



What Is Brain Fingerprinting?

Forensic science has been playing an ever-greater role in police work over the last few decades. From the humble beginnings of the first applications of fingerprinting in the mid-19th century, through to the [advancement of image analysis](#) of recent years all the way to the futuristic technique of brain fingerprinting, science is increasingly important in criminal investigations.

Although this latest development might seem like something more appropriate to a sci-fi movie, brain fingerprinting is currently being used by police in Dubai to determine whether or not a suspect recognises details of a crime scene. But how does it work and is it a reliable method of identifying a guilty party?

Triggering memories

The technique of brain fingerprinting was initially developed in the 1990s and the first instance of it being used in a criminal trial came in the USA in 1999, when a 15-year-long murder case was closed thanks to its deployment. It has also been put to good use in both Singapore and India – and now the UAE.

It works by fitting a skullcap to the subject's head, to which a number of electrodes are attached. These wires are capable of recognising fluctuations in brain activity, with one electric signal (known as P300) of particular interest. That's because this signal becomes amplified when a person is presented with information that they have already come across.

By taking advantage of this phenomenon, police can show subjects a number of images, including photographs of the crime scene. If P300 is triggered, it indicates that the individual has seen it before. It does not, however, conclusively prove their guilt, since they may have simply been a witness.

“Highly resistant to countermeasures”

The technology involved in brain fingerprinting was developed by an American company and has been vetted by multiple US federal agencies, all of which found it to be 99% accurate in its results. Indeed, according to [one study](#), “no one has beaten a brain fingerprinting test with countermeasures, despite a \$100,000 reward for doing so.”



With such an impressive pedigree, the technique is now being deployed by Dubai Police. It has already undergone an extensive trial period, when it was used in the analysis of almost 40 fake crime scenes. After the trials produced favourable results, it has since been used in two real murder investigations, with the test indicating that suspects knew more about the crime than they were admitting in both cases.

However, supporters of the technique are quick to stress that it cannot be used as conclusive proof of a person's guilt – but that it can place them at a scene of a crime. The device is only ever used ethically, as well, which means that all involved parties (including the prosecution and the suspect themselves) must agree to the process.