Master Degree Thesis

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Collaboration: start-up Teamies

Fantasy football forecasts

an evolutionary algorithm

What is fantasy football?

- Players assemble a team virtually buying footballers using a fixed amount of fantasy money.
- Players line up a formation using their footballers and score points according to their real performance on the field.

The aim of the thesis

- To redesign and implement part of the application structure
  - the redesign and the implementation of the database
  - the development of web scrapers to collect all the information
- To rewrite and improve the forecast algorithm using an evolutionary algorithm

Statistics considered

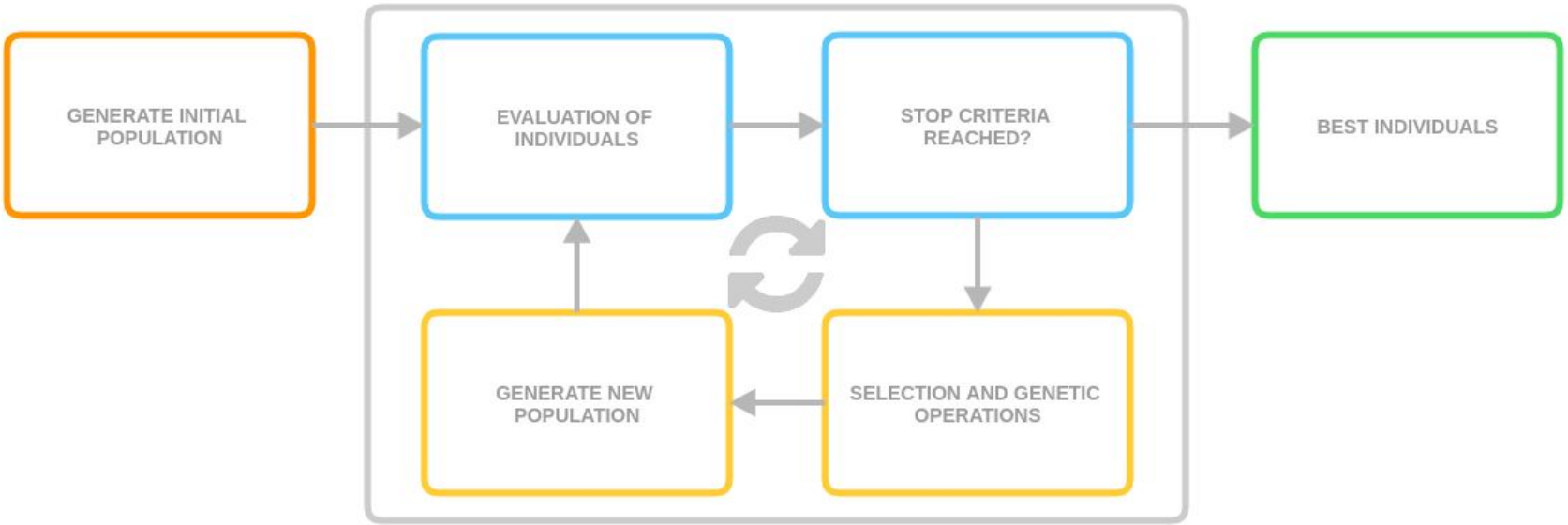
Footballers:

- Match grade
- Scored/conceded goals
- Role
- Bonus and malus
- Market value
- Probability to play
- Etc...

Teams:

