

- [Home](#)
- [About the CVR](#)
- [News](#)
- [Members](#)
- [Seminar Series](#)
- [Conference](#)
- [Resources](#)
- [CVR Summer School](#)
- [Research Labs](#)
- [Training at the CVR](#)
- [Partnering with the CVR](#)
- [Contact Us](#)

- Friday, April 3, 2009

Decoding visual and mental content from human brain activity

Is it possible to determine what a person is seeing, experiencing, attending to, or actively remembering, from noninvasive measures of that person's brain activity? My lab has developed a novel decoding approach to extract information about orientation and motion direction from fMRI activity patterns in the human visual cortex. From these activity patterns, we can reliably predict whether a person is viewing a vertical or tilted grating, leftward or right motion, a pigeon or a sparrow. Here, I will describe how this approach can be successfully applied to read out subjective mental content, thereby opening new avenues for investigating the neural bases of conscious perception, feature-based attention and visual working memory. In ongoing studies, we find that feature-selective activity is dynamically altered at the earliest stages of visual processing, when subjects must attend to one of two stimuli or must actively maintain a specific visual pattern in working memory. The ability to decode the contents of a person's mental state from measured brain states brings scientists a step closer towards understanding the neural representations that underlie subjective visual experience.

Frank Tong
Vanderbilt University