

All in your head

A University professor takes the lead in neurolaw, an emerging field at the intersection of law and brain science

At the start of Dzhokhar Tsarnaev's March trial, defense lawyers readily admitted that their client planted the bombs that killed three people and injured scores more at the April 2013 Boston Marathon. But they did not enter a guilty plea.

Instead, the team portrayed Tsarnaev as an impressionable teen who was manipulated by his older brother. Their strategy may spare Tsarnaev the death penalty by asking the jury to consider not what the young man did, but why he did it. Or rather, "What was going on inside his brain?" says Francis Shen, an associate professor of law at the University of Minnesota.

Shen, a McKnight Land-Grant professor who joined the U in 2012, runs the Shen Neurolaw Lab and studies the intersection of law and brain science—or "neurolaw," as the emerging field is better known.

The field explores how advances in neuroscience affect legal standards and rulings. Recent developments in neuroscientific techniques have already enabled researchers to better see inside the human brain. Future research may make it possible to do things like tell when someone claiming to be in pain is faking, improve assessment of brain death, and better diagnose and treat concussions.

It may also help make clearer why and how people do what they do. "The more we learn about how the brain works, the better law can be," says Shen, who serves as executive director of education and outreach for the MacArthur Foundation Research Network on Law and Neuroscience. "Fast forward and I

believe we are going to think about addiction differently, as well as depression, post-traumatic stress, and other brain disorders, and that will have legal implications."

For example, how might the introduction of neuroscientific information affect jurors? Might they make a different decision if they thought of post-traumatic stress disorder as a physical injury to the brain?

Shen covers topics like this in *Law and Neuroscience* (Aspen Publishers,

2014), the first textbook on neuro-law, which he co-authored with two Vanderbilt University professors. Shen uses the textbook in the Law and Neuroscience course he teaches at the U.

"My hope is that in 20 years, neuroscience in law will make more sense to people, and we can begin to rely less on draconian forms of incarceration, like solitary confinement, and offer better treatment for people with brain disorders," he says. "Understanding how to treat criminal brains would serve everyone better." —*Meleah Maynard*



Francis Shen wrote the first neurolaw textbook, which he uses in the Law and Neuroscience class he teaches at the U.