

Project title: Detecting Concealed Information

Project leader: Dr. Ewout H. Meijer

Function: Assistant professor

Collaborators: Dr. Fren Smulders

Proposal (250 words):

Introduction: People perform notoriously poor when trying to detect deception. It is therefore not surprising that technological aids have been put forward to assist humans in credibility judgments. Over the last decades, especially the use of measures of brain activity to detect deception has attracted increased attention. More specifically, memory detection – or concealed information testing – has been shown successful with a variety of measures, including measures of brain activity. Typically, however, such memory detection procedures aim to establish whether a suspect has been involved in a crime, e.g., by showing the presence of a memory trace for crime related details.

Hypothesis and Objectives: More recently, however, information gathering has become equally important. This project seeks to develop new – theory driven - methods to extract information from individuals and detect memory traces, primarily using psychophysiological measures such as skin conductance, EEG and potentially fMRI.

Setting and Methods: In a series of controlled laboratory experiments we will develop and test new protocols and algorithms for their effectiveness and the extent to which they can be successfully applied to extract information from individuals.

Impact: Research on deception has seen a steep rise over the last decades. Moreover, some of this research has already found its way to the investigative authorities, and is currently being used in the field. This project will yield theoretical knowledge about deception, but may also lead to deliverables that can directly be applied in investigations.

Requirements candidate: Highly motivated student with good English communication skills and proactive and resolute attitude.

Keywords:

Top 5 selected publications:

1. Verschuere, B., Ben-Shakhar, G., & Meijer, E. H. (2011). *Memory detection: Theory and application of the Concealed Information Test*. Cambridge: Cambridge University Press. Times cited: 116
2. Meijer, E.H., Selle, N. K., Elber, L., & Ben-Shakhar, G. (2014). Memory detection with the Concealed Information Test: a meta analysis of skin conductance, respiration, heart rate, and P300 data. *Psychophysiology*, 51, 879-904. Times cited: 53
3. Meijer, E.H., Verschuere, B., Gamer, M., Merckelbach, H., & Ben-Shakhar, G. (2016). Deception detection with behavioral, autonomic, and neural measures: Conceptual and methodological considerations that warrant modesty. *Psychophysiology*, 53, 593–604. Times cited: 19
4. Muris, P., Merckelbach, H., Otgaar, H., & Meijer, E.H. (2017). The Malevolent Side of Human Nature: A Meta-Analysis and Critical Review of the Literature on the Dark Triad (Narcissism, Machiavellianism, and Psychopathy). *Perspectives on Psychological Science*, 12(2), 183-204. Times cited: 12
5. Meijer, E.H., & Verschuere, B. (2017). Deception detection based on neuroimaging: Better than the polygraph? *Journal of Forensic Radiology and Imaging*, 8, 17-21. Times cited: 0