



Visual Perception and Attention Laboratory

Centre for Vision Research

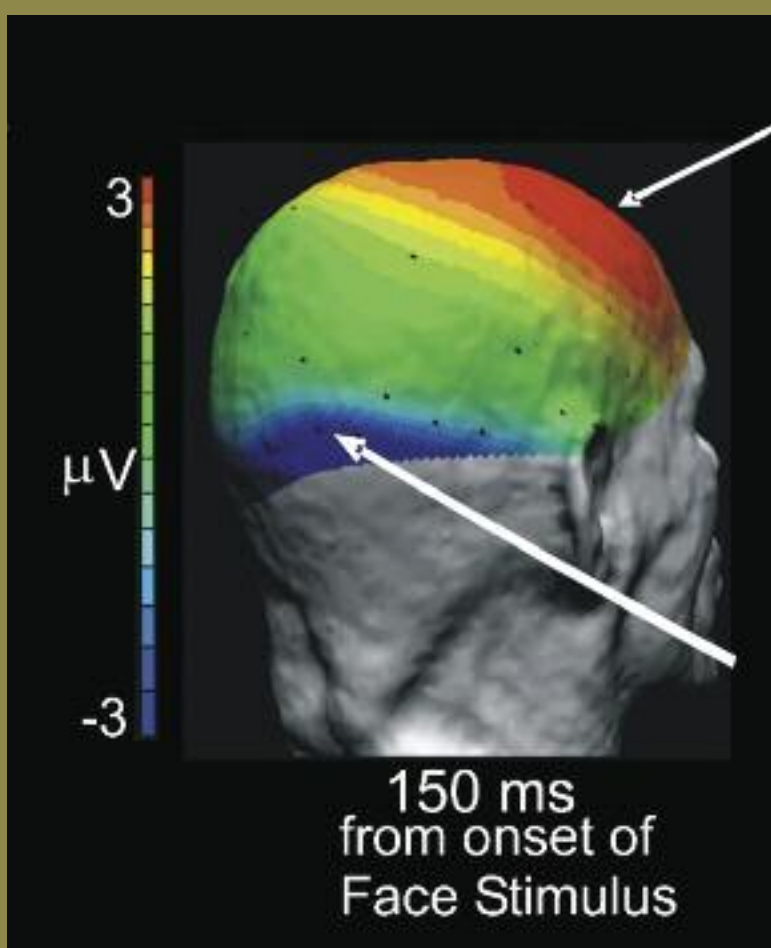
Researchers: Professors Mazyar Fallah, Heather Jordan

Graduate Students: Sarah Jones, Aida Owlia, Carolyn Perry



How does the brain process information to give us the impression of a seamless, integrated world? Researching the neural basis of information binding will help us to understand conditions in which it fails (e.g., autism, schizophrenia, Williams Syndrome, etc.). Recording eye movements via infrared cameras is one of the first steps in understanding how we extract sensory information in real time.

EEG measures synchronized activity across populations of neurons while participants perform behavioural tasks and is effective in testing adults, children and special populations. Millisecond by millisecond, it provides a clear picture of the brain activity that underlies cognition.



For example, how do humans encode high-level social information, such as gender, which is present both in faces and the way we walk? Different patterns of activity manifest when judging the gender of a face if it is preceded by another face, or by a human walking. This suggests that gender is not bound across these two types of representations.

Recording individual neurons helps determine the algorithms by which they encode our perceptions. By combining the neuronal and EEG studies in the laboratory, it's possible to determine how activity across the network of brain areas controls attention and binds sensory information to produce our experience of a rich and vibrant world.

