

Matanuska Forensic Science, LLC | Forensic polygraph analysis
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Requesting agencies, especially lawyers specializing in criminal law, are you interested in using polygraph analysis to further your practice? While I do not offer polygraph analysis, I do have special insight as a neuroscientist. The following is intended solely as an informative summary.

Forensic polygraph analysis | Judges and criminal lawyers might question whether defendants and witnesses are lying or accurately recalling the truth. Polygraph instrumentation detects psychophysical signals e.g., galvanic skin response, heart rate, respiration, etc. and relays these signals back to the analyst as trace recordings.

Premise of polygraph analysis | Truthfully answering questions is simply the passive recounting of actual event(s), so prefrontal-corticolimbic cortices do not require any further activation, as reflected by psychophysical signals. Conversely, lying entails active recruitment of these regions to make-up imaginary events or embellish details. Since recordings are scaled, attenuated to account for baseline measures such as the subject's expected nervousness or their capacity to recall, extremes are strongly indicative of truthfulness or deception.

Polygraph issues | Polygraphic evidence contextualized by understanding underlying psychophysical mechanisms emerges as a persuasive investigative tool. Tempering this argument, the reliability of lie detection has always been controversial, the fundamental issue being conditions under which such 'mind reading' techniques could be coercive or taken out of context; polygraphic results are only as credible as their interpreters. That is, results from a biased, unskilled examiner e.g., police officer, may be meaningless. Regardless of debate, truth verification technology is already underway, such as the 'No Lie MRI' technique (Greely 2013; Pardo 2013). Related, 'EyeDetect' involves measuring involuntary saccades (eye movements) to detect deception. AD

References

Greely HT. Mind reading, neuroscience, and the law. 2013;
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Pardo MS. Minds, Brains, and Law: The Conceptual Foundations of Law and Neuroscience; 2013.

To cite this document:
Du Beau A., Matanuska Forensic Science, LLC. www.matanuskaforensicscience.com