The Nanoscience Cooperative Research Center, CIC nanoGUNE, located in Donostia / San Sebastian, Basque Country (Spain), is currently looking for a

PRE DOCTORAL RESEARCHER

to work on

Multiparametric data analysis for photonic data

NanoGUNE is a research center devoted to conducting world-class nanoscience research for a competitive growth of the Basque Country. NanoGUNE is a member of the Basque Research and Technology Alliance (BRTA) and is recognized by the Spanish Research Agency as a *María de Maeztu* Unit of Excellence.

The position is offered in the **Nanoengineering Group** under the direction of **Prof. Andreas Seifert** (a.seifert@nanogune.eu). The Nanoengineering group focuses on research in the fields of optics and photonics, with interdisciplinary links to nanotechnology, several engineering fields and machine learning. A particular focus is on the application of artificial intelligence to photonic data.

The candidate will join a highly multidisciplinary research group focusing on spectroscopic and other photonic methods, supported by chemometrics, for biomedical research, environmental monitoring and various detection methods. More information can be found at https://www.nanogune.eu/nanoengineering

The **aim of the research project** is the development of classification and regression models for data from various photonic techniques, as spectroscopy, evanescent sensing, and interferometry. The photonic data are produced by highly integrated photonic circuits that build a miniaturized gas sensing system, which is developed by several partners in the framework of a European project. NanoGUNE's part in this project is the data processing by multiparametic data analysis methods, as machine learning and deep learning.

Important tasks of the work plan:

- Development of machine learning/deep learning models for classification and regression of photonic data, applying chemometric methods
- Simulation of photonic data
- Development of data augmentation methods for various photonic techniques
- Optimization of data fusion techniques
- Transfer of in silico code to on-chip Boolean computing (in collaboration with partner).

The **successful candidate** will preferably have experience in the following skills:
- Machine learning and data analysis based on Chemometrics
- Deep learning
- Python and its main libraries for machine learning
- Fluent in written and spoken English.

We promote teamwork in a diverse and inclusive environment and welcome all kinds of applicants regardless of age, disability, gender, nationality, race, religion, or sexual orientation.

Earliest **starting date** for this position is **October 1, 2024**. The project will end in May 2028.

Candidates should **apply** by completing the form below and attaching the following documents all grouped in a single PDF file:

a. A complete CV
b. A cover letter and at least two reference letters

The **deadline** for applications is **22/09/2024**.

NOTES:
(i) All applicants will receive an answer after the end of the selection process; but please note that due to the large number of submissions that are expected, we cannot provide individual feedback.
(ii) Additional information about nanoGUNE's commitment towards HR excellence in Research and Gender Equality are available on our website.
(iii) We encourage you to subscribe to our HR mailing list to receive information related to nanoGUNE's open positions and open calls for different training and talent attraction programs.