Today's crossword solution

S	O	A	P		V	A	S	T		A	D	D	L	E
H	I	D	E		I	N	C	H		S	E	D	A	N
O	L	L	A		S	T	A	Y		S	L	E	W	S
R	E	A	C	T	I	O	N		P	I	E			
T	R	I	E	S	O	N		P	O	S	T	A	G	E
			F	A	N		C	I	S	T	E	R	N	S
F	E	M	U	R		B	L	E	S	S		G	A	T
O	V	A	L		T	R	U	C	E		P	U	R	E
C	A	Y		S	H	A	N	E		F	E	E	L	S
A	D	A	P	T	I	N	G		C	A	D			
L	E	N	I	E	N	T		D	E	T	E	S	T	S
			L	E	S		A	R	R	E	S	T	E	E
W	H	E	L	P		S	L	O	E		T	A	P	E
A	U	R	A	L		K	O	L	A		A	G	E	D
D	E	E	R	E		Y	E	L	L		L	E	E	S

fMRI

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technology since 1978.

"We know a lot about what parts of the brain function," he said. "But we haven't gotten to the point of, say, an athlete who enhances his body's performance with proper care and training."

Paul Dassonville is more concerned with how perception determines reality. The assistant psychology professor has been at the University for three years and has worked with fMRI machines for six years.

"My main research line relates to using the fMRI in studying the pattern of brain activity that corresponds with different types or levels of perceptual awareness," he said.

Dassonville said he plans to conduct a study in which he will show a variety of digitally projected images to subjects and evaluate their brain activity. For example, a person lying with their head in the fMRI might see a picture of a face followed by a scrambled image. The subject must identify which is a face and which is scrambled as the images quickly change.

This activity will help Dassonville pinpoint which regions of the brain the subjects use to determine what they think they saw versus what's actually shown. Dassonville said he hopes the findings will help psychologists and students better understand what happens when the brain perceives the world.

"The research and knowledge we're gaining will be passed on to students as we teach," Dassonville said. This term he is teaching an upper-division psychology course in perception.

The fMRI is similar to a magnetic resonance imaging machine, or MRI, but is much more powerful. It is a shallow tube of sensors that can pinpoint minute locations in the brain and measure differences in brain activity based on blood flow to those locations. In short, the machine produces a magnetic field that alters the natural arrangement of positively charged subatomic particles in the blood.

"If you have two magnets on a table, and one is near the other one, one spins and the poles align," technician for MR Imaging Associates Scott Watrous said. "Hydrogens, for example, line up with a big magnetic field created by the MRI scanner."

Using high-tech computer software, researchers can detect radio signals emitted from the protons and translate them into an image depicting a slice of tissue. They can also measure how much time it takes the disturbed particles to settle again, and, based on the duration, can differentiate between brain functions.

Linton said there's a buzz about the new fMRI in scientific circles on campus. He expects more reaction as months stretch into years, as hypothesis become theories and as research yields compelling answers.

E-mail reporter Eric Martin
at ericmartin@dailyemerald.com.