



Mission

Data analysis and performance model of elite athletes movement

Context

Within a collaboration between the French Federation of Cycling, CNRS (National Center of Scientific Research) and INSEP (National Institute of Sport expertise and performance), you will take part in the analysis and optimization of the start technique in BMX Race. The overall objective of the project is to help optimizing the performance of Olympic athletes. Using multiple data from several measurement devices (motion capture, connected objects, etc.) and mechanical simulations, you will develop an analysis scheme using statistical models and machine learning algorithms in order to extract performance criteria, classifying sub-groups of athletes and help identify promising athletes.

Organization

- Duration of internship : 4 to 6 months
- Starting time is ideally between January and April 2019
- Stipend is regulated by law: ~550€ /month
- Accommodation (housing and meal) facilities are available

Specific missions

Main

- Understand the needs and translate them into analysis solutions (statistical models, machine learning algorithms, etc.) adapted to the specificity of the data set and objectives
- Develop and test the models of data analysis
- Secondary
- Participate in the writing of report for the trainers and athletes
- Participate in experimentation with the athletes of the French National Team

Location



- CNRS Pprime Institute, *Biomechanics, Robotics, Sport and Health* team, Poitiers (FR)
- Center for Analysis of Pictures and Sport Performance, Poitiers (FR)
- French Federation of Cycling, Saint-Quentin-en-Yvelines (FR)

Candidate profile

Enrolled in a higher education (Engineering school or University Master) program with a major in applied mathematics, statistics or data science, you ideally have a first experience (job, internship, school project, etc.) relevant to the mission.

Specific skills

- With a strong analysis mind, you master advanced statistical models and machine learning algorithms
- You are proficient with the use of dedicated statistics software and computing languages such as R and/or Python and/or Matlab, etc.
- You are rigorous, proactive, have good relationship skills and the ability to work with different profiles including non-specialists
- Basic knowledge in (bio)mechanics/motion analysis is a plus, as well as an interest in cycling or elite athletes performance

Contact to apply and for any enquiry:

Mathieu DOMALAIN

mathieu.domalain@cnrs.pprime.fr

Phone number : +33.5.49.49.67.71