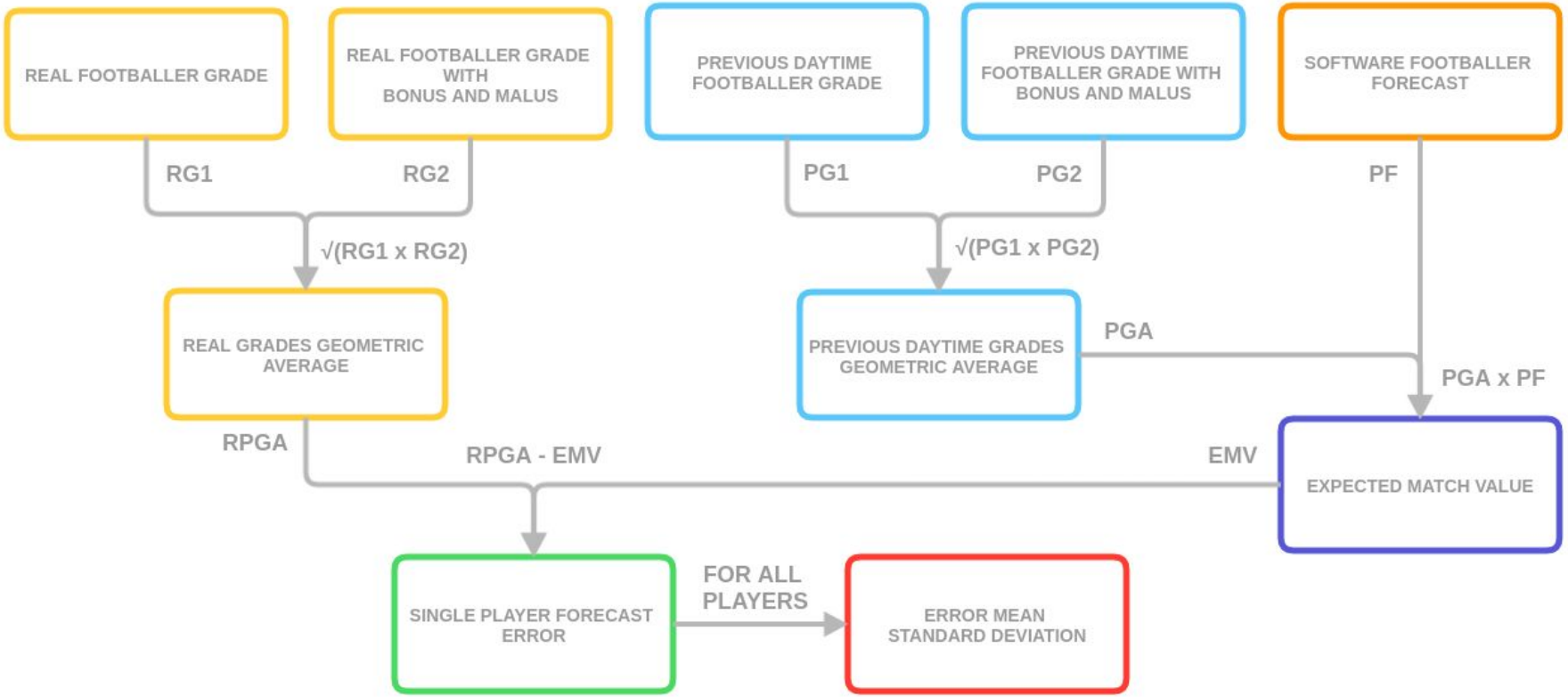
- Ranking
- Number of wins, ties and lost matches
- Bets on their performance
- Points
- Scored/conceded goals
- Etc...

