

The Perceptual-Backdrop Image (PBI) format for improving the effectiveness of composites

One role of a facial composite is to identify criminal suspects. We (at the Universities of Stirling, Central Lancashire, Leeds and Winchester) have been developing a new image format to improve their recognition rates: simply looking at a composite that has been vertically stretched against a "perceptual backdrop" substantially improves an observer's ability to correctly recognise (name) the face. This perceptual-backdrop image, or PBI, is a secondary exhibit that can enhance the effectiveness of composites when shown in printed newspapers, bulletin boards and wanted posters.

Background

Facial composites are used to generate investigative leads, identify suspects and solve crime. Such images are circulated internally within a police force, or published more widely in newspapers, on TV (e.g. BBC CrimeWatch), on wanted-persons' webpages, etc. Names put forward from composites can be crucial to an investigation and so techniques that improve their recognition are worthwhile.

We previously developed an enhancement technique based on caricature (see worksheet on the Animated Composite). Watching a composite with features being exaggerated as an animation substantially improves our ability to correctly name the face compared to seeing the original composite (tiny.cc/animated-composite-1). Police forces use this image format to publish composites on TV and on wanted-persons' webpages.

A more-recent development has provided an enhancement to also allow circulation via newspapers, bulletin boards, MMS (text message) and email attachment. The image format involves a stretched composite seen against a perceptual backdrop. Viewing a composite in this way substantially improves face recognition. In one evaluation of the technique, for example, people correctly named composites at 7% when viewed normally (unstretched), but this increased threefold to 20% when viewing composites with the PBI (without an associated increase in mistaken names). The technique works for composites from feature and holistic software systems, but appears to be most effective when used on a composite that has been constructed after a holistic-cognitive interview (see H-CI worksheet,

tiny.cc/holistic-ci). Published research can be downloaded from Charlie's Research webpage at tiny.cc/cfrowd

- Frowd, C.D., Skelton F., Hepton, G., Holden, L., Minahil, S., Pitchford, M., McIntyre, A., Brown, C., & Hancock, P.J.B. (2013). Whole-face procedures for recovering facial images from memory. *Science & Justice*, 53, 89-97.

Procedure

The PBI secondary exhibit is produced automatically in a standard image format (GIF, JPEG and BMP) using EvoFIT facial-composite software. If you do not have this composite system, or would like to use the PBI in an investigation, please contact Charlie (see below). Alternatively, secondary exhibits can be created manually using a paint program (e.g. Adobe Photoshop); suitable templates are available at tiny.cc/pbi-template and tiny.cc/pbi-template-slimline.

The wording beneath the composite (left) explains why the face is presented in this way.

PBI composites can also be used to revive historical (unsolved) cases.

Contact

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Viewing the composite as shown should help you to recognise the face.