220-PRECIE-PDT22

**Predoctoral Offer:** Application of Artificial Intelligence in Science

**Scope:** With the advent of exascale computing and artificial intelligence, the ability to perform advanced big data science and even develop augmentation methodologies when input data is scarce are increasingly attracting attention. This capability is particularly being developed in the field of computer science, where mathematical algorithms can be implemented to be run on GPU environments. In this thesis, artificial intelligence methodologies will be applied to scientific problems (plasma physics, renewable energies, bioinformatics...) with which to obtain valid results that cannot be obtained through traditional simulation techniques. This line of research is recognized as essential by the Strategic Research Agenda in HPC and by the CIEMAT.

The work to be carried out will rely on the following duties

- UNIX environments
- Python, C++, CUDA, OpenACC
- Optimization of scientific codes
- Machine and Deep learning
- Good level of the English language

Holding an MSc will be an asset.

**Framework:** The proposing Unit participates in several related projects funded by the Com. Madrid, the Spanish State Research Agency, and the European Commission (see details in [http://rdgroups.ciemat.es/web/sci-track/5](http://rdgroups.ciemat.es/web/sci-track/5)) in which the researcher would carry out their activity.

**Working environment:** The integration of digital capabilities in the scientific & technological field is demanding highly skilled personnel in the most advanced topics such as HPC simulations, data science, artificial intelligence, etc. This fact provides a solid background for the researcher’s career prospects, who will work with ultimate hardware owned by CIEMAT. Along with the fellowship, the researcher will be trained by the supervisor(s) and attend external courses and international conferences.

**Contact:** Rafael Mayo García – rafael.mayo@ciemat.es