

Astonishing efficiency, unlimited storage: What makes the human brain so powerful?

[A] team from Washington University in St. Louis combined neural recordings from rats with computer modeling [to uncover one of the largest mysteries of the brain](#): why, despite noisy components, it's so damn powerful. By analyzing firing patterns from hundreds of neurons over days, the team found evidence that supports a type of “computational regime” that may underlie every thought and behavior that naturally emerge from electrical sparks in the brain—including consciousness.

The answer, as it happens, has roots in an abstruse and controversial idea in theoretical physics: [criticality](#). For one of the first times, the team observed an abstract “pull” that lures neural networks back into an optimal functional state, so they never stray far from their dedicated “set points” determined by evolution. Even more mind-blowing? That attractive force somehow emerges from a hidden universe of physical laws buried inside the architecture of entire neural networks, without any single neuron dictating its course.

“It’s an elegant idea: that the brain can tune an emergent property to a point neatly predicted by the physicists,” [said](#) lead author Dr. Keith Hengen.

Read full, original post: [This Strange Rule Is What Makes the Human Brain So Powerful](#)