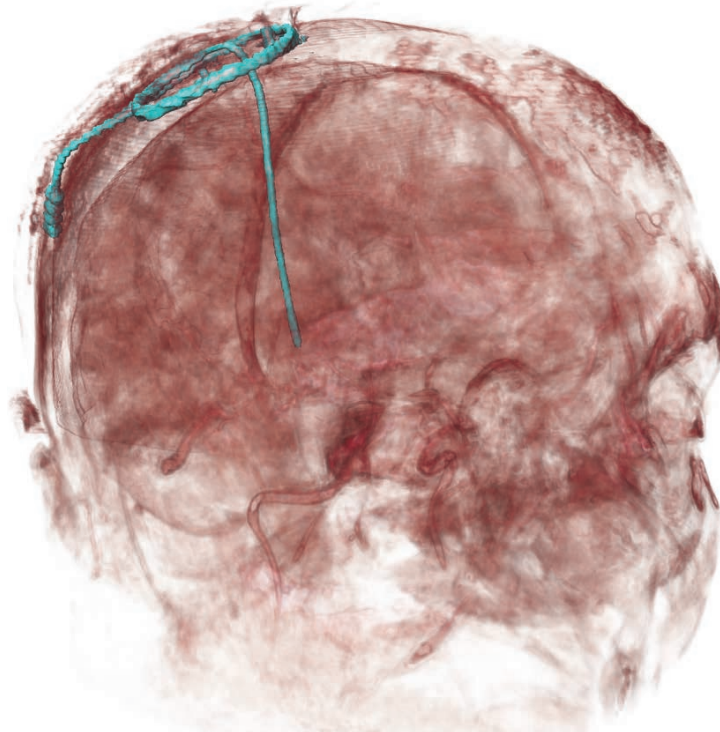




Treating Tremors

It may not sound like much fun having an electrode implanted in your brain, yet it's much better than not being able to hold anything even for a second, which can happen to someone with Parkinson's disease or essential tremor. *Deep brain stimulation* is effective in treating these conditions, but determining the proper stimulating parameters can take many hours and can require multiple visits by patients. Mathematics is part of a new approach that reduces the time needed to find optimal settings of the electