MSc Assignment

Analysis of the football - boot contact

Company

Adidas is a global sportswear brand with a rich history and heritage in football boot innovation. Since its beginnings in 1949, Adidas has revolutionized football footwear with iconic models like the Predator franchise, worn by legendary players such as David Beckham, Zinedine Zidane, and Jude Bellingham. Adidas has consistently pushed the boundaries of football boot design, blending heritage with innovation to equip players with the best tools for success on the pitch.

Approach

When playing football, the boot is the interface between the athlete's feet and the ball and thus is the key element to help football players score more goals. At Adidas, we strive to deliver only the best for the athlete, so lace up your creativity and contribute with a master's thesis on the tribological interaction of the football and the football boot.

In engineering football boots to enable more accurate ball touch & ball kick, it is first necessary to understand and characterize the ball-boot interaction and define the most impactful metrics for a football boot. The contact is characterized by highly dynamic phenomena, complex deformation of the ball and the boot, and frictional stick and slip phenomena.

Tasks:

- Conduct a literature review on the subject of boot–ball interaction and underlying contact and frictional behavior
- Characterize the tribosystem through the appropriate methods
- Based on literature and the characterized tribosystem, develop a basic model describing the boot–ball contact including frictional
- Validate the results on a product level at the adidas facilities in Herzogenaurach
- Write a report summarizing all meaningful results

We offer:

- Support through knowledge, testing facilities, and materials necessary for the successful completion of the study
- To host the student for a part of the thesis (working student contract)

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