Evolutionary algorithm

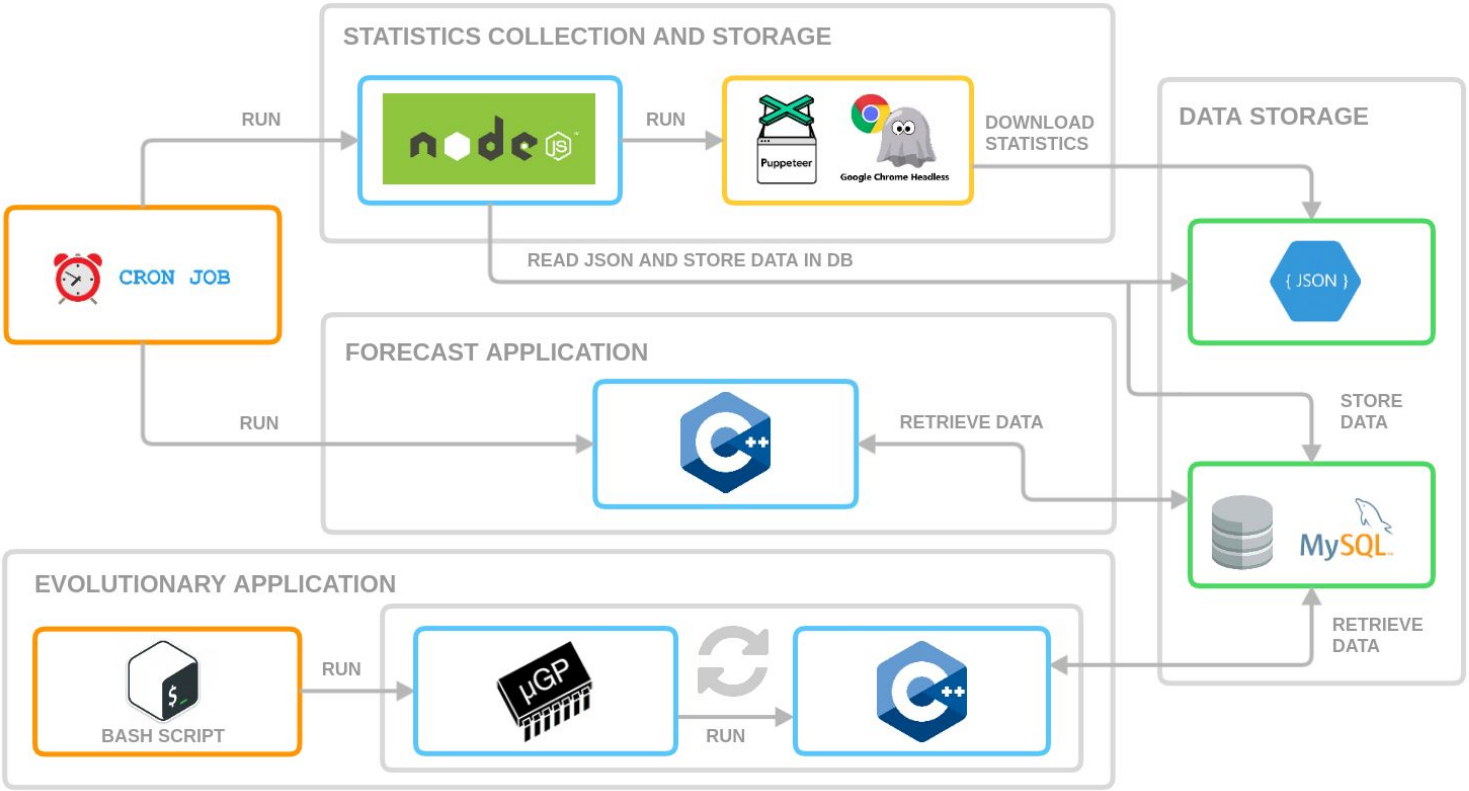


- Initial population size: 700
- Variance: 0.9
- Maximum population size: 200
- Inertia: 0.9

