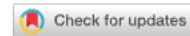


# XTar: entropy-based target expansion for high density gaze-based interfaces

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## Abstract

Due to the low accuracy and noisy data of common eye trackers, virtual gaze-activated targets used for gaze interaction tend to be large, so they can be easily fixated and selected. Therefore, a full-size virtual keyboard with 30 to 40 keys may take a large portion of the screen space. If one simply reduces the keyboard size into a higher density interface, selections would become unreliable. In this paper we present XTar, an expandable target interface that uses an entropy-based algorithm to expand and improve the robustness of target selection in high density interfaces. Results from a pilot user experiment show that typing using a dwell-time linear XTar keyboard is as fast as a 3 row QWERTY keyboard with fixed size keys, with similar low error rate, using about 1/3 of the QWERTY keyboard area.

