

CLAIMS

1. A method of controlling graphics parameters of a computer gaming application on a computer, the method is performed by the computer comprising a processor and a user input interface coupled to the processor, the method comprising:

consolidating, by the processor, data related to settings of graphics parameters for different computer hardware equipment and a respective performance value corresponding to each set of graphics parameters of a plurality of sets of graphics parameters, wherein each set of graphics parameters is corresponding to a respective computer hardware equipment, and wherein the respective performance value represents a level of performance of the computer gaming application when being executed under involvement of a respective computer hardware equipment;

training, by the processor, a machine learning model based on the plurality of sets of graphics parameters and the corresponding performance value in relation to the respective computer hardware equipment;

determining, by the processor, a weight for each setting of a graphics parameter by the trained machine learning model, wherein the weight is indicative of an impact of the setting of the respective graphics parameter on the performance value;

for each set of graphics parameters, predicting, by the processor, a performance value achievable by the computer gaming application when it is executed on a specific type of computer including one or more of said computer hardware equipment, by the trained machine learning model;

assigning, by the processor, a priority value to each graphics parameter based on its contribution to the performance value of the set of graphics parameters; and

generating, by the processor, a plurality of sets of optimized graphics parameters for the computer, each set of optimized graphics parameters providing a respective optimized performance value, based on the predicted performance value associated with each set of graphics parameters and further based on the determined weight for each graphics parameter and/or based on the assigned priority value;

receiving, by a user input interface of the computer, a user input from the user input device coupled to the user input interface, the user input indicating a set of optimized graphics parameters selected by the user from the plurality of sets of optimized graphics parameters; and

configuring, by the processor, the graphics parameters of the computer gaming application on the computer according to the set of optimized graphics parameters selected by the user.

2. The method of claim 1, wherein the priority value is further dependent on user preferences.
3. The method of claim 1, wherein the performance value comprises a frame rate.
4. The method of claim 1, further comprising filtering the consolidated data, wherein filtering the consolidated data comprises:
 - determining types of information that do not impact output of the machine learning model; and
 - removing the determined types of information.
5. The method of claim 4, wherein filtering the input data further comprises:
 - removing data in the consolidated data that correspond to performance values that fall outside a predetermined range of target performance values.
6. The method of claim 4, wherein filtering the input data further comprises:
 - categorising the input data according to at least one of features of computer hardware and application; and
 - in each category, removing data that deviate from a normal distribution of the category.
7. The method of claim 4, wherein filtering the input data further comprises:
 - determining a linear relationship between the determined weights and the performance values; and
 - removing data from the input data based on the determined linear relationship.
8. The method of claim 1, wherein generating the plurality of sets of optimized graphics parameters for optimizing the performance value comprises normalizing and linearizing all possible combinations of settings to generate a linear regression model.

9. The method of claim 1, wherein consolidating the data comprises crowd-sourcing the data.

10. The method of claim 1, wherein determining the weight for each setting of a graphics parameter comprises using permutation feature importance determination to compute importance score for each setting of the graphics parameter, wherein the weight is indicative of the importance score.

11. The method of claim 1, wherein each set of the plurality of sets of optimized graphics parameters correspond to a gaming mode of a plurality of gaming modes, wherein the plurality of gaming modes comprises a first mode optimized for graphics quality, a second mode optimized for speed of the computer gaming application, and a third mode that balances graphics quality with speed of the computer gaming application.

12. The method of claim 11, further comprising:
receiving a user input indicating one gaming mode from the plurality of gaming modes; and
configuring the graphics parameters of the computer gaming application according to the set of optimized graphics parameters corresponding to the gaming mode indicated in the user input.

13. The method of claim 11, further comprising:
displaying a graphical user interface that displays visual representations of the plurality of gaming modes and their corresponding predicted performance values.

14. A computer configured for controlling graphics parameters of a computer gaming application on the computer, the computer comprising a processor and a user input interface coupled to the processor,
wherein the processor is configured to: -
consolidate data related to settings of graphics parameters for different computer hardware equipment and a respective performance value corresponding to each set of

graphics parameters of a plurality of sets of graphics parameters, wherein each set of graphics parameters is corresponding to a respective computer hardware equipment, and wherein the respective performance value represents a level of performance of the computer gaming application when being executed under involvement of a respective computer hardware equipment;

train a machine learning model based on the plurality of sets of graphics parameters and the corresponding performance value in relation to the respective computer hardware equipment;

determine a weight for each setting of a graphics parameter by the trained machine learning model, wherein the weight is indicative of an impact of the setting of the respective graphics parameter on the performance value;

for each set of graphics parameters, predict a performance value achievable by the computer gaming application when it is executed on a specific type of computer including one or more of said computer hardware equipment, by the trained machine learning model;

assign a priority value to each graphics parameter based on its contribution to the performance value of the set of graphics parameters; and

generate a plurality of sets of optimized graphics parameters for the computer, each set of optimized graphics parameters providing a respective optimized performance value, based on the predicted performance value associated with each set of graphics parameters and further based on the determined weight for each graphics parameter and/or based on the assigned priority value,

wherein the user input interface is configured to: -

receive a user input from the user input device coupled to the user input interface, the user input indicating a set of optimized graphics parameters selected by the user from the plurality of sets of optimized graphics parameters,

wherein the processor is configured to: -

configure the graphics parameters of the computer gaming application on the computer according to the set of optimized graphics parameters selected by the user.

15. The computer of claim 14, wherein the priority value is further dependent on user preferences.

16. The computer of claim 14, wherein the performance value comprises a frame rate.

17. The computer of claim 14, further comprising filtering the consolidated data, wherein filtering the consolidated data comprises:
 - determining types of information that do not impact output of the machine learning model; and
 - removing the determined types of information.
18. The computer of claim 17, wherein filtering the input data further comprises:
 - removing data in the consolidated data that correspond to performance values that fall outside a predetermined range of target performance values.
19. The computer of claim 17, wherein filtering the input data further comprises:
 - categorising the input data according to at least one of features of computer hardware and application; and
 - in each category, removing data that deviate from a normal distribution of the category.