GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN

Position available

Decoding health by Artificial Intelligence - Use of AI to model high dimensional molecular datasets

We are looking for students interested in doing a research project (Internship, MSc or PhD) on a topic blending state of the art data science and molecular medicine. The student will gain skills in applying data science for cutting edge research in the field of Personalized Medicine. **These skills are invaluable for both an industry as well as an academic career.**

Description of Work

The healthcare system is going through a revolution in which future medicine will make use of personalized, longitudinal and multi-dimensional molecular data, enabling true prevention and improved therapies.
While the biomolecular technology is developing making possible to simultaneously detect changes in thousands of proteins, metabolites and RNAs, computational tools to analyze these multi-dimensional datasets are lacking. This project aims to develop novel and effective computational tools for building dynamic individualized predictive models of wellness and disease.

Selected candidates will learn, apply and shape advance computational tools through the use of large computation power. We will exploit machine learning and AI techniques in combination with advanced tools such as Keras/TensorFlow/pytorch and Python/R.
Our data sets consist of multi-dimensional human molecular datasets: measurements of proteins, metabolites and RNA taken repeatedly from a set of volunteers.
Our goal is to analyze and identify longitudinal dependencies of the measured molecules, which will pave the way to a more accurate, sensitive and individualized prediction of diseases.

Required skill set:

- **High Motivation and wiliness to work in a multidisciplinary team**
- **Strong Programming skills**
- **Basic knowledge of machine learning algorithms**
- **Basic knowledge of Python/R (or at least the interest to learn it quickly)**
- **Knowledge of Keras/Tensorflow/pytorch is an advantage**

Contact person:

- Dr. Mayutan Arumaithurai (Computer Science Department, University of Göttingen): mayutan.arumaithurai@cs.uni-goettingen.de
- Dr. David Gomez Valera (Max Plank Institute for Experimental Medicine): gomez@em.mpg.de
- Benjamin Leiding (Computer Science Department, University of Göttingen): benjamin.leiding@cs.uni-goettingen.de