The Face Processing Cycle

- Facial and vocal expressions convey information about a person's internal state
- Interpreting others' expressions then responding with one's own expressions, plays a critical role in the ability to form and maintain relationships internal state
- This “Face Processing Cycle” is depicted in figure 1

Video Recording

- Participants, consisting of depressed and non-depressed individuals, view a selection of negative and positive videos
- The facial expressions of the participants are recorded using a high-quality CCD camera

Facial Measurements

- The Facial Action Coding System (FACS) is commonly used to describe facial activity based on musculature (figure 2)
- FACS measurement units are action units (AUs). Some examples of FACS units are displayed in figure 4

Recording and Analysing Facial Expressions

Sometimes Things Go Wrong!

- A tendency to misinterpret expressions often underlies depression
- Recent MRI studies have shown that the severity of depression correlates with increased neural responses to pictures with negative content
- The bias to favour negative material by depressed patients has been shown to be evident in the resulting facial and vocal expressions
- Objective observations could be of clinical importance in the diagnosis and prediction of response to treatments such as pharmacotherapy and cognitive behaviour therapy (CBT)

Facial Analysis

- Images are captured from video
- Computer vision techniques are used to build a model of an “average face”
- The model is then able to “fit” to new and previously unseen images
- Once fitted, the face is then measured and compared to the average face to classify facial activity

Current Experiment - The Black Dog Institute

- The Black Dog Institute is a not-for-profit, educational, research, clinical and community-oriented facility in Sydney, offering specialist expertise in depression and bipolar disorder
- Over the course of the last four months, video lab has been set up at the Institute
- The recordings are now being analysed