Abstract: Deep Learning for Strategic Play Style Categorization in Rocket League

Introduction

Esports has emerged as a multi-billion-dollar industry, with games like Rocket League attracting millions of players and viewers worldwide. Despite its rapid growth, many teams rely on anecdotal evidence and subjective judgment to formulate strategies, missing the opportunity for data-driven decision-making. This workshop aims to bridge that gap by demonstrating how deep learning techniques can analyze Rocket League gameplay, categorize play styles, and predict match outcomes. By leveraging car selection, team formation, and player behavior data, attendees will gain actionable insights to optimize performance and make informed strategic decisions.

Methodology

The workshop will showcase a novel approach using gameplay data sourced from Omnic Data, an AI-based analytics tool that logs detailed in-game events like ball touches, boost usage, and player positioning. This data will be transformed into time-series representations to model the temporal and spatial dynamics of gameplay. Participants will learn how to implement Convolutional Neural Networks (CNNs) to define spatial relationships and Long Short-Term Memory (LSTM) networks to capture the temporal sequences of gameplay events. Evaluation metrics, including accuracy, F1 scores, and precision-recall values, will be used to assess model performance. A hands-on session will demonstrate how K-fold cross-validation ensures robust and generalized results.

Expected Outcomes

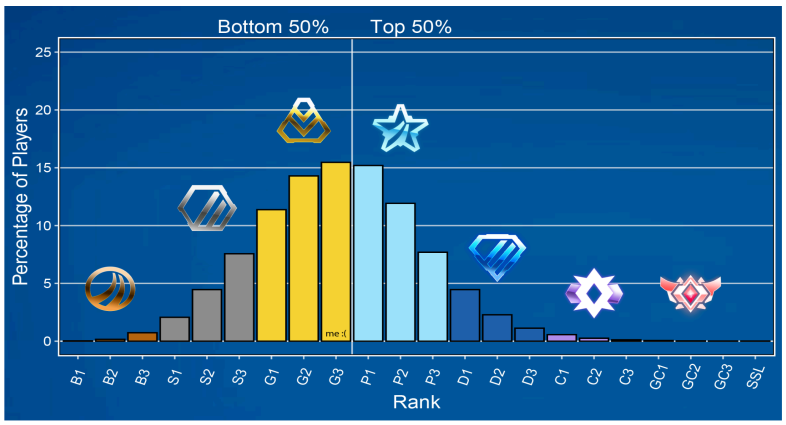
The workshop will present predictive models that can achieve 88-92% accuracy in forecasting match outcomes and over 91% accuracy in classifying play styles (e.g., aggressive vs. defensive). These models highlight the critical role of strategic factors such as car selection, boost management, and player positioning in determining success. Participants will also explore the impact of player rank distributions on gameplay styles, gaining insights into how strategies vary across competitive skill tiers. A visual representation of player rank percentages (Fig. 1.0) will guide discussions on tailoring strategic recommendations for different player segments.

Conclusion

This workshop will provide participants with the tools and knowledge to integrate deep learning into Rocket League strategy formulation. The methodologies discussed are transferable to other esports titles, offering a framework for competitive gameplay analysis. By identifying and leveraging critical success factors, attendees will be equipped to inform coaching decisions, optimize team compositions, and elevate performance. The inclusion of rank-based gameplay analysis ensures a nuanced approach to strategy development, emphasizing the importance of adapting to player skill levels.

Attendees will leave with hands-on experience, practical tools, and a clear roadmap for applying deep learning to esports strategy, empowering them to advance their understanding of competitive play through data-driven insights.

fig. 1.0: Percentage of Players Across Competitive Ranks.



fig(1.0)