Weavr Companion App: Data-driven Storytelling for Live Esports Events

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Abstract
This position paper briefly introduces the Weavr project, a major UK industrial project for enhancing the audience experience in esports. We introduce the context for the project, describe the general approach and introduces the Weavr companion app, a second-screen app for mobile devices that has been deployed at two large international arena esports events.

Author Keywords
Dota 2; esports; livestreaming; second screen

CCS Concepts
•Human-centered computing → Human computer interaction (HCI);

The Weavr Project
Weavr is a 2-year collaborative project focussed on the spectator experience of esports, as competitive videogame play[7, 8], sometimes watched by millions of people. This £5.8m project is part funded by UK Research and Innovation (UKRI), the UK Government's non-departmental public body for innovation and research, as part of the Industry Strategy Challenge Fund (ISCF). The ISCF's "Audience of the Future" challenge to bring the UK's creative businesses, researchers and technologists together to create the next generation of highly immersive experiences. The Weavr

consortium was selected as the winner of the Sports & Entertainment category.

The project involves six partners:

- **ESL** is the world's largest independent esports company, leading the industry across the most popular video games with numerous online and offline competitions. It operates high profile, branded international and national leagues and tournaments such as the Intel® Extreme Masters, ESL One, ESL National Championships and other top tier stadium-size events, as well as grassroots amateur cups, leagues and matchmaking systems.
- **The Digital Creativity Labs** at the University of York, is an £18 million interdisciplinary laboratory and think tank focusing on research and innovation in games, interactive media and the rich space where they converge.
- **Focal Point VR** produces a range of high-end VR camera rigs and live 360 video production products based on its proprietary Ubiety ultra-high resolution software platform.
- **dock10** is the UK's leading television facility, with ten purpose-built state of the art studios, and extensive post-production facilities that are used to make television shows including The Voice, Happy Valley, and Match of the Day.
- **REWIND** is an immersive content studio with a passion for AR, VR, MR and beyond, delivering immersive experiences for the world's largest studios, agencies and brands.
- **Cybula** specialise in data mining and data analytics for Big Data applications.

The aims of the Weavr project are to find insight and opportunities for technologies in support of audiences on the future, using esports as a demonstration. For example, building on academic work in this area (e.g. [4, 10, 6, 5, 11]) and industry efforts (e.g. [3, 2, 1]), and allowing fans to immerse themselves in high fidelity statistics, visualisations and data-driven stories that give them deep insights into the live match, using AI & data learning to create highly personalised experiences, and enabling them to seamlessly move between virtual and physical viewing, as well as utilise second screens to watch immersive esports content on the go. Esports viewers are often early adopters of such technology[3].

Companion App

One of the central ways Weavr is investigating opportunities to support esports spectators is through the design, development, deployment and evaluation of the "Weavr Companion App".

The Weavr companion is a mobile phone app that translates live match data into interactive narratives and visualisations for esports viewers, providing real-time updates of the virtual arena and its objectives, explainers of important performances, live statistics and a personalised compilation of highlights.

The app is designed specifically for Dota 2, an extremely popular multiplayer online battle arena (MOBA) style game[9]. In Dota 2, two teams of five players compete to destroy the other team's base, through building up characters and fighting over strategic resources around a standard map.

Dota 2 is interesting as a platform for exploring the potential

Figure 1: Map/story view of Weavr companion app

Figure 2: Detailed statistics view of Weavr companion app

of data to enhance viewer experience since the game is very rich. There are over a hundred different characters available for players to choose from, which along with the choice of multiple items and abilities means there is a lot of potential complexity. Strategies and tactics emerge as players find synergies between characters and builds, and there is a highly competitive online community of players. In addition, a huge amount data for Dota 2 competitive play is readily available, that can inform analysis.

Given this complexity, the companion app focuses on three types of use: The story feed uses machine learning to analyse game events and report interesting statistics (e.g. "This player performance is within the top 5% this season"), the idea being this is a passive experience. There is also a map view with overlays that provide raw data about position, current build of characters, and stats like win prediction (Figure 1. Finally, there is an in-depth feature that allows more active engagement with data, for example comparing two players current performance (Figure 2).

The companion is designed to be used during live events, especially as a system that users experience as complementary to their spectating, as a second screen either in the stadium during the event, or remotely while watching via livestream.

Deployment

The Weavr companion app is currently under development, but as part of an iterative approach to building and refining the application, it has been deployed at two major events. ESL One Birmingham 2019, and ESL One Hamburg 2019. Both of these are large stadium-scale events, with several thousand spectators at the event in person, and many more watching online. They are professional tournaments, with international teams competing over prize pools in the hundreds of thousands of US dollars.

At ESL One Birmingham 2019, the app was demonstrated in person to interested audience members, and to "talent" (e.g. commentators & analysts) present, through semi-structured activities including "think aloud" activities to get a better understanding of how spectators approached the app. At ESL One Hamburg 2019, a public version of the ap-

plication was launched for Android platforms, which allowed data to be collected from much larger number of participants, and give a deeper understanding of how the features were used.

Conclusion

The Weavr project represents a major effort at exploring opportunities for enhancing spectator experience of live esports events. With the industrial focus of the project, there has been access to major events, production facilities and capacity that has allowed us to connect with thousands of esports fans. As part of this, we are conducting rigorous qualitative and quantitative studies.

Although we can't directly share the outcomes of these studies in this paper, there is work under embargo that we hope to share during the workshop, and the project in general is interesting as a case study of working with major esports and broadcast partners in this space. We hope to be able to share experience and learn from other participants about the opportunities and challenges in this kind of work.

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