

Towards Enhancing Game Telemetry with Facial Expression Recognition for Personalised Gameplay Experiences

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Abstract—Whilst the process of game design takes an inherently user-responsive approach, there is a feeling amongst designers that gameplay experiences could be further improved through the automated process of tailoring games to an individual's gaming preferences.

Behavioural telemetry (data describing what a player did in a play session) is often the first consideration for the design of personalised gameplay experiences, with applications in research often taking the form of 'responsive' games – games where levels, assets, overall difficulty, and game mechanics adapt to better suit a player's behavioural record. However, behavioural data depicts an incomplete picture of the player experience, lacking the ability to capture the way a player embodies the play experience: How did someone actually feel when fighting a monster, or exploring a dungeon? Efforts to capture this embodiment of player experience typically focus on the use of affective data (data describing a player's emotions in a play session), for example recordings of facial expressions. Existing games which integrate the use of behavioural and/or affective data have successfully explored the field of difficulty adaptation, providing players with more suitable levels of challenge than non-adaptive systems in multiple studies.

Over the course of this project, we have developed a test game, "Colour Rush", with the built-in ability to collect player typology data, facial expression data and behavioural telemetry. Players explore a series of algorithmically generated levels, as a co-operative multiplayer team, illustrating different facets of the game's design. The aim is to collect a robust, novel dataset to explore how game telemetry can not only be used in place of, or replaced by, affective data, but also how it can be enhanced through a combination of the two datasets to build and validate player typologies and select and generate user tailored content.

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