



Topics in Ranking Systems

Want to finally prove, with cold, hard math, that you are objectively better than your friends at Smash Bros, darts, or board games? Settling petty rivalries and moving past lucky winning streaks requires a smart rating system that reveals who *actually* plays consistently better. From backing up ultimate bragging rights in casual game nights to powering global e-sports matchmaking and AI evaluations, ranking systems turn competitive chaos into an undisputed leaderboard.



Yet, summarizing human performance into a single clean rating is surprisingly tricky. Traditional models rely on heavy simplifications, but real competition involves dynamic playstyles, intricate team synergies, and huge streams of live data. The challenge lies in designing algorithms that hit the sweet spot between mathematical rigor, high predictive accuracy, and real-time efficiency.

We invite you to explore theoretical or applied projects on ranking systems—ranging from multi-dimensional skill extensions (e.g., TrueSkill, Bradley-Terry) and non-transitive dynamics to team performance aggregation rules, streaming online optimizations, or anchored scoring frameworks.

Requirements: Strong motivation, ability to work independently, and interest in conducting exciting research. Solid mathematical background (ability to write valid proofs) and strong coding skills. Coming up with your own original ideas is highly appreciated.

Interested? Please get in touch for more details!

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