

## Ethics case study: Composite forensic photograph of Jean Charles de Menezes

### Introduction

On July 21, 2005, terrorists attempted suicide bombings on several London transport vehicles. One of the bombers, whose bomb failed to detonate, was Hussain Osman, shown in this photo taken by police in Rome (Figure 1, left) when he was apprehended after fleeing to Italy. The following day Brazilian electrician Jean Charles de Menezes (Figure 1, right) was shot to death by police in the Stockwell tube station in south London, on suspicion of his involvement in the plot. This suspicion was allegedly driven by his supposed resemblance to Osman.<sup>1</sup>



Figure 1: Hussain Osman (left) and Jean Charles de Menezes -- unmanipulated originals



Figure 1: Police composite photo

Last week, the London Metropolitan Police were defending against a charge of endangering the public under British health and safety laws. They produced a composite photograph (Figure 2) showing the two men's faces in overlay, to support their claim that the officers involved acted on a reasonable suspicion given the resemblance. An expert witness for the prosecution, forensics consultant Michael George, claimed that the images had been manipulated, presumably to exaggerate the resemblance. Newspapers all over the United Kingdom reported this claim, some with headlines that seemed to endorse its veracity.

In this case study, I'll consider the ethical issues in the forensic use of the photograph by the defense, its refutation by the prosecution, and the subsequent reportage in the news media. I will not discuss the actions of the police in killing Menezes, though a number of significant problems in their conduct that day stand out as worthy of critical study. I will restrict myself to issues touching on media ethics in the use of this image.

### The claims of the prosecution.

The prosecution makes the following claims about the alleged image manipulations:

1. The image has been altered "by either stretching or resizing so the face ceases to have its correct proportions."
2. Menezes' face appears to have been lightened.
3. The composite image is of lower resolution than the source images. This, coupled with the lightening, results in a loss of detail in certain features of Menezes' face.
4. The image manipulations could not have been performed using PowerPoint.

Forensics consultant Michael George produced an alternative composite showing the men's different skin tones and their non-aligned noses and mouths. This alternative image is not provided in any of the news stories I found.

The defense denies these allegations and characterized these claims as "a pseudo-scientific exercise." To my surprise, after some study of this case, I'm inclined to agree – with some reservations. I find all of the claims above rather odd and inconsistent with my own experiments on the source images.

**1. Resizing:** Up until now I've been speaking of the images in Figure 1 above as "unmanipulated," but this is not entirely true. I proportionally resized Menezes' photo to get to a baseline comparison of their facial proportions. Since these two photos were taken under different conditions with the respect to the camera's focal length and the subject's distance from the camera, we have no way of comparing the depicted men's actual sizes relative to each other. So the best comparison we can make with available data is in their relative proportions (although that parameter is also indeterminate given the variety of distortions that can occur due to differently curved lenses). I resized Menezes' photo until the height of his head from chin to crown was the same as Osman's. But I did so while maintaining a strict proportion of height to width, as any amateur digital photographer (and, for that matter, any 9-year-old child) would be able to do. So I think it disingenuous of the prosecution to imply this facile equivalence between resizing and stretching.



Figure 3: My composite photo

Figure 3 contains my own composite overlay image. My operations on this photo consist of:

- a) resizing Menezes' photo, as described above;
- b) selecting a midline on Menezes' face and cropping the image along that edge;
- c) placing Menezes' half-face image so that the two are vertically aligned at the chin and crown.

This last step is dubious, for two reasons: Menezes' chin is in heavy shadow, so it's difficult to see where it stops; and, while Menezes' photo is a fairly straight frontal shot, Osman's is slightly oblique, making selection of his midline somewhat difficult. Even so, with very little effort and no intentional misrepresentations, I managed to make a composite photo that lines up better than the one proffered by the defense. While this doesn't lead me to support their use of this composite photo technique, it does convince me that they likely did not manipulate the proportions of the photos, and if they did, the result does not help their case, so an inferred insidious motive seems ill-supported and irrelevant.



