

Obtaining 2D Positional and Pose Estimation Data from American Football Footage for 3D Simulations

VTUL COLLABORATIVE GRANT REPORT

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Project Goal

Develop a computer vision algorithm to intelligently determine where players are located on the field using various field markers such as yard line markers.

Approach

- homography transformation which will allow us to transform the view of the footage
- Convert top-down position for exporting of player data to a game engine such as Unity or Unreal.
- Assigning unique tracking IDs to each of the players on the field so that positional and pose estimation data can be assigned to one player as they are tracked as they move across the field of play.
- Track the football's position as it moves from player to player.

Accomplishments and Challenges

Accomplishments

- Reliable model for converting player position and pose to 3D space
- User ready interface for loading video, converting, and reviewing in 3D space

Challenges

- Pose is still very difficult with the video footage available
- Occlusion is partially addressed but still difficult

Demo Video

