

You don't know where your eyes have been and that could be problem.

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When you can't find your keys and you swear that you have "looked everywhere", you probably haven't. We tracked the eyes of 24 radiologists searching through chest CT scans for small white nodules that are signs of lung cancer. They searched by scrolling up and down through the volume of the chest for up to 3 minutes. Many radiologists finished early, presumably satisfied that they had adequately examined the entire lung. They found 57% of the nodules, but did they "look everywhere"? To estimate coverage, we assumed a circular Functional Visual Field (FVF) around the point of fixation in the current slice. Coverage depends on estimates of FVF radius. A 2.5 deg FVF results in 41% estimated coverage. This rises only to 68% with a generous 5 deg field. It is not clear that one could resolve lung nodules 2.5 deg away from fixation and eye tracking suggests that many nodules were never adequately fixated. Didn't our radiologists know that they had failed to look at large parts of the stimulus? Maybe not. In Exp2, naïve Os performed an easy change detection task. They looked at pairs of scenes for 3sec each, attempting to detect a change in Scene2. On 25% of trials, Scene2 was replaced by a request to make 12 mouse clicks on locations in the unchanged Scene1 "where you think you just fixated". After 135 trials, observers saw 10 new scenes and were asked to put 12 clicks where "someone else would have looked". Observers' memory for the placement of their own fixations was no better than another observer's guesses. While we have some understanding of where people should look or where fixations are likely, we seem to have a very poor record of where we actually just looked.