Figure 4: My color-adjusted composite photo

**2. Lightening.** Viewing the police composite (Figure 2) alongside the source photos (Figure 1), I see no change in Menezes' skin tone. I'll readily admit that a forensics expert might have a finer eye for color and brightness than mine. But since the intended audience for this composite image (the jury) does not consist of experts, I fail to see what the defense might have gained by making a change too subtle to be detected. For the sake of argument let's assume subtle changes can have significant psychological effects even when not consciously detected. Even so, the slight adjustment pales (no pun intended) in comparison to the stark difference in their skin tone that remains after the alleged adjustments. And since Menezes' skin tone is lighter than Osman's in the first place, I don't see how lightening it would have served the defense's purpose of showing similarity in the depicted faces.

Figure 4 shows my composite photo after I performed some differential color adjustments on the two sides:

- a) adjusted the white balance on Osman's photo to remove the distinctly yellow cast of the image (in professional circles, this might be referred to as a "color correction" rather than a deceitful manipulation);
- b) lightened Osman's image;
- c) shifted the color balance on Menezes' photo from reds toward greens, to remove the ruddy tone of his skin (or the red-shifted color bias of the camera in that setting – we don't actually know what gave him that appearance);
- d) darkened Menezes' photo to bring his skin tone closer to Osman's.

Again with very little effort (though this time arguably with some intent to deceive) I produced an image much more convincing as an argument for visual similarity than the one provided by the defense.

**3. Loss of resolution.** None of the manipulations I performed on these images produced a loss of resolution comparable with that shown in the defense composite image, though my color adjustments did produce some loss of detail and degradation of image quality. Lacking access to their digital trail, I can only guess what caused the loss, and whether it was intentional. I am willing to entertain the prosecution's claim that certain differential features in the men's faces are obscured as a result of this data loss, but again I find the differences too small to be meaningful, particularly in comparison with the stark differences that remain.

**4. Use of PowerPoint.** I cannot know the purpose of this claim – it is reported without explanation in each of the articles I found. I imagine it must be in direct response to a claim on the part of the defense that the composite was in fact rendered using PowerPoint. The forensics consultant actually states that he attempted to reproduce their effects in PowerPoint and could not<sup>2</sup>; this is very different from the claim that appears in another article claiming that it cannot have been done<sup>1</sup>. It may be that the prosecution wishes to suggest that the work was performed in a more powerful image manipulation tool such as Photoshop (which I used), which might lead to further mistrust of the image's veracity.

Judging by these four factors alone, I would have to say that the defense has not performed significant photo manipulation. But I have additional concerns about the image that the prosecution did not raise.

### The overlay technique itself

Seeing the two source images side by side, and then seeing them split and overlaid, the apparent change in the subjects' appearances is striking. The two men look quite different in their separate photos – particularly in their body mass distributions (as noted above). But human visual perception is skewed to identify patterns and see integral wholes where we should detect meaningful differences. The overlay technique takes advantage of this adaptive strength, rendering it a weakness. In the composite photo we see two different aspects of one face. The technique is inherently misleading – at first glance and/or to an untrained eye. But, as we know, first impressions have a sticking power that subsequent analysis often cannot shake. In light of these effects, it seems strange that the prosecution's response to this photomontage is to create one of their own. The forensics expert "produced an alternative composite in which the two faces had different skin tones and their mouths and noses were not aligned"<sup>1</sup> – as if the composite proffered by the defense were not already flawed in these respects!

But the way the use of this image most strikingly misleads is in its implication that the officers in question made their judgments about Menezes by means of a detailed and well-considered visual comparison. It seems likely that some or all of them had seen photographs of suspects in the bombings of the day before. But this photo of Hussain was taken a week after Menezes was killed.<sup>3</sup> On July 22 the best images they had were grainy, blurred shots taken from closed-circuit security cameras that caught him as he escaped the scene of the attempted bombing. To claim in their defense that Menezes not only resembled Hussain, but that "the officers would have had great difficulty differentiating between the two men" strains credibility<sup>1</sup>. They would have had great difficulty differentiating any average-sized man with dark hair from the CCTV footage.

