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Visual ‘Gist’ Helps Us Figure Out Where A Crowd Is Looking

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It doesn’t take much effort does it? We all have seen a crowd of people looking or staring off in unison, into the distance. They were looking perhaps at a speeding biker or to the top of a skyscraper.

Who knows? But there’s a good chance you got curious and it took the better of you and made you steal a look there too.

It is instant, kind of like a reflex, that too without paying much attention to the persons in the group. How can we so accurately tell where a crowd looks with almost no effort?

Researchers at the University of California, Berkeley and the University of Denver discovered that humans rely widely on a specialized visual process to perceive things. It is known as “ensemble coding” and it helps us to determine where a crowd is looking. This study shows that humans are capable of telling where or what a group of people is looking at, in just about a fraction of a second of observation. We are able to do so by perceiving the group as a single entity as opposed to a collection of individuals.

In this is a photo of a crowd we see the group as an entity and not as individuals standing in a group and we are instantly able to tell where they are looking. These findings are published in Psychological Science,

a journal of the Association for Psychological Science. Psychology researcher Timothy Sweeny of the University of Denver has rightly put it as “We see an entire tree without paying attention to the individual leaves.” She further adds on, “This highlights the importance of group behavior in human experience – perceiving groups is so important that we have, in fact, evolved dedicated brain processes to perceive them.”

Understanding of a simple phenomena such as a group looking in a particular direction can reveal useful and vital information to the observer and the previous research successfully demonstrates that we much

more responsive to the gaze of a crowd than that of an individual.

“Imagine sitting in the stands at a baseball game. Out of the blue, a dozen people shift their gaze upward, right above your head. Your reaction to this information—is a foul ball headed your way?—will be different than if just one person looked over your head,” Timothy Sweeny explains.

Sweeny and her colleague David Whitney of the University of California, Berkeley have investigated the mechanisms that result in this particular form of visual perception. The analysis required the study participants to view crowds of computer-generated faces. They viewed a crowd of 4 faces and also at times only viewed a subset crowd of 1 to 3 faces.

Importantly, the gaze of every computer-generated face was kept different and unique from one another. After having viewed a crowd for only one-fifth of a second, participants were asked to tell where they thought or believed the group was looking and the estimates were gathered by them moving the pupils by using the arrow keys on the keyboard on a blank face.

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It was inferred that the estimates should be better when more information or more faces are available for the study.

“Even though there wasn’t enough time to inspect the individuals, the participants were still able to see the gist of what the entire crowd was doing, as a group,” says Sweeny.

According to researchers, these results point at we having a built-in mechanism that enables us to perceive crowd gaze really quick and with little to no effort.

“These findings suggest that many of our complex social behaviors are actually rooted in basic visual processing,” says Sweeny.

Sweeny and Whitney also believe that these findings could shed some light on how we behave in groups in situations such as panic and riots, and also might explain the mechanisms that contribute to autism.

“Exploring how social group perception may or may not be impaired could provide insights into how basic visual deficits might underlie issues of broader social functioning in ASD, which often include disruptions in the perception of global aspects of scenes and perception of eye gaze,” Sweeny speculates.

References

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