



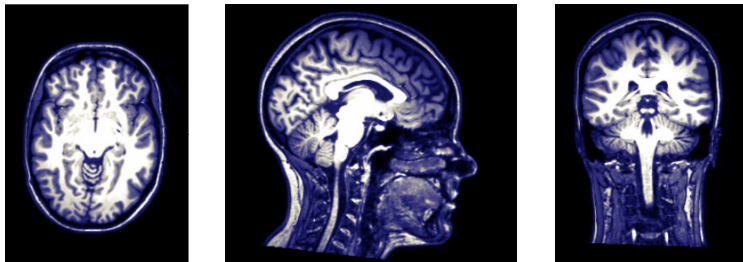
Emotions and Your Brain

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Taking pictures with magnets

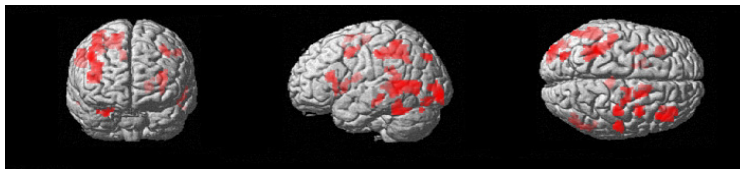
Magnetic resonance imaging, commonly known by its acronym, MRI, is a popular imaging tool in hospitals and medical research because it shows soft tissues (like the brain) in great detail.



MRI images of the brain, shown at three different angles. In these images contrast can be seen between grey matter which appears dark, and white matter that appears light. It is also easy to distinguish different parts of the brain, as well as the facial features of the eyes, nose and mouth.

We can see what you're thinking

One of the most important applications of this technology is imaging the brain. Using a technique known as fMRI, it is possible to map areas of the brain that are active (see the "fMRI" poster for more information).



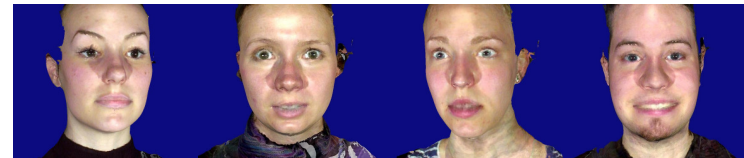
Brain activation. These are computer generated images showing areas of the brain that activate for a specific stimulus. In this case the red highlighted areas are those that have activated more for happy than fearful faces. Locating where the brain processes information helps us to better understand how the brain works

Emotions, and why they're important

Some of the research we are carrying out at the moment investigates how we judge the emotions of other people - this is an essential for normal social interaction.

It is an important area of research because there are a number of conditions, such as autism, where people struggle to comprehend other's emotions. If we want to understand what causes this, we first need to understand how the brain behaves normally.

With fMRI, we can activate specific areas of the brain using a stimulus (or task). In our work, we show volunteers pictures of faces that have a particular emotion, either happy or fearful. By comparing the brain activation patterns that occur for different emotional situations, we can begin to ask questions such as: Are there specific areas of the brain that recognise happiness?



Stimuli for fMRI. These are images that show faces with different emotions. We use these pictures to investigate how different faces are read by the brain. Note how some of the faces are directed at the viewer, while others are averted. This apparently small difference can have a large effect on how the information is processed.

Another interesting question is: What effect does face direction have? That is: What is the difference between seeing someone afraid looking at me and seeing someone afraid who is looking at something else? Recent results from our studies suggest that face direction is important when reading emotion.

One of the main aims of our work is to study what changes occur in the ways we process emotion as we grow from childhood and through adolescence. We hope that this will be able to tell us more about the causes and effects of conditions such as autism, and how they may be treated and better understood.

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