Supporting touchpad gaming while preventing accidental activations while typing

Abstract
Contact mitigation describes methods used to prevent accidental contact of a touchpad from being treated as intended movements. One common way of doing this is to disable the touchpad when keyboard input is detected. This works because users generally don’t need to move the cursor when typing. However, games will often require simultaneous use of both the keyboard and touchpad, and therefore cannot be played on a touchpad using this kind of keyboard based contact mitigation.

This study proposes a new method of keyboard based contact mitigation which attempts to detect gameplay through patterns of keyboard input. When the system detects typing, it will disable the touchpad, but when it detects gameplay it will leave the touchpad open. This is superior to detecting games via active application because new games are created all the time, and it would be an unending task to manually create exceptions for every game.

Gaming detection was created through analysis of keys used in popular games of different genres in order to create as inclusive a method detection as possible without hampering the keyboards ability to detect typing. A study is currently underway to assess its ability to correctly evaluate whether real users are typing or playing a game, and whether users are able to detect that these determinations are occurring.

Background
This study will be based on previous market research:

This study examined the top 10 most played PC games from gaming platforms Steam[3] and Xfire[7]. These games categorized by genres and representatives were selected for analysis of their default keybindings. These keybindings were categorized by their function in the game. Darker colors are used for more primary gameplay tasks, and lighter colors used for softer, menu driven and communication tasks. After reviewing the keybindings for each game, the top-left alphanumeric region of keys along with space and modifier keys were selected as candidates to be non-contact mitigation triggering keys for the following reasons:

• The common use of the keys in gaming, especially as held-down keys such as movement keys.
• The chosen letters only consist of 41.34% of the most frequently used letters in English writing. This allows a majority of the letters to still trigger contact mitigation measures when typing English words.

These considerations are more accurate for action and shooting games where the keys are often clustered around the WASD keys and similar, but may be less useful for strategy games where keys are often lexicologically associated with their behavior (e.g. “M” = Move).

Additionally, in games, alphanumeric keys are often held to give continuous commands (e.g. hold “W” to walk forward. This behavior does not occur in normal typing as mass repeated letters do not occur in English, unless used informally for emphasis (e.g. “noooooo!”)). Detecting this behavior may be indicative of game play. Note that modifier and function keys like “shift” and “delete” may be held in non-game use and cannot be used for this function.

References