

Seeing the world from a different angle

Cognitive scientist Alyssa Brewer uses fMRI to study how the brain processes information and adapts when what we see differs from reality

People generally wear glasses in order to see more clearly, but cognitive scientist Alyssa Brewer is looking for quite the opposite effect through the lenses of her Center for Cognitive Neurosciences' left-right reversing prism goggles. The specially designed spectacles give those who don them a new perspective of the world – one in which everything appears in reverse.

For 14 days and nights, her graduate research assistant, Ling Lin, wore the glasses and learned first hand what it's like to see and experience the world in reverse.

"When we reach for something, like a pen, we first process where it is visually and then formulate an action on how to grab it based on where we see it," says Ling Lin. "When wearing the glasses, however, visual input and motor output don't correspond to one another because the pen that used to be on the right side now appears to be on the left. After time, however, our brains have the ability to adapt to something as dramatic as completely reversing our environment," she says, citing a similar experiment performed back in the late 1800s.

Throughout the 14 day experiment, Brewer used fMRI to monitor how long it took Lin's brain to adapt to a mirror image version of reality - a real-life issue for those with damage or disorders of the brain in which there is lack of attention to or awareness of one side of space.

By studying which parts of the brain activate when making this mental adaptation, the researchers hope to contribute to existing visuomotor research and its possible application for individuals with spatial deficiencies such as hemispatial neglect, a neurological disorder exhibited by individuals who have suffered from a stroke.

