Propuesta de Trabajo Fin de Máster
Año académico 2020-2021
Máster en Métodos Computacionales en Ciencias

Project Nº 33
Título: Dimensionality reduction techniques or MS imaging data
Departamento/ Laboratorio*:* Departamento de Ingeniería Biomédica y Ciencias–TECNUN- San Sebastián
Director 1 *Idoia Ochoa* **Contacto:** *idoia@illinois.edu*
Resumen Mass Spectrometry (MS) data is crucial in the fields of proteomics and metabolomics. As each scan collects multiple data, MS imaging data can be difficult to analyze. In this project the student will explore dimensionality reduction techniques for MS imaging data, that maintain the accuracy on the downstream applications that use the data (e.g., clustering and pick calling). The studnet will explore dimensionality reduction techniques like principal components analysis (PCA) and autoencoders. The student is expected to be able to understand machine learning concepts and methods (such as clustering and PCA). Programming knowledge (either in R or Python) is also necessary. The student will start by reading the relevant literature, going in more detail into the machine learning algorithms used currently to analyze these data. Then the student will apply existing methods to the data, and if necessary, developed its own. As a last step, the student will analyze the results of the study and get some conclusions from it. Finally, a good level of both written and spoken English is expected.

Nota: una vez cumplimentado, enviar a la Secretaría del Máster a Elisa Viñes: evines@unav.es