

Master Thesis in Digital Diabetes Therapy

Project description:

Development, validation, and real-live testing of models and algorithms for patient-centric digital solution for people with type-1 diabetes. Close collaboration with young, Berlin-based startup GlucoFit. Potential opportunity for position with GlucoFit after master thesis.

About diabetes

Many factors influence our blood sugar. Normally, it regulates itself. In diabetes, this regulation is disturbed, and insulin must be administered. Up to now, not all factors of this regulation have been considered due to their complexity. Often there are serious long-term consequences such as cardiovascular diseases, nephropathies, and retinopathies.

About GlucoFit

We harness the power of digitization and data science, combining all the information (blood glucose, meals, insulin, ...) to help patients with type-1 diabetes achieve effective, efficient, and individualized therapy for sustainable health improvement.

About the scientific task

We want to improve our methods for predicting blood glucose and giving real-time advice to type-1 diabetes patient. To this end, we conduct a study where patients use the GlucoFit GlucoHelper-App to gather data. This data will be used to improve the training of existing models and to develop and train new and more sophisticated models.

Responsibilities

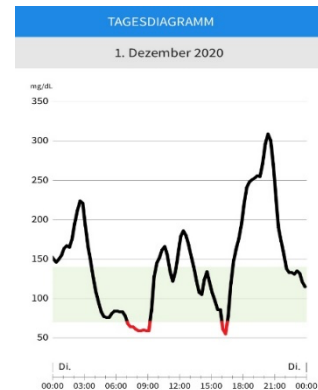
- Support with data collection in a two-week study with diabetes patients using a digital app (close collaboration with GlucoFit)
- Development of models and algorithms for prediction of blood glucose and required insulin doses based on various input data (especially blood glucose time series, administered insulin doses, and nutrient intake)
- Dissemination of results with special focus on intra- and interindividual variations as well as implications for decision-support systems

Required

- Interest in working on a real-life medical problem that can bring immediate benefits to patients
- Experience with statistical/ machine-learning models for modeling longitudinal data.
- Additionally, knowledge about causal inference methods is helpful
- Programming knowledge in R or Python
- Interest in close collaboration with a startup

Interested?

Then apply to: Stefan Konigorski, Digital Health & Machine Learning, Stefan.Konigorski@hpi.de



Typical glucose curve of a type-1 diabetic patient.
Normal range in light green