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Goalkeeper Strategies For A Virtual Football Robot

TU Delft

1. BACKGROUND

- Goalkeeper created for the ***AI World Cup***, a virtual football competition.
- Current participating teams use a ***basic goalkeeper***, which can only stand in the middle of the goal.

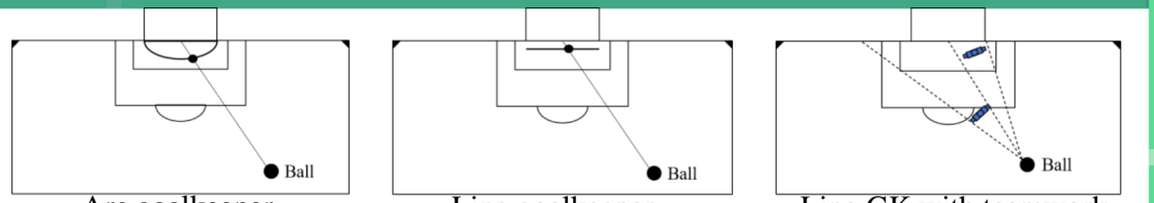
2. RESEARCH QUESTION

What are the most effective methods for the goalkeeper to save a shot at the goal? Focus on:

- Goalkeeper positioning
- Teamwork with defenders

3. METHOD

- Two new positioning techniques are considered and compared to the widely-used basic goalkeeper.
- The use of teamwork is implemented and its performance is evaluated.



Arc goalkeeper | Line goalkeeper | Line GK with teamwork

4. RESULTS

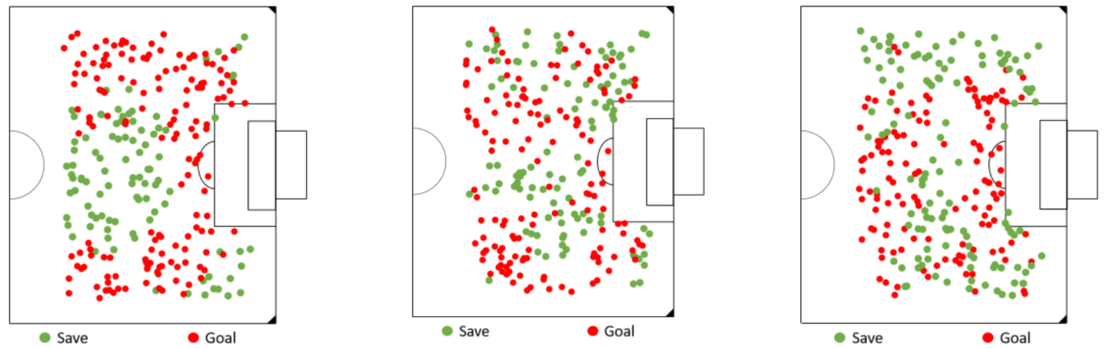


Figure 1: The success of the shots mapped to the locations of the shots for the basic, arc and line goalkeeper, respectively.

	Save Rate	Mean Zone Value
Basic GK	38.4%	-0.07702 (0.424494)
Arc GK	42%	-0.3572 (0.34951)
Line GK	48.6%	-0.21676 (0.39726)

Table 1: Performance of the goalkeepers tested over 250 shots. Lower Mean Zone Value corresponds to better coverage.

	Save Rate
Line GK	57%
Line GK with teamwork	72%

Table 2: Goalkeeper that works together with defender, compared to keeper without teamwork.

5. CONCLUSIONS

- Positioning methods show clear improvement over basic goalkeeper method.
- *Teamwork makes the dream work*. Best performance achieved by working together with the defender.
- Using positioning methods is the way forward for a goalkeeper in the AI World Cup.