Hosting Institution: Centre Hospitalier Universitaire Vaudois (CHUV) – Biomedical Data Science Center (BDSC)

Title: Artificial Intelligence Applied to the Improvement of Clinical and Administrative Processes at CHUV

Type of project:
Internship or Master's Project in Applied Machine Learning

Master's program of interest:
- Data Science
- Computer Science
- Communication Systems
- Computational Science and Engineering
- Mathematics

Context:
The Lausanne University Hospital (CHUV) is a key player in medical care and biomedical research both at national and international levels. The mission of the Medical Informatics Data Privacy team within the Biomedical Data Science Center (BDSC) at CHUV, is to foster the adoption and use of data science and innovative tools in medical informatics inside the hospital to significantly improve biomedical research and hospital key processes.

To achieve this ambitious goal, one of the core tasks of the group is to develop the necessary IT infrastructure for providing physicians and scientists with the means to smoothly access and use, for their clinical research projects, the massive volume of clinical data that is generated every day within the hospital. Our current and future challenges lie at the intersection of big data, medical informatics, data protection and artificial intelligence.

Project Opportunities:
During your internship, you will take part in one of the Medical Informatics Data Privacy team activities in the domain of either Natural Language Processing (NLP), predictive modeling, synthetic data generation, or privacy analysis. This will be a unique opportunity for you to process and mine very large and complex datasets of clinical data and experiment with state-of-the-art machine learning methods. Your contribution, added to the group's effort, will help CHUV push forward data-driven solutions to medical research and improve the quality of care we provide to our patients.

Required skills:
- Knowledge of state-of-the-art Machine Learning methods and statistics
- Strong Linux background
- Proficiency in Python- and ML-related modules (jupyter, scikit-learn, pandas, numpy, etc), any other lower-level programming language is a plus
- Knowledge of open-source machine learning software libraries such as Tensorflow, Keras, or pyTorch
- Good analytical and problem-solving skills
- Interest in all cycles of software development
- English proficiency is required, knowledge of French is a plus
- Team spirit and initiative, ability to work autonomously
- Knowledge of Docker, HPC, or clinical data processing is a plus

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