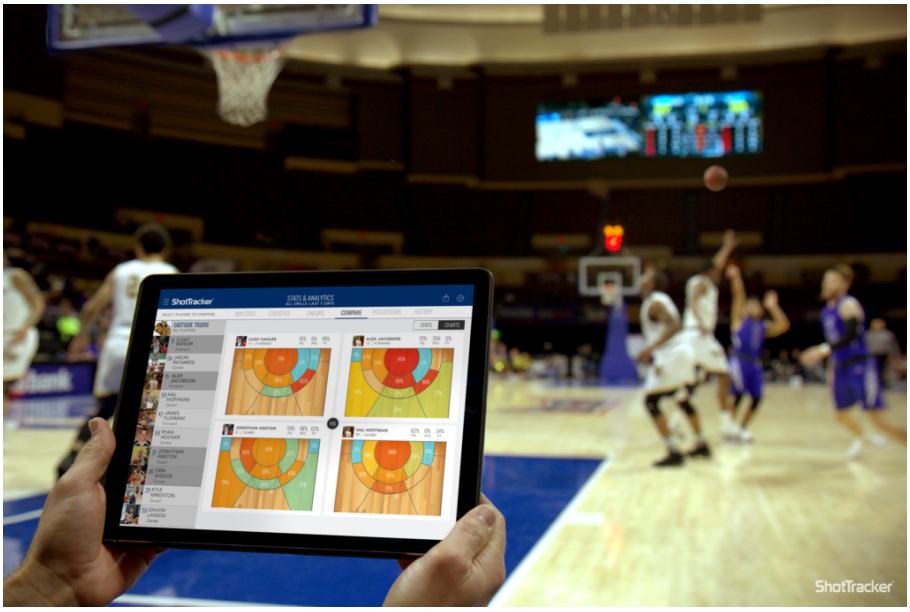
Transforming basketball analytics through privacy-respecting AI and synthetic data



The student will do research at the intersection of privacy, AI and basketball. Using the constraint-led approach (CLA) and ecological dynamics movement theory explained in Transforming Basketball (by Alex Sarama), the intern will identify opportunities for action in real-world publicly-available games and will create a synthetic basketball dataset modeling information flows after the Contextual Integrity (CI) framework but in the basketball setting. This privacy theory will in turn allow the student to identify privacy-sensitive data and simulate a federated learning setup that allows clubs to train machine learning models that helps coaches identify in real-time the weak points of their team.

The first two weeks the student will familiarize themselves with the CI framework, the CLA and the ecological dynamics theory. After this short literature review, the focus will be on generating enough data to simulate a few key plays in a game chosen by the student. This data will then be subject to 1) a basketball analysis to identify possible causes for the movements chosen by the players, and 2) a privacy analysis to select those relevant information flows that should be kept private to the clubs in a practice setting.

Practicalities

Supervisors: Rafa Gálvez you@esat.kuleuven.be office 00.19

 © 2025-2026 COSIC