

Job title: (Bio)mechanical Engineer

Mission

Biomechanical analysis and simulation of elite athletes movement

Summary of Role and Context

The overall project is a collaboration between the French Federation of Cycling, CNRS (National Center of Scientific Research) and INSEP (National Institute of Sport Expertise and Performance); it aims at analyzing and improving the start technique in BMX Race of elite athletes. Using data originating from several measurement systems (motion capture, connected objects, force sensors, etc.) and mechanical models, you will 1) optimize and automate the current analysis methods and 2) develop predictive mechanical simulations in order to help improving athletes technical skills and equipment configuration.

Position details

- Employment type: Full-time work
- Duration of employment: Fix term (1 year), renewable
- Salary is commensurate with experience
- Possibility to enroll in a PhD program
- Benefits: On-site housing and dining option, flexible start/end of working hours, occasional work from home, corporate events, foreign business trips
- Position open until filled, applications will start to be reviewed end of September 2017
- The position may start from Nov 2017 to early 2018 depending on candidates availability

Essential Responsibilities

Main

- Improve (increase robustness, versatility, computer efficiency, and overall usability) of already existing computer codes
- Develop and evaluate mechanical simulation methods (multi-body systems dynamics) of rider-bicycle interactions
- Handle the database management
- Understand athletes' needs and translate them into analysis solutions
- Present and discuss results, make suggestions in terms of performance related parameters

Secondary

- Participate in data collection with the athletes of the French National Team
- Participate in the writing of reports for the trainers and athletes
- Participate in the writing of scientific articles



Qualifications

Required Qualifications:

- MS degree (or engineer diploma) in the technical field of the project: mechanical engineering, physics or a related discipline
- Demonstrated ability to conduct analysis of experimental data and perform mechanical simulations using programming skills
- Fluent in French and/or English – written & verbal

Desired Qualifications:

- PhD degree in mechanical engineering, physics or in a related discipline
- Knowledge of biomechanical analysis of human motion is definitely a plus
- Prior experience in participating in (bio)mechanical engineering related projects
- Demonstrated programming skills in at least one of the following languages: Matlab, Python, C++ ; especially for matrix and formal calculus
- Experience in using CAD software such as Solidworks
- Knowledge of *Opensim* environment (<https://simtk.org/projects/opensim>) is a plus
- Good problem solving skills and knowledge of experimental methods
- Strong organizational skills along with demonstrated ability to manage multiple tasks simultaneously
- Ability to work well within a team and an interdisciplinary group project
- Self-driven, innovative, proactive attitude with careful attention to detail
- Demonstrated ability to write technical/scientific reports
- Global interest in cycling and/or elite athletes performance

Location

- CNRS Pprime Institute, *Biomechanics, Robotics, Sport and Health* team, Poitiers (FR)
- Center for Imaging Analysis and Sport Performance, CREPS de Poitiers (FR)
- Poitiers is well served by TGV (1h30 from Paris and Bordeaux)
- French Federation of Cycling, Saint-Quentin-En-Yvelines (FR)

Application

Send detailed CV and cover letter to:

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