite difference method in Julia.
  - Researched and proposed 2 methods to solve interdependent systems of non-linear PDEs with PINNs.
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## Projects

**Numerical Solutions for Poisson's Equation** 1 months, 2023

- Developed numerical solver using Finite Difference Method for Poisson's Equation in 1D, 2D, and 3D with Dirichlet and Neumann boundary conditions. Implemented in Julia.

**AI Software for French pronunciation assistance** 5 months, 2022

- Developed software that detects and evaluates pronunciation of consonant pairs in spoken French.
- Fully coded Neural Network using Python, obtained 100% detection accuracy after training and correct variation of the output based on pronunciation.

**Spanish Word Guessing Game** 1 month, 2021

- Coded SEMANTIKA web game using Word2Vect with distance calculation between words.
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## Education

**INSA (National Institute of Applied Science) 4th Year (Currently Taking)** **Toulouse, France**  
Engineering Degree in Computer Science, top 10% ranking 09/2020-Today

**University of Twente, M1 Exchange Semester (Currently Taking)** **Enschede, Netherlands**  
Machine Learning, Deep Learning, NLP, Information Retrieval, Big Data 09/2023-Today

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## Skills

**Skills:** Machine Learning, Applied Mathematics, Algorithm Design & Problem Solving, Research

**Programming Languages:** Julia, Python, C, Java, Matlab, x86 Assembly

**Languages:** Native languages: French, Spanish, Catalan. Advanced: English-C1(TOEIC 965/990)

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## Activities & Portfolio

**Activities:** 10 years of piano, singer and guitarist in a Rock Band, 7 years of running, 4 years of road cycling

**Portfolio:** <https://marti2405.github.io/>