

# Why the fear of zombies? Look at the eyes

October 31 2013, by Stephanie Lay

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Blame human psychology. Credit: burningangelstudios

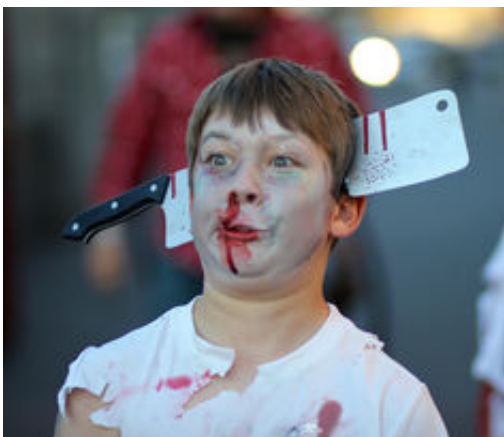
Zombies are undergoing a revival. Our screens have been filled with films such as "Zombieland", "World War Z" and "Resident Evil". Many home-made zombie will be knocking at our doors this week for Halloween. But what is it about zombies that send shivers up our spines?

There is a little-known psychological phenomenon, called the uncanny valley, which explains it. The "dead" eyes and near-human characteristics of zombies provoke an instinctive disquiet in us. This is

down to our inability to process these "strange" [faces](#) using normal psychological mechanisms. We are used to seeing and processing human faces and objects, but seeing an eerie, near-human image such as a zombie – which technically has all the features that should make it recognisable to us as a human – is something entirely new, and our brains don't know how to process this.

As a horror film fan I was intrigued at the psychology behind this, and it appears I am not alone – 3,000 people from around the globe responded to my online surveys and participated in face-to-face experiments to help me discover more about the uncanny valley.

The term "uncanny valley" was coined in 1970 by a [Japanese robotics engineer](#) to describe how people's reactions to robots changed as they were made to look more like humans. It is often described as the sense of unease that accompanies the sight of something almost, but not quite, human. As a robot is gradually given facial features and softer lines, people feel an affiliation and even an affection for it (think of Sonny in the film iRobot). However, as human-likeness increases, this escalating warmth does not continue in a steady line from artificial to human. Instead, at the almost but not quite human point people suddenly find this near-human agent eerie and are repulsed by it – this deviation point is the [uncanny valley](#).



Not to worry, he's fine. Credit: rwentechaney

When I began my PhD in 2006 the topic mainly belonged to android scientists and animators, but I wanted to go further. I began without a specific psychological explanation in mind so rather than testing whether, for example, we found near-humans unsettling because they would make unfit mates or trigger a reaction of disgust. Instead I asked participants to write about different near-human agents – some creepy, some not – so I could explore the phrases they would use in their descriptions.

Combining qualitative responses and the rating scales, I found that the unsettling faces often had something unusual about their eyes: people reacted strongly to images where the face was convincingly human but with lifeless eyes or where eerily human eyes appeared in a non-human face.

This means that psychological theories of face recognition and the perception of emotional expressions were tools for the analysis. First, I used images which gradually morphed from non-human animals, dolls, robots or statues to entirely human pictures to see whether the eerie near-human faces were being processed in a different way to other types of faces. Second, I observed that unsettling "dead" eyes could occur if an agent wasn't capable of displaying emotions convincingly. I created "chimeric" faces, where the eyes could show a different expression to the rest of the face, and measured how people responded to different combinations of emotions such as angry faces with happy eyes or disgusted faces with blank eyes.



All in the eyes. Credit: Hooman

What every phase of the research confirmed was that images which break our assumptions of how faces should look or behave, were universally unsettling. And particularly the vacant eyes and blank faces – the signatures of movie-makers' undead. So next time you are watching *Walking Dead*, the hairs on your arms standing upright and shivers running up your spine, remember, it's all in the eyes.

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