CLAIMS

WHAT IS CLAIMED IS:

1. A method of adjusting feedback parameters, the method comprising:

determining a duration of pressing a button of a mouse input device based on a signal associated with the button, wherein the determining the duration of pressing the button comprises calculating the duration based on a start time, and an end time, wherein the start time is a first time a mouse button click signal enters into an active state after a debounce time, such that the duration includes the debounce time and the active state, the debounce time being when a switch contact and a relay contact strike together as a result of the pressing of the button, and the end time is a second time instance at which the pressed button is released;

classifying a press force applied on the button of the mouse input device into a category of a plurality of categories based on the duration; and

adjusting a parameter of a feedback corresponding to the press force based on the category; and wherein the duration of pressing the button is determined without using a sensor to detect the press force.

2. The method of claim 1, wherein a movement of the mouse input device triggers the end time.

3. The method of claim 1, wherein the calculating is performed by a microcontroller of the mouse input device or by a program running on a computing device coupled to the mouse input device.

4. The method of claim 1, wherein the plurality of categories comprise a first category, a second category, and a third category.

5. The method of claim 4, wherein the press force is classified into the first category when the duration is shorter than a first threshold, wherein the press force is classified into the third category when the duration is longer than a second threshold, the second threshold being greater than the first threshold, wherein the press force is classified into the second category when the duration is longer than or equal to the first threshold but shorter than or equal to the second threshold.

6. The method of claim 5, wherein at least one of the first threshold and the second threshold is pre-determined, configurable, or adaptable through machine-based learning.

7. The method of claim 1, wherein the feedback is at least one of a haptic feedback or a lighting feedback, wherein the parameter is at least one of a vibration intensity of the haptic feedback, a color intensity of the lighting feedback, or a light duration of the lighting feedback.

8. An apparatus for adjusting feedback parameters, comprising:

a memory; and

at least one processor coupled to the memory and configured to:

determine a duration of pressing a button of a mouse input device based on a signal associated with the button, wherein the determining the duration of pressing the button comprises calculating the duration based on a start time, and an end time, wherein the start time is a first time a mouse button click signal enters into an active state after a debounce time, such that the duration includes the debounce time and the active state, the debounce time being when a switch contact and a relay contact strike together as a result of the pressing of the button, and the end time is a second time instance at which the pressed button is released;

classify a press force applied on the button of the mouse input device into a category of a plurality of categories based on the duration; and

adjust a parameter of a feedback corresponding to the press force based on the category; wherein the duration of pressing the button is determined without using a sensor to detect the press force.

9. The apparatus of claim 8, wherein a movement of the mouse input device triggers the end time.

10. The apparatus of claim 8, wherein the apparatus is a microcontroller of the mouse input device or a computing device coupled to the mouse input device.

11. The apparatus of claim 8, wherein the plurality of categories comprise a first category, a second category, and a third category.

12. The apparatus of claim 11, wherein the press force is classified into the first category when the duration is shorter than a first threshold, wherein the press force is classified into the third category when the duration is longer than a second threshold, the second threshold being greater than the first threshold, wherein the press force is classified into the second category when the duration is longer than or equal to the first threshold but shorter than or equal to the second threshold.

13. The apparatus of claim 12, wherein at least one of the first threshold and the second threshold is pre-determined, configurable, or adaptable through machine-based learning.

14. The apparatus of claim 8, wherein the feedback is at least one of a haptic feedback or a lighting feedback, wherein the parameter is at least one of a vibration intensity of the haptic feedback, a color intensity of the lighting feedback, or a light duration of the lighting feedback.

15. A non-transitory computer-readable medium storing computer executable code, comprising instructions for:

determining a duration of pressing a button of a mouse input device based on a signal associated with the button, wherein the determining the duration of pressing the button comprises calculating the duration based on a start time, and an end time, wherein the start time is a first time a mouse button click signal enters into an active state after a debounce time, such that the duration includes the debounce time and the active state, the debounce time being when a switch contact and a relay contact strike together as a result of the pressing of the button, and the end time is a second time instance at which the pressed button is released;

classifying a press force applied on the button of the mouse input device into a category of a plurality of categories based on the duration; and

adjusting a parameter of a feedback corresponding to the press force based on the category; wherein the duration of pressing the button is determined without using a sensor to detect the press force.

16. The non-transitory computer-readable medium of claim 15, wherein the plurality of categories comprise a first category, a second category, and a third category, wherein the press force is classified into the first category when the duration is shorter than a first threshold, wherein the press force is classified into the third category when the duration is longer than a

second threshold, the second threshold being greater than the first threshold, wherein the press force is classified into the second category when the duration is longer than or equal to the first threshold but shorter than or equal to the second threshold.