Development of an integrated solution for real-time metabolomics data processing to monitor bioreactor and bioprocess

Level required: Bac + 5

Starting date: 08/01/2024

Length of internship: 6 months

Localization: TBI (Toulouse Biotechnology Institute), MetaboHUB-MetaToul FluxoMet platform

Scientific context & objectives:

Advances in computer science enable the creation of digital twins to provide in silico replicas of systems, processes, and instruments. Digital twins rely on advanced data analytics to establish replicas of platform processes that can be used to optimize process development and process validation.
At Toulouse Biotechnology Institute (TBI) and within the MetaToul-Fluxomet platform, we decided to implement this innovative approach to model microbial data and allow monitoring and retro control of bioreactors and bioprocesses.
To perform this work, our team - which develops and provides the scientific community with methodologies for the study of metabolism - will collaborate with the FameTech platform (Fermentation advances and microbial Engineering) whom are experts in the optimal implementation and control of axenic microbial cultures in bioreactors.

In this context, we are looking for a motivated trainee able to develop algorithms and deploy automated pipelines to allow systematic and real time data integration for modelling and controlling fermenters. She/he will integrate a diverse set of bioinformatic tools and set up continuous integration and deployment systems (DevOps) to ensure quality, scalability and robustness during development and production settings.

Recommended training:

Currently studying for a Master's degree in Bioinformatics

Expected skills:

Knowledge of bioinformatics tools and programming (R, Python, C++)

The recruited student will evolve in a platform environment and must therefore have team spirit, good interpersonal contact as well as a strong scientific and technical curiosity

Contact person to apply:

Maud Heuillet: heuillet@insa-toulouse.fr

Documents to send to apply:

- A cover letter explaining your interest in this internship (1-page max)
- A CV (max. 2 pages)