In fact the police involved in the shooting were not responding to visual comparisons of any kind. They had been tipped off by a surveillance officer who was staking out Menezes' apartment building, which was noted as being associated with one of the bombing suspects. He suggested that Menezes bore a passing resemblance, and thought a second person should take a closer look. By the time this message got passed through the chain to the 20-some officers who pursued Menezes into the tube station, it had somehow taken on the status of a positive identification. The officers likely honestly believed they were risking their lives to take down a confirmed terrorist poised to strike again in his familiar *modus operandi*. To submit for detailed analysis this visual exhibit that has so little bearing on the information available to them at the time seems bafflingly irrelevant. Perhaps they didn't expect it to be subjected to detailed analysis, assuming it would have an immediate visual impact and nothing more.



Figure 5: The photos not chosen – Menezes (left) and Osman

Selection bias is also apparent in the photos chosen for the composite. Most people intuit that all photographs are in some respects inherently misleading in that they represent only a single moment as seen in certain light from a certain perspective. So choosing one photograph over another is highly significant. If, for example, the defense had offered the photos in Figure 5 as evidence of the two men's resemblance, their claims might

have been laughed out of court.

It almost seems spurious to conduct a detailed comparative analysis on the photographs when 1) photographs are unreliable representations of human appearance, 2) the photographs were not available to the officers making the judgment for which they are now being held accountable, 3) the photographs were so strikingly decontextualized by means of overlay technique. But this is the kind of analysis the defense exhibit invites. So it is crucial to respond to it on analytical terms while also questioning its very basis and motives.

To summarize my position, I think there are strong arguments against the forensic use of this composite image. Curiously, the prosecution preferred to make weak arguments. However, their arguments managed to gain traction in the news media and so have effectively undermined the defense claims.

### News media transmission.

Several news organizations used sensationalist techniques in writing headlines for their articles on this news item. Their headlines confer factual status to the claims of the prosecution; the only marker of any critical distance on this factuality is in their use of quotation marks to attribute the claims to a third party which is unspecified in the headline. Examples:

- Guardian Unlimited: "De Menezes composite picture 'was manipulated'"<sup>1</sup>
- Times Online: "De Menezes picture 'doctored' by Met Police"<sup>4</sup>
- Yorkshire Post: "Police 'dishonestly manipulated' de Menezes picture"<sup>5</sup>
- Daily Mail: "Police 'doctored photo to make Menezes look like terrorist'"<sup>6</sup>

This is standard news reporting technique, and is nothing remarkable or unique to this case. It is tacitly assumed to be a capitulation to the limited spatial "real estate" on a news page. But I find it irresponsible at least on this basis: that I see enough misuse of quotation marks in situations ranging from casual writing to official signage (to indicate emphasis, for example) to know that many people don't understand what they mean in this context. And other organizations reporting on the same case managed to fit a partial attribution into the headline. Several followed the lead of Reuters UK, writing "Court told de Menezes photo manipulated."<sup>7</sup> The person doing the telling is not identified, but it's at least clear that it is a claim and not a fact.



Newspapers use inflammatory headlines to sell papers, to boost their sales figures in order to attract more advertising revenue. These headlines often invite readers into stories that turn out to be much more nuanced and balanced. As with contracts, the large print giveth (the titillating rhetorical effects) and the small print taketh away. But in the public discourse, the subtlety is often forgotten so that all that remains in the public consciousness is the sensational headline, which takes on an unwarranted mantle of fact.



Figure 6: Daily Mail's doctored triple composite image

The Daily Mail published a marked up photo (Figure 6) to show direct comparisons between the "original picture" and the police composite. The supposed differences are barely perceptible, if at all, but incredibly, it appears as if *Osman's half of the image has been lightened*, thus highlighting the supposed similarity that was so incompetently purported in the police composite. Thus in an article that purports to be critical of the rhetorical evasions of the police, they actually provide enhanced documentation for the police claims.