Fitness function



Application structure



Test introduction

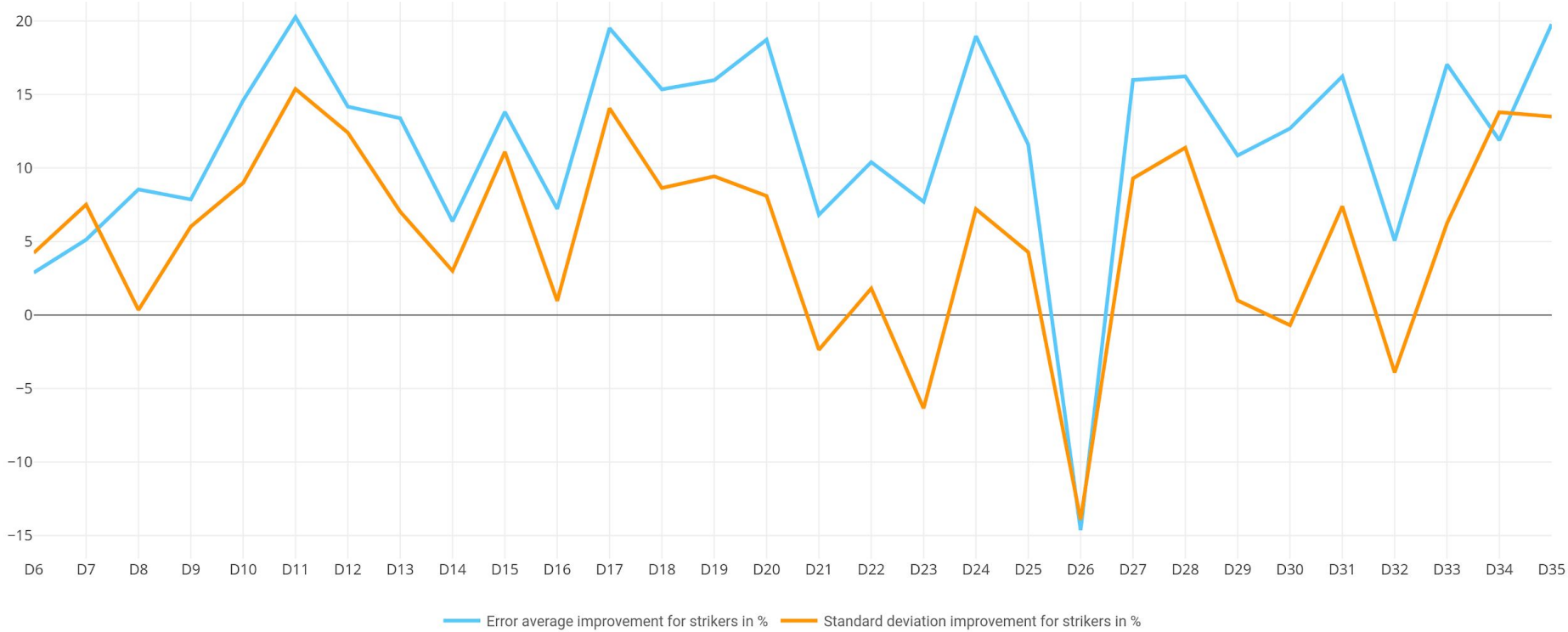
The dataset (championship 2017-2018):

- 33 championship daytimes
- 20 teams every daytime
- 1000 footballers every daytime (100 goalkeepers, 350 defenders, 350 midfielders, 200 strikers)

