# CARLOS D. MORA MORENO

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Delivering new energy technologies in benefit of the society is my talent.
Passionate about the energy transition, with experience in innovative energy carriers and converters, ranging from large research devices to household appliances. I recognize the importance of the human factor in technical projects and am interested in policy development, regulations, and standardization at the European level. Aim to further develop my skills in project management, business development, and stakeholder engagement.

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| Top talents | Mathematical Modeling and Data Science, Energy Technology, Project and Stakeholder Management |
| Values | Curiosity, Innovation, Pursue of Excellence, Responsibility, Confidence, Team Spirit |
| Competencies | Analytical Mind, Attention to Detail, Creativity, Leadership, Multi-level Communication |

## EXPERIENCE

2022 - 2023 **Data Scientist BDR Thermea & Remeha**

- **Main responsibility:** R&D of Energy Management solutions.
- **Skills / duties:**
  - Data analysis and visualization
  - Project planning and execution
  - Collaboration with academia
  - Policy development
  - Product strategy development
  - Explore the feasibility of use cases
  - Field trial launching

2022 - 2023 **Simulation and Modeling Engineer BDR Thermea & Remeha**

- **Main responsibility:** Development of numerical models of hydronic components for automated testing.
- **Skills / duties:**
  - Agile / Scrum methodologies
  - Project planning and execution
  - Stakeholder Management
  - Product strategy development
  - Quality control of software products
  - Automated testing
  - Mathematical model validation

2017 - 2022 **Ph.D. Researcher at Eindhoven University of Technology**

- **Main project:** Development of mathematical models to predict and reduce heat transport in fusion plasma reactors

- **Skills / duties:**
  - Perform 5-D numerical simulations in high performance computers
  - Program data analysis routines using modern languages
  - 'Big data' approach for analysis of terabytes of turbulence simulations
  - Build models, then test and validate their performance
  - Manage multi-national collaborative tasks
  - Prepare novel scientific publications
  - Write research proposals and reports
  - Deliver engaging presentations
  - Teaching and student supervision

2017 **Research Associate at UK Atomic Energy Authority**

- **Main project:** Develop experimental scenarios to test the capabilities of a new magnetic coil configuration of a fusion plasma reactor
- **Skills / duties:**
  - Solve 2-D magnetic equilibrium equations using a dedicated MATLAB package
  - Calculate magnetic coil interaction matrices
  - Devise the transitions between magnetic equilibria
  - Determine the viability of experimental scenarios
- Experiments ran successfully during device commissioning

2015 - 2016 **Diagnostics Engineer at TAE technologies and spin-off Plasmatech**

- **Main project:** Characterisation of impurity losses in a linear plasma device using Doppler spectroscopy
- **Skills / duties:**
  - Hands-on maintenance of experimental setup
  - Development of data acquisition routines
  - Support to lead scientists during experimental campaigns
  - Involvement in discussion of physical results
  - Experience in a multi-physics, engineering and industrial environment
- Bachelor's thesis written on this topic

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## EDUCATION

2017 - present (est. May 2022) **Ph.D. in Applied Physics**

*Eindhoven University of Technology · Max Planck Institute for Plasma Physics*

- Specialisation in Science and Technology of Nuclear Fusion
- Joint project in collaboration with the institute home the most advanced device of its type: Wendelstein 7-X
- Soft-skills training followed: Public Speaking, Scientific Integrity, Project Managing, Writing Workshops and Student Supervision

2016 - 2017 **Master of Science (with distinction) in Fusion Energy**

*University of York · UK Atomic Energy Authority*

- Specialisation program to address the current energy demand with an innovative solution: Nuclear Fusion
- Focus on theoretical plasma physics and HPC computing
- One-year program with focus on research experience
- Awarded a scholarship from the Mexican Science and Technology Council

2014 **International exchange experience**

*Universitat Autònoma de Barcelona*

- Six months exchange program
- Courses followed:
  - Particle Physics, Business Organisation and Management, Entrepreneurship

2009 - 2012 **Bachelor of Engineering Physics**

*Universidad Autónoma Metropolitana - Azcapotzalco*

- Assistant at the local plasma laboratory
- International exchange scholarship
- End-project scholarship

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## SKILLS

Languages

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| Spanish | ★★★★★ |
| English | ★★★★★ |
| Dutch | ★★★★☆ |
| Italian | ★★★★☆ |

Computer

- **Linux** · Preferred operating system (Suse)
- **Vim** · Preferred editor
- **LaTeX** · Publication-quality documents
- **Bash, Make, ...** · Daily scripting and development
- **Git** · For version control of virtually everything
- **html, CSS** · Used for this curriculum vitae (with markdown → Pandoc)
- **Microsoft Office** · Where useful

Team Collaboration

- **Jira** · Project tracking software
- **Miro** · Creative collaborative workspaces
- **Azure DevOps** · Software development
- **Azure ML** · AI development environment

Programming

- **Python** · Numpy, scipy, pandas, matplotlib, cython
- **Jupyter** · Lab and notebooks. Used for daily data analysis
- **Mathematica** · Used for symbolic computing
- **C++** · Limited experience, used for side projects
- **Fortran** · HPC applications such as GENE
- **Bash**, **Make** · Experience with linux scripting and development

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## PERSONAL

Nationality Dutch, Mexican

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