Visual feedback techniques for virtual pointing on stereoscopic displays

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The act of pointing to graphical elements is one of the fundamental tasks in Human-Computer Interaction. In this paper we analyze visual feedback techniques for accurate pointing on stereoscopic displays. Virtual feedback techniques must provide precise information about the pointing tool and its spatial relationship with potential targets. We show both analytically and empirically that current approaches provide poor feedback on stereoscopic displays, resulting in low user performance when accurate pointing is required. We propose a new feedback technique following a camera viewfinder metaphor. The key idea is to locally flatten the scene objects around the pointing direction to facilitate their selection. We present the results of a user study comparing cursor-based and ray-based visual feedback techniques with our approach. Our user studies indicate that our viewfinder metaphor clearly outperforms competing techniques in terms of user performance and binocular fusion.