## Ethical implications

My own bias is to mistrust state institutions and to regard critically their self-monitoring operations. In this case, however, the principal parties are two state institutions (the police and the courts) and a third institution (the news media) given special status by the state. The three parties are set up in antagonist but interdependent relationships with each other – what we call checks and balances. So it seems crucial to address ethical strengths and failures on all sides.

I follow the applied ethics model, which strives to balance decision-making considerations so that the outcomes maximize benefits to the most people and minimize harms to the most people – particularly when those potentially harmed have little input on the decisions.

In this case there is little opportunity to reduce harms to the two men at the center of the controversy – one is unjustly dead and the other is convicted of attempted mass murder and terrorism. In any event, the ethical implications for them have more to do with the initial police actions, not with the media problems I have made my focus. So why should the police, as representatives of the state, be held to a standard of honesty in a case where they are on the defensive and not apt to harm anyone further, but have an opportunity to reduce harm to themselves? The answer is systemic rather than casual: the state, in order to earn the trust of its people, must be held to account for its actions. So when the police, despite ostensibly acting in heroic good faith, commit an unjust harm against someone, they are ethically bound to fully disclose the nature of the error. To hide or minimize the scope of their error by means of a spurious visuo-rhetorical device is a grievous ethical failure. While they deride the prosecution's response to their exhibit as a "pseudo-scientific exercise," they decline to acknowledge the fact that their exhibit is cut from the same cloth.

The prosecution is duty-bound not only to successfully convict defendants, but to do so on solid legal and moral grounds – that is, honoring the spirit of the law as well as the letter. In this case they have rightly undermined the flimsy claims of the police, but they have done so on flimsy and irrelevant grounds. It may be that they had to (consciously or not) avoid making an argument that undermines a rhetorical technique on which they must frequently rely themselves. Instead of fundamentally questioning the representativity of photographs and the fundamental misrepresentation of overlay technique, they questioned this particular image in terms of degree or

quality of manipulation, analyzing its deceit on speciously technical grounds. Winning this point on weak grounds in the court of the media, they have failed in their ethical duty to justly pursue justice.

The news media enjoy a special status in industrialized democracies, accorded special access privileges and resources (such as the public airwaves, certain circumscribed freedoms from prosecution, etc.) in exchange for a presumed commitment to the public good. They are therefore ethically bound to investigate and report on matters affecting the public with rigor, truthfulness, and a sustained effort toward rhetorical clarity or at least nondeception. The above-cited news outlets have all shown some courage in reporting critically on the police, to whom they are permanently beholden for access to crime- and security-related news stories, which comprise a significant portion of their most attention-grabbing (and therefore advertising-ready) headlines. However, by uncritically adopting the stance of the prosecution in their headlines they have done a disservice to the police and to the public – promulgating a distortion that has already taken hold in the blogosphere. And the Daily Mail has gone beyond the pale (again, no pun intended – really, I mean it) by further exaggerating the photomanipulation effects that are supposed to have been performed by the police defense team. The news media, like the prosecution, are beholden to the power of images to selectively represent narrowly determined aspects of events within their purview. So they too would have no interest in critiquing visual rhetorics on fundamental grounds – and perhaps therefore lack critical distance that would enable them to imagine this level of analysis.

## Works cited

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<sup>3</sup> BBC News. "Profile: Hussain Osman." 9 July 2007. <[http://news.bbc.co.uk/2/hi/uk\\_news/6634923.stm](http://news.bbc.co.uk/2/hi/uk_news/6634923.stm)>

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<sup>6</sup> Seamark, Michael. "Police 'doctored photo to make Menezes look like terrorist'." The Daily Mail. 17 Oct 2007. <[http://www.dailymail.co.uk/pages/live/articles/news/news.html?in\\_article\\_id=488107&in\\_page\\_id=1770](http://www.dailymail.co.uk/pages/live/articles/news/news.html?in_article_id=488107&in_page_id=1770)>

<sup>7</sup> Reuters. Court told de Menezes photo manipulated. Reuters UK. 17 Oct 2007. <<http://uk.reuters.com/article/domesticNews/idUKL1775546420071017>>.