

# Methodics of Game Evaluation Based on Implicit Feedback

Peter DEMČÁK\*

*Slovak University of Technology in Bratislava  
Faculty of Informatics and Information Technologies  
Ilkovičova 2, 842 16 Bratislava, Slovakia  
piers.demcak@gmail.com*

As a part of the development and testing phase of game development, different prototypes of the game are being produced and subsequently tested for various qualities that the developers aim for – general usability of the game interface, performance, or just the plain entertainment value of the game. Playtesting[1] is a popular methodology used to evaluate certain properties of a game. During playtests, the object of evaluation is the experience of the players itself. With a particular gameplay feature in mind, the playtesting players are let to interact with the game as naturally as possible. However, playtesting does have shortcomings. It is disruptive to the player, so we can no longer tell, if we are measuring the exact experience real players are going to have with our game, and it is also incapable of collecting all of the information about the player experience.

The objective of our method is to provide an additional source of feedback from playtesting, which diminishes the aforementioned shortcomings when integrated into the playtest. Our method is based on implicit feedback, namely gaze tracking, thus, it is less disruptive for the player and uses a different source of information about the player than just the observation and the explicit feedback.

We propose Learning Case Mining as a method to be used for evaluation of the gameplay learnability. Learnability is especially crucial for games, because in order for games to be entertaining for the player, the player will have to be able to get a quick grasp of the basic game mechanics a dynamics. Learning Case Mining is to be used during the development and testing phase, simultaneously with common playtesting. It requires a testing device equipped with gaze tracking equipment and software.

Learning Case Mining is based on the principle, that each playtest has a hypothesis in the form of one or more game mechanics or dynamics, which need to be tested for whether the players get the grasp of them while the play. Therefore, game designers are capable of describing the interaction, in which they plan the player to learn a certain game mechanic/dynamic. This type interaction is called a learning case.

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\* Supervisor: Jakub Šimko, Institute of Informatics and Software Engineering

To use our method, the game designer creates a model of the learning case describing the expected player behavior. We formally model learning cases as activity diagrams (see Figure 1).

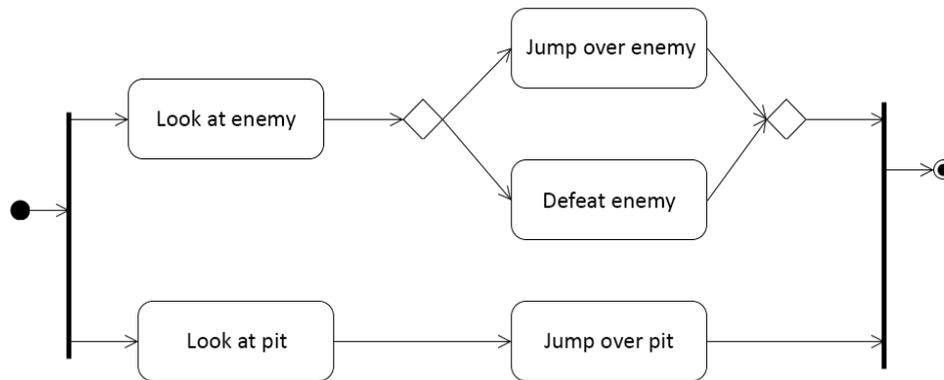


Figure 1. Sample learning case for a platforming game.

In the next step, the learning case is compared with the playtest data describing the actual behavior of the players during the playtest. Our method finds a behavior that was the most similar to the learning case prescribed in advance, finds the differences and aggregates the results with other players.

As the metric for comparing learning cases with playtest data, we transform learning cases into a set of possible pass sequences and use the number of operations of a modified version of the Damerau-Levenshtein distance[2].

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## References

- [1] J. Schell, *The Art of Game Design: A Book of Lenses*. Morgan Kaufmann Publishers, 2008, pp. 115–126, 399–401.
- [2] F. J. Damerau, I. B. M. Corporation, and Y. Heights, “A Technique for Computer Detection and Correction of Spelling Errors,” *Commun. ACM*, vol. 7, no. 3, pp. 171–176, 1964.