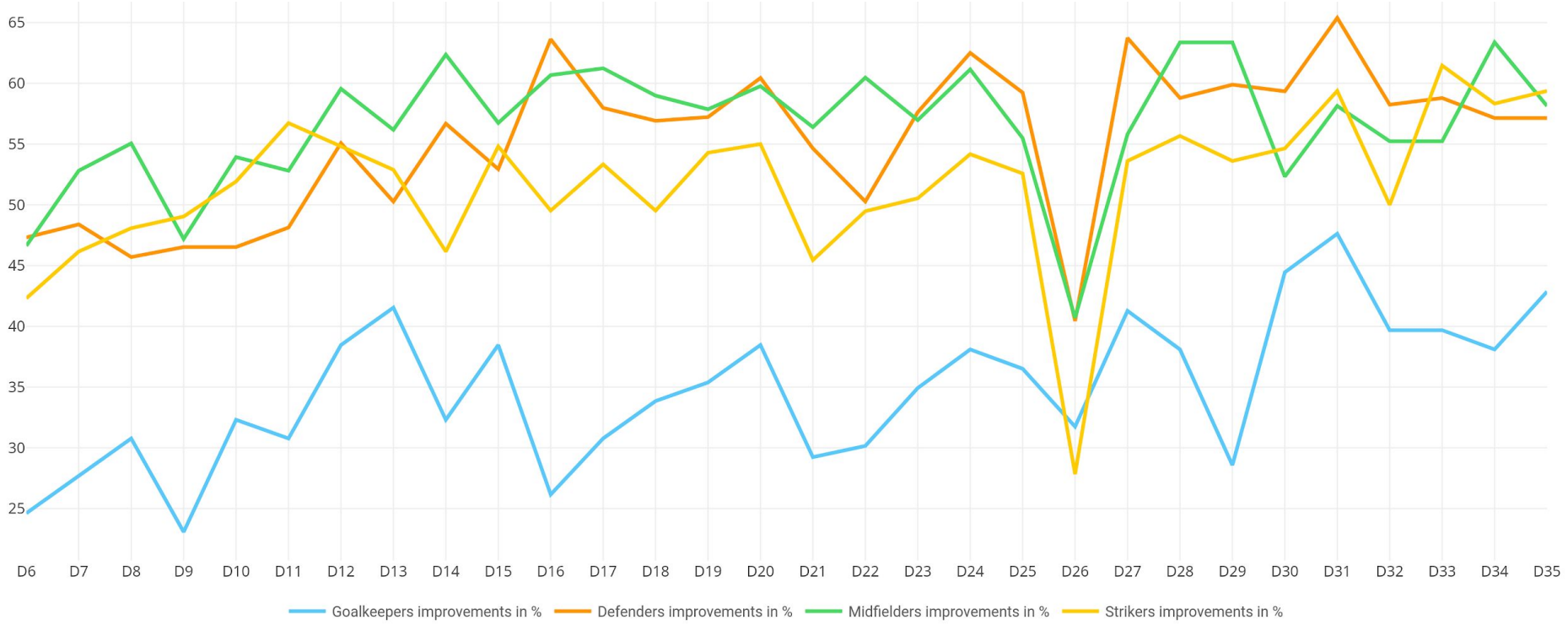
Test guidelines:

- Footballers divided by role
- Single daytime
- All daytimes: training set(75%), testing set(25%)

