



The Chair for Methods in Medical Informatics (Prof. Dr. Nico Pfeifer), Department of Computer Science at Eberhard Karls University Tübingen, one of eleven German universities distinguished as excellent under the German government's initiative, is currently looking for a

Ph.D. Student in Biomedical Data Science (HIV) (E13 TV-L, 65%)

starting as soon as possible. The initial fixed-term contract will be for 3 years with possible extension. The position is funded by the Machine Learning Competence Center Tübingen (TUE.AI Center).

According to WHO about 37 million people have been living with HIV/AIDS world-wide at the end of 2017. Since there is no approved curative treatment, infected people have to take life-long anti-retroviral treatments (ART). Due to the high variability of HIV, resistant variants can emerge in patients even if they are under treatment. There are even cross-resistances between different ARTs. Therefore, there is a constant need for new targets. Highly potent and broadly neutralizing antibodies (bNAbs) have been promising candidates to fulfill this need. The goal of this Ph.D. project is to extend the work by Hake and Pfeifer to build an interpretable prediction model that can be used to give decision support for bNAbs treatment by applying and extending state-of-the-art machine learning methods.

The group has extensive knowledge at the interface between statistical machine learning, digital medicine, and computational biology. Nico Pfeifer is a PI in the excellence cluster "Machine Learning: New Perspectives for Science" starting in January 2019. We are developing methods that allow answering new biomedical questions (Speicher and Pfeifer 2015, Proceedings of ISMB/ECCB 2015) and optimize them in close contact with our excellent national and international biomedical partners (Carlson et al. 2016, Nature Medicine, Schoofs et al. 2016, Science, Döring et al. 2016, Retrovirology, Mendoza et al. 2018, Nature).

Prerequisites

The ideal candidate will have an M.Sc. or equivalent in Biomedical Data Science, Biometry, Biostatistics, Bioinformatics, Medical Informatics, Computer Science, Computational Biology or a related life science discipline. Applicants should have an interest in interdisciplinary work. Experience in data science and machine learning as well as strong programming/scripting skills (C/C++, R, Matlab, Python, JavaScript, Java) are desirable. Other relevant qualifications include:

- Background in Statistics
- Knowledge of the adaptive immune system (especially humoral immune response)
- Experience with medical data (clinical data, molecular data, ...)
- Experience with high-throughput data (next-generation sequencing)
- Databases (MySQL, NoSQL)

In case of equal qualification and experience, physically challenged applicants are given preference. The University of Tübingen aims at increasing the share of women in science and encourages female scientists to apply. Candidates will be officially employed by the administration of the University of Tübingen.

Please send your application (including motivation letter, curriculum vitae, transcripts and certificates, and contact details of two academic references) via e-mail to mm-sekretariat@inf.uni-tuebingen.de with the subject: **Ph.D. student application Biomedical Data Science (HIV)**.

Application deadline: **March 3rd, 2019**.

Candidates are encouraged to send their application material early since we will start reviewing applications already before the deadline.