

# IGNACIO FERNÁNDEZ GRAÑA

📍 Rotterdam, The Netherlands    @ inafegra@gmail.com    ☎ +31 681338877    🌐 inafegra.github.io

Transversal range of skills in machine learning, quantum computing, numerical methods and software engineering. Industrial and research experience building and training AI models. Currently, I'm particularly interested in trainability aspects of (classical and quantum) ML models.



## WORK EXPERIENCE

### Quantum Algorithms Developer

#### Pasqal

📅 Nov 2022 - Present    📍 Amsterdam, The Netherlands

#### Responsibilities:

- Researcher in quantum machine learning, investigating innovative AI-based algorithms and their translation to the field of quantum computing.
- Build, train and evaluate ML models using Pytorch and extensive HPC resources.
- Focus on physics informed machine learning models, quantum neural networks, kernel models and optimization algorithms, among others.
- Apply the company's proprietary algorithms to relevant use cases in industry, working closely with clients as project technical lead.
- Maintain and contribute to the codebase of the company: implement new features, fix bugs and extend the documentation.

### Machine Learning Intern

#### Fermioniq

📅 Jul 2022 - Oct 2022    📍 Amsterdam, The Netherlands

#### Responsibilities:

- Develop computational methods to build a quantum simulator using tensor networks.
- Study of techniques used in machine learning algorithms (message-passing algorithms) to contract tensor networks more efficiently.

## EDUCATION

### MSc Applied Physics - Quantum Computing

#### TU Delft

📅 Sep 2020 - Present    📍 Delft, The Netherlands

- Quantum Computing and Quantum Devices track, covering a wide range of topics in quantum information science, quantum technologies, machine learning and computational methods.
- Part of the Honours Programme of the faculty.

### BSc Physics

#### University of Santiago de Compostela

📅 Sep 2016 - Jul 2020    📍 Santiago de Compostela, Spain

- 4 year bachelor with a broad spectrum within physics, including courses both in experimental and theoretical physics.
- Year abroad within the Erasmus Programme at University of Groningen, The Netherlands.

## SKILLS

- Languages: Python, Julia, Matlab, basic knowledge of C++
- Tools: Git, Linux, Slurm, Latex
- Frameworks: PyTorch, Tensorflow, Keras, Pandas, Scikit-learn

## RESEARCH PROJECTS

Digital and analog quantum simulation of quantum chemistry (QMAI group, TU Delft)

- MSc thesis. Studied quantum algorithms for quantum chemistry applications.

Approximating ground states with free-fermionic states on a quantum computer (AQA group, Leiden University)

- MSc Honours Programme research project. Designed a variational quantum algorithm to solve condensed matter systems.

Deep Learning for Particle Recognition (KVI center, Groningen, The Netherlands).

- BSc thesis. Developed a Convolutional Neural Network for particle recognition in particle physics experiments.

## LANGUAGES

- Spanish: Native
- Galician: Native
- English: Proficient
- Italian: Intermediate
- Dutch: Elementary

## PERSONAL INTERESTS

- Music: Guitar, keyboards, singing. Took part in several music bands.
- Sports: Handball, boxing, climbing.
- Puzzles: Rubik's cubes.

## CERTIFICATIONS

- Deep learning specialization in Coursera (4 online courses)
- Participated in 8 international Erasmus+ Youth Meetings