**Call for applications**

**The International PhD Program**

**“Science and Health in Football”**

**awards**

**1 PhD Position**

**(two-year doctoral scholarship, net 1.200 Euro per month;**

**possible extension for a third year)**

**on the research topic**

**Identification and characterization of injury-prone situations
in football based on machine learning-based video analysis**

**Research topic and project outline:**

Although several epidemiological studies exist in professional and (less frequently) amateur football, analysis of injury mechanisms has not been undertaken to the same extent. Nevertheless, some preventative programs have been developed and evaluated mainly based on expert assessments. These approaches typically stop at the individual level, i. e. by the analysis of actions of the injured player. They do not include broader match situations (like constellations of several players) although information about them is considered potentially helpful for reducing the injury rate. The latter claim needs confirmation, of course, but this will be impossible without an identification and meticulous characterization of such situations. As an analysis of high numbers of situations would be advantageous for this approach and manually screening videos is time-consuming, machine learning algorithms might be very helpful. However, there is no ready-to-use program that only has to be run over a high number of videos. Instead, part of the project will be its development.

**The candidate**

This project in professional football is not necessarily confined to Germany but to those leagues for which videos are available that can be analyzed by machine learning. Therefore, broader language skills might be advantageous although the main language within the PhD program is English. The optimal candidate owns a combination of sport science and programming/informatics skills. The highest university degree being obtained has to be on a master level or equivalent. When studies in injury epidemiology or analysis have already been conducted, this is considered a plus.

**The PhD program and research framework**

The international doctoral program is academically hosted by the **Institute of Sports and Preventive Medicine**, Saarland University, Saarbrücken (Germany). However, this particular scholarship is funded by the **DFL** (Deutsche Fußball Liga, German Football League) and conducted in close cooperation between both institutions. Co-supervision will be provided by Prof. Dr. Werner Krutsch (Regensburg University) and Prof. Dr. Daniel Memmert (German Sports University, Cologne). Further established scientific co-operations exist with the Centre Hospitalier de Luxembourg, the University of Technology in Sydney, the University of Sydney , the University of Basle (Switzerland) as well as the universities Groningen (Netherlands), Liverpool (UK) and Stellenbosch (South Africa). The program aims at improving the scientific approach to football (i. e. soccer) by investigating health issues as well as at teaching academic skills for interested and qualified students with master’s degree or equivalent.

The doctoral researchers will work under the co-supervision of **Prof. Dr. med. Tim Meyer** (head of the PhD program) and **Prof. Dr. Werner Krutsch and Prof. Dr. Daniel Memmert**. **Dr. phil. Maria Grammenou and Dr. phil. Sabrina Forster** will participate as program coordinators. A multidisciplinary study program, including courses about the theoretical background of the research topic, practical work in performance diagnosis, teaching and transferable skills courses will complement the PhD project.

**Saarland University** will be the formal research and teaching environment. However, a considerable part of the PhD period will have to be spent in other places where studies may take place, e. g. Cologne. The Institute of Sports and Preventive Medicine is a licensed FIFA (Fédération Internationale de Football Association) Medical Centre of Excellence and a Medical Examination Centre of the German Olympics Sports Federation (DOSB). Due to numerous activities with highly trained football players and the long-term extensive cooperation with the DFL, the DFB (national football association) and UEFA (European confederation) it offers a profound expertise in football science and medical care for athletes and patients.

**Deutsche Fußball Liga** (DFL; German Football League)

DFL Deutsche Fußball Liga is responsible for the organisation and marketing of German professional football. It draws up the fixture lists for all 612 Bundesliga and Bundesliga 2 matches each season, but also for the Play-Offs and the Supercup. In addition, DFL handles the organisational side of player transfers. Furthermore, the 36 professional clubs have tasked the DFL with marketing the media rights to these matches nationally and worldwide on the best possible terms.

In the context of the extensive licensing procedure that the clubs themselves have imposed through the League Statutes, the DFL checks that the clubs meet the prerequisites for participation in match operations on the basis of numerous criteria. The economic criteria are of particular importance here. Recently, DFL has founded a working group "Medicine in Professional Football" which will play an advisory role for this PhD project.

**How to apply**

Candidates are asked to send applications including CV, description of academic performance and relevant experience, translated copies of university certificates (German or English), two letters of recommendation and a letter of motivation no later than **December 31st, 2023** to the following e-mail address (preferably as single pdf file): maria.grammenou@uni-saarland.de. Alternatively, documents can be sent to the following postal address: Dr. Maria Grammenou, Institute of Sports and Preventive Medicine, Saarland University, PhD program ‘Science and Health in Football, Campus Bldg. B 8.2, D-66123 Saarbrücken, Germany.

For detailed information about the application requirements consult www.sportmedizin-saarbruecken.de.