

I spy with your eye: On the perception of others' gaze

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Abstract: Eye tracking can often be prohibitively expensive, proprietary and incredibly complex. We examined the accuracy of eye tracking using only a web camera. Participants were shown webcam recordings of a persons' eyes moving 1, 2, or 3 degrees of visual angle in one of 8 directions (North, NE, E, SE, etc) or no eye movement occurred at all. Observers judged whether an eye movement was made, and if so, its direction. Detection and direction judgments were significantly above chance across all three distances, with larger eye movements resulting in better performance. These data indicate that a webcam plus human observer system can be used to study human eye movements in a simple non-invasive manner. They also support theories of human social attention and evolution predicated on the assumption that humans have developed an especially fine ability to detect the eye movements of others and determine where those eyes are looking.