

Open position:

Big Data in Sports – Analysing and learning from data from professional cyclists

Amanuens (20% of full time for six months, start 2016-10-01)

We are looking for a good MSc student for a six-month part-time position as Amanuens within the department of Computer Science and Engineering. The candidate will work in collaboration with researchers at the department of Computer Science and the department of Microtechnology and Nanoscience as well as with Chalmers' Big Data expert team and the chief technical analyst of professional cycling team Giant Alpecin. The project aim is to apply machine learning techniques to gain new insights from training data from professional cyclists with the purpose to better tailor individual training programs and race strategies.

The Candidate

We believe you are an ambitious MSc student with good programming skills who has knowledge of machine learning. You have for instance taken the course *Algorithms for Machine Learning and Inference* with good grades. If you also, like us, have a passion for both sports and research, this is for you! The position is part-time, which means you will combine this with your regular studies.

Project Description

Professional sports have long been developing towards increasingly scientific training methods. Recently this development has been supported by the vast amount of data being available from modern ICT equipment, e.g., GPS sensors, heart rate monitors, power meters, and motion sensors. Collected over time it becomes a lot of data that can be used to design training programs and follow up training loads with target to peak performance without risk of overreaching that may result in injuries, sickness, and degraded performance.

In this project, researchers from Chalmers and TU Delft will work together with a professional cycling team, Giant Alpecin, to investigate whether methods for big data analysis may be able to identify indicators of overreaching that are not obvious with conventional methods. The project will be based on historical training data and diaries collected during five years from riders in the team. The riders train in average about 1000 hours per year and participate in the biggest races in the world such as the Tour de France. There are furthermore about 20 riders in the team, so the size of the data set is really too large to be handled with conventional methods. Beside raw data uploaded from the training computers, the data set also includes assessed feelings uploaded by the riders as well as health status and results from races. We hypothesise that this data can be used to for instance train a machine learning algorithm to help identify patterns which has led to either high performance or injuries and/or illness in the past.

How to Apply

Send the project leaders an email telling us who you are, including your CV. As the project is starting shortly, please contact us straight away if you are interested!

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