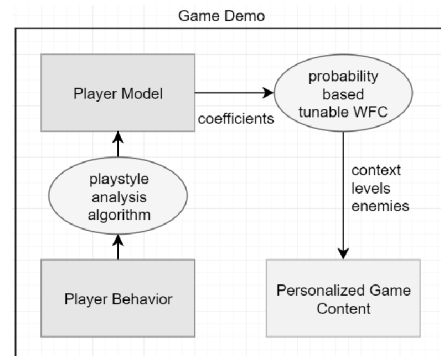


Master Thesis**Emergent Personalized Content in Video Games****Simone Guggiari****Introduction**

A huge amount of resources is invested in games regarding content creation. However many games fail to keep the user engaged as the content and challenges proposed do not always match the player skills and personality. Traditionally, games only offer the choice of difficulty which simply isn't expressive enough. The few games that have tried to dynamically adapt the game pace and content to the user have been critically acclaimed and were very well received. However, no general framework for content that is dynamically adapted to the user has ever been developed. This thesis aims at doing just that.

Task Description

The following tasks constitute the project:

- First, a model of the user is developed that can classify the players by analyzing their playstyle in the first levels, and therefore infer which challenges, pacing and layout would be optimal for the user. The model will be based on Bartle's player taxonomy and should be general enough to be applicable to videogames independently of genre.
- Second, an algorithm is developed that uses the player model to create different types of procedural content that is tailored and personalized for the specific user. The QM inspired Wave Function Collapse algorithm is tuned to search a particular probability space determined by coefficients provided by the player model.
- Third, a simple video game is developed that demonstrates the capabilities of the algorithm. The game prototype will be developed alongside the other algorithms to test applicability in an iterative fashion. The content within the game (context, level, enemy behavior) is generated procedurally by the engine and is optimized based on parameters inferred about the user.
- Fourth, a user study is conducted to test how the game adapts to different users and playstyles.

Timeline

Task	Due date
Start	October 14th 2018
Milestone 1: Research and concept definition	November 2018
Milestone 2: Player model algorithm	December 2018
Milestone 3: Implementation of tunable WFC	January 2019
Milestone 4: Game prototype	January 2019
Midterm presentation	Mid January 2019
Milestone 5: Implementation of video game	February 2019
Milestone 6: User study	March 2019
Milestone 7: Content intergration and polish	March 2019
Hand in thesis	April 14th 2019

Remarks

A written report and an oral presentation conclude the thesis. The thesis is overseen by Prof. Robert W. Sumner. Dr. Fabio Zünd and Henry Raymond supervise the student.