EÖTVÖS LORÁND TUDOMÁNYEGYETEM
INFORMATIKAI KAR

SZAKDOLGOZAT TÉMABEJELENTŐ

Hallgató adatai:
Név: Jakab Márton Zoltán
Neptun kód: X5MC0I

Képzési adatok:
Szak: programtervező informatikus, alapképzés (BA/BSc/BProf)
Tagozat : Nappali

Belső témavezetővel rendelkezem

Témavezető neve: *Gombos Gergő*
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beosztás és iskolai végzettsége: ***Adjunktus, PhD***

A szakdolgozat címe: Implementation of TrueSkill 2 skill rating system in Python

A szakdolgozat témája:
(A témavezetővel konzultálva adja meg 1/2 - 1 oldal terjedelemben szakdolgozat témájának leírását)

What is Trueskill

Trueskill is a rating system, used in various games to rank the skills of individual players, and teams.

The research paper was published by Microsoft, and the company still actively uses this system for its XBox services.

Trueskill uses the outcome of previous games (either winning or losing) as its input for evaluating skills, and calculates the likelihood of the next game's outcome being won or lost.

Trueskill 2 is an improvement upon the original Trueskill, considering several more metrics measured within a team-based online shooter.

Examples of these metrics include the score of each player in a specific game, skill in similar gamemodes, and tendency to quit the match early.

The paper regarding the extension was published by Microsoft in 2018, but currently has no publicly available implementation.

The research claims Trueskill 2 is a significant improvement over the original Trueskill, predicting match outcomes with 16% higher accuracy.

My thesis would consist of implementing and documenting the improved system in Python, and making it usable in a similar manner as the original.

Details

The tool would be organized into a Python package, therefore ensuring ease of use.

Evaluation of the mathematical algorithms involved with the project would depend on an external mathematical Python library.

The implementation would use Bayesian statistics as a model for its calculations.

Motivation

I myself play games that depend heavily on fair matching of teams, and therefore ensuring a balanced and fun experience.

I'm also interested in the inner workings of these systems, which makes this topic ideal for me.

Budapest, 2022. 11. 19.