CREST GUIDE:
WHAT MAKES SPOTTING FACES DIFFICULT?

This guide presents an overview of some of the reasons spotting faces can be difficult.

CENTRE FOR RESEARCH AND
EVIDENCE ON SECURITY THREATS

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Searching for faces is a fundamental task in various security-critical domains (e.g., surveillance). Sometimes people search for a face held in memory, and sometimes they match two faces seen together. These tasks require overlapping but not identical skills.

People are good at searching for or comparing familiar faces even when the two images of the face include changes in viewpoint, lighting and expression. In comparison, searching for or comparing unfamiliar faces is very difficult. Security tasks of face matching and face recognition usually involve relatively unfamiliar faces.

Intuitively, we might assume that humans can search for more than one unfamiliar face at a time. The reality is quite different. When asked to search simultaneously for two unfamiliar faces, one is prioritised and there is a cost to searching for the second target face, regardless of how difficult the search is.

KEY POINTS

- The limits of working memory mean only one unfamiliar face can be effectively searched for at a time.

- People find it harder to discriminate between other-race faces.

- People find it harder to discriminate between other-age faces.

- Some people are super-recognisers – with superior recall of unfamiliar faces.

- People can be trained to improve in facial recognition.

This cost in searching for more than one unfamiliar face is due to limitations in the capacity of working memory. Working memory is the mental process that allows information to be held and manipulated during problem solving.

People find it more difficult to discriminate between other-race faces than faces from their own race. This is known as the own-race bias or the other-race effect. There is evidence that this is due to people processing other-race faces more analytically (by part) and own-race faces more holistically (all together), and it has been suggested that this is due to relative experience with the two kinds of faces. There is also evidence for own-age biases, where people find it more difficult to discriminate between faces of an age different to theirs.

INDIVIDUAL DIFFERENCES

Face processing is one of the few abilities for which variation of skill level in the population is well documented. There are a number of of face memory and face perception tests that can be used to assess level of skill, and performance varies across individuals on these tests. Performance ranges from when face-recognition ability is clinically impaired (a condition called prosopagnosia) to exceptionally good recognition by a group of people now called 'super-recognisers'.

The metropolitan police have recruited a team of super-recognisers to assist in identifying individuals in challenging conditions, such as when image quality is poor, people are viewed from a far distance, or people attempt to hide their identity.

Super-recognisers are identified based on their superior face memory ability, but studies have shown that they can also demonstrate superior performance on unfamiliar face-matching tasks. It is unclear whether the skills of super-recognisers are innate or learnt.

PROFESSIONAL EXPERIENCE AND TRAINING

Experience alone does not always lead to better performance on face tasks. One case demonstrating that experience helps is forensic face examiners. Research suggests forensic face examiners use a more detailed examination strategy than most people. This suggests their expertise in facial image comparison results in a controlled and effortful inspection strategy. Showing those inspection strategies to non-professionals can improve their face inspection performance. In addition training is always better if multiple examples of an unfamiliar face are seen.

READ MORE

Natalie Mestry, Tamaryn Menneer, Kyle R. Cave, Hayward Godwin and Nicholas Donnelly. (2016) (in press). Dual-target cost in visual search for multiple unfamiliar faces. *Journal of Experimental Psychology: Human Perception and Performance*, 1-69. http://eprints.soton.ac.uk/id/eprint/404262