Machine learning for applied protein engineering

Enzymes form essential active ingredients for numerous industrial applications such as preparation of animal feed and as the degrading agents in dish and laundry products. Unfortunately, enzymes that are found in nature are frequently not directly useful — after all few organisms need to degrade proteins at 60°C! This is where protein engineering enters the picture. At DuPont, we screen thousands of enzyme variants and then model the relationship between amino acid sequence and performance. We can then use the obtained model to generate new variants that outperform the natural ones. Sounds easy? In theory yes, but there are many places things can go wrong, and there is always room for improvement.

We host internship projects on a regular basis on various topics within the realm of data engineering and data science. Previous projects include the development of deep learning models for relating sequence to performance; the development of ontologies for protein engineering screening as well as the development of web applications for data visualization and reporting.

With us, you have the opportunity to get experience in applied machine learning using unique, large high-quality datasets. You will work together with a team of enthusiastic specialists in data science and protein design and have access to a local compute cluster. Expect to get plenty of hands-on work and the chance to make real contributions to an important field of research using data you won't find anywhere else.

Qualifications

We are looking for ambitious MSc students interested in developing their skills in machine learning, bioinformatics and statistics that

- have a background in computer science, machine learning, artificial intelligence, bioinformatics or statistics,

- are proficient in Python

- have or want to obtain experience with Docker

- have an interest in life science applications such as structural biology or biochemistry

- are available for minimum 6 months for 40 hours per week

Internships can start any time of the year.

Location and Contact

Genencor International BV, Leiden (subsidiary of DuPont). Send your CV and motivational letter and/or any questions you may have to Henning Redestig <henning.redestig@dupont.com>.