

# AI Soccer: the most effective methods to dispossess the opponent player

## 1. BACKGROUND

- AI World Cup is a 5v5 AI soccer simulation
- TU Delft AI World Cup team is still relatively new and not very advanced

## 2. RESEARCH QUESTIONS

**What are the most effective methods to take by surprise and dispossess the attacking opponent player who carries the ball?**

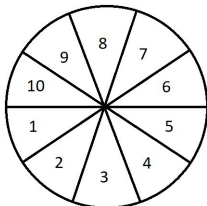
- Determine which approaches should be considered
- Determine how to combine successful approaches into single strategy

## 3. METHOD

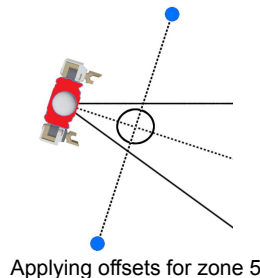
Experiment with several strategies and compare them:

- Move to current location of the ball
- Move to linearly predicted location of the ball
- Move to linearly predicted location of the ball using offset
- Move to predicted location of opponent
- Move to predicted location of opponent using offset
- Move to predicted location of opponent using optimized offsets

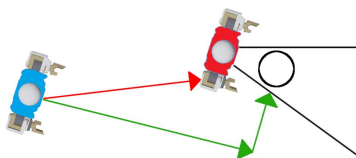
- Predicted location of opponent is calculated using its recent coordinates, rotations and velocities
- Offsets are small x- and y-values applied to the predicted opponent coordinates to move the defender around the opponent



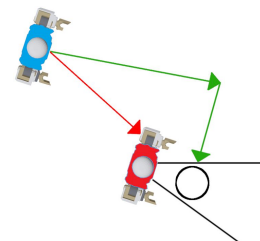
Division of area around opponent into 10 zones



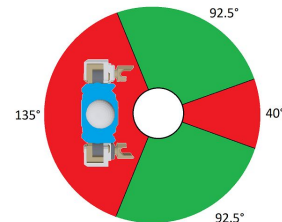
Applying offsets for zone 5



Approaching the ball from below



Approaching the ball from above



Top view of player carrying the ball

## 5. CONCLUSIONS

- Predict where opponent is going
- Avoid collisions with opponent by moving defender to left or right side of the opponent using offsets before attempting to dispossess the opponent
- Apply strategy consisting of combination of mentioned methods

### Contact Info

Sam Heslenfeld  
s.a.heslenfeld@student.tudelft.nl  
Professor: Rafael Bidarra  
Supervisor: Kushal Prakash

## 4. RESULTS

Method number	1	2	3	4	5	6
Dispossessions	32%	72%	72%	68%	88%	92%