All daytimes: error analysis

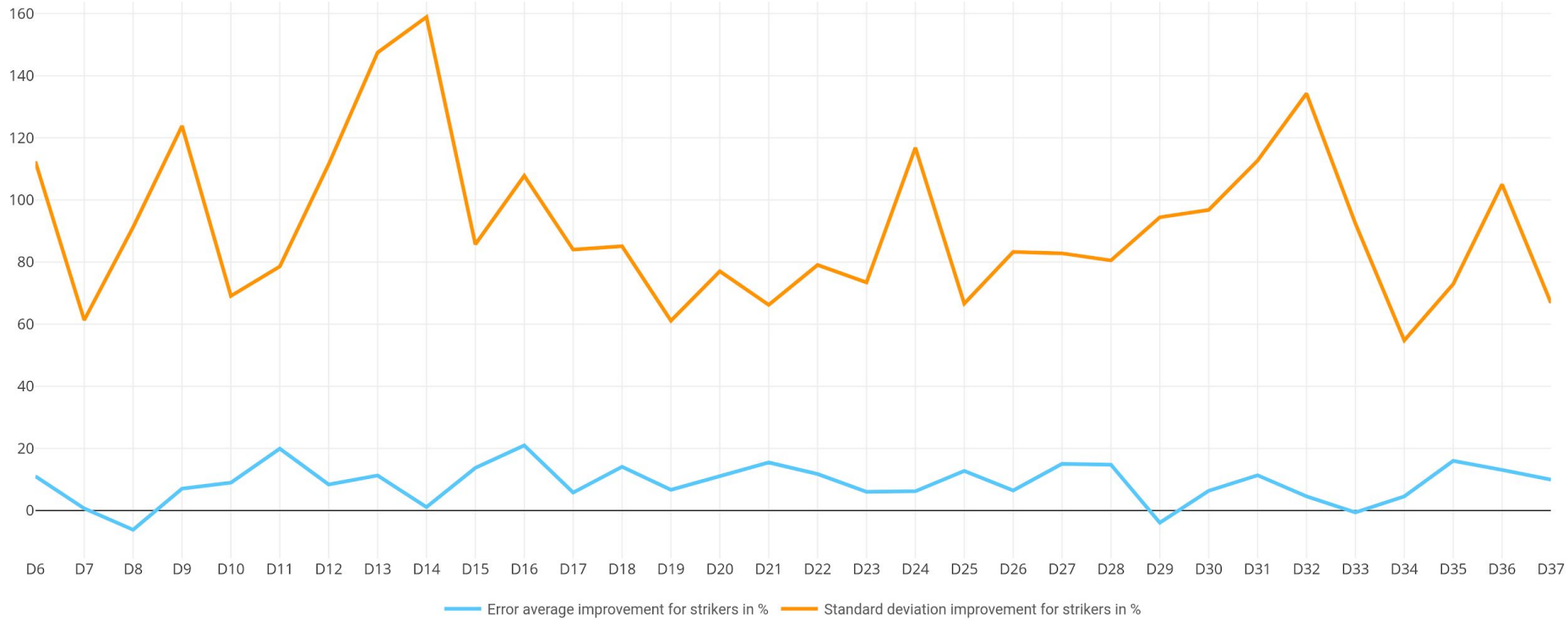


All daytimes: footballers improvements

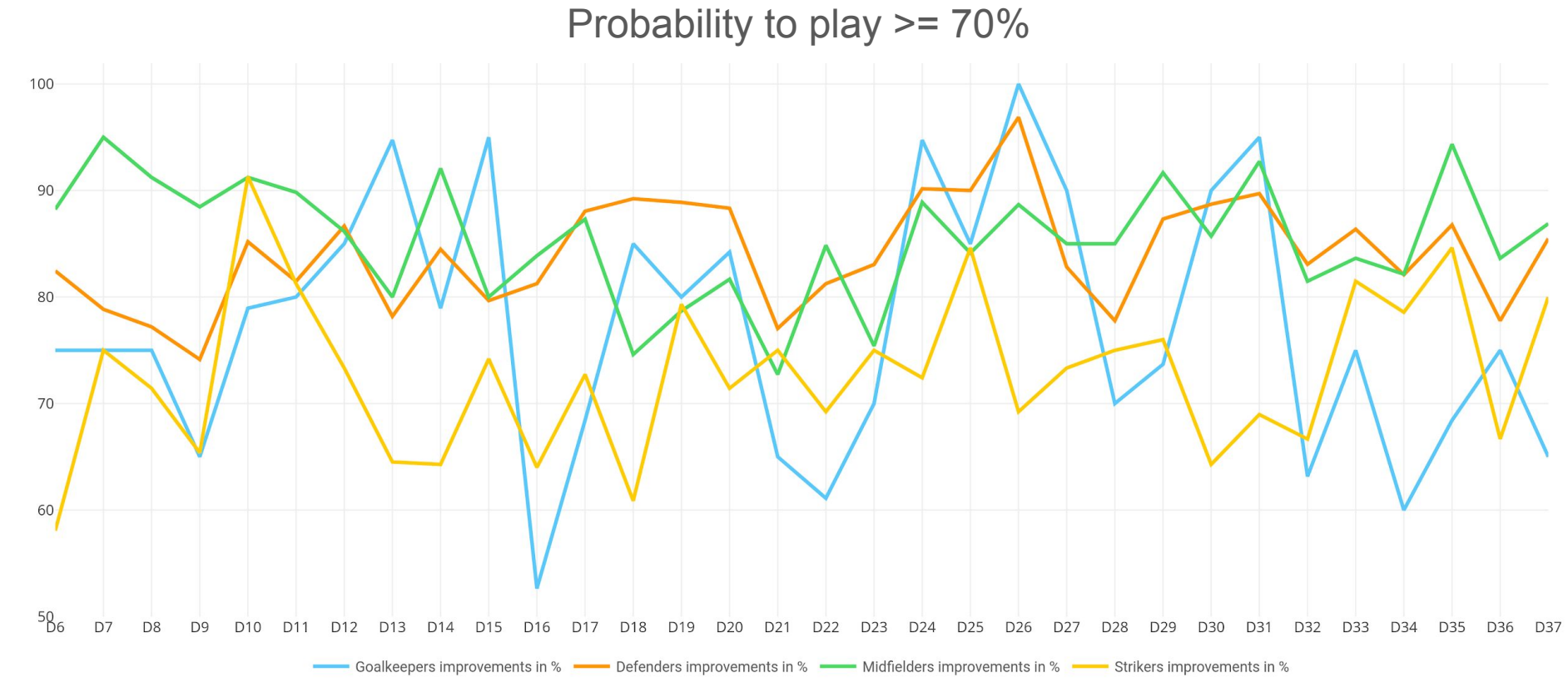


All daytimes with filter: error analysis

Probability to play >= 70%

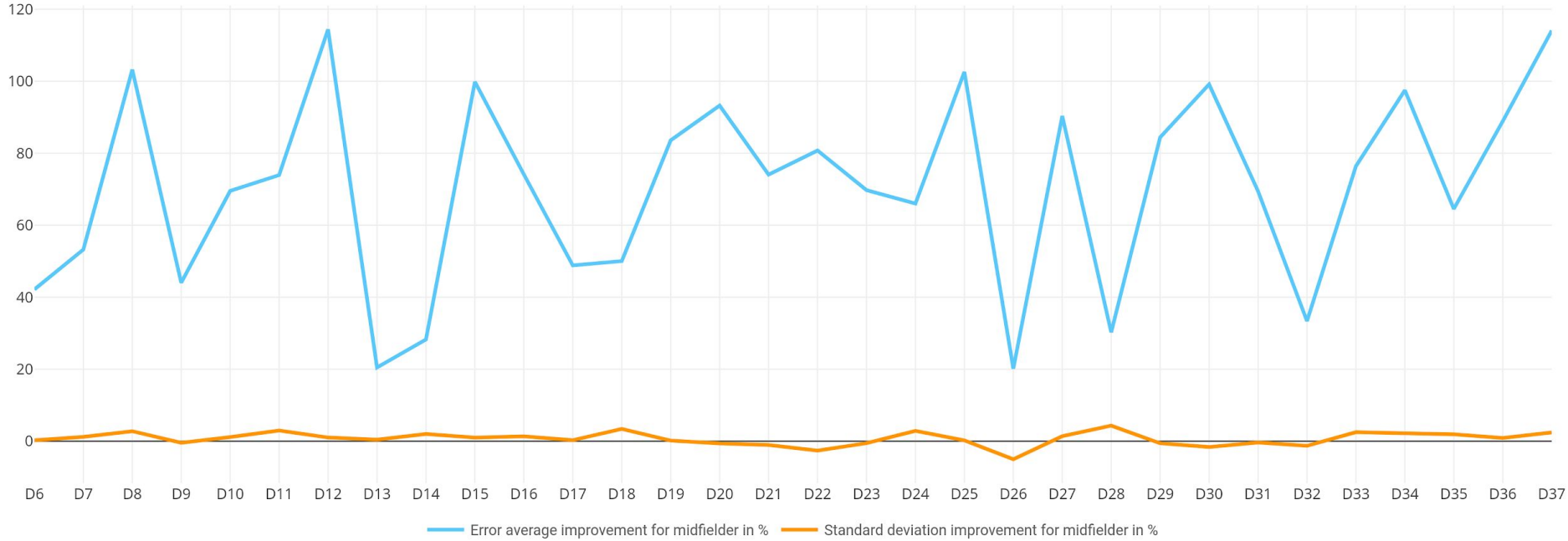


All daytimes with filter: footballers improvements



All daytimes with filter: error analysis

Probability to play between 45% and 69%



Conclusions

RESULTS:

- Excellent improvements on footballers with probability more than or equal to 70%
- Acceptable results on footballers with probability to play between 45% and 70%

WHAT IS NEXT:

- To design a specific forecast algorithm for footballers with probability to play between 45% and 70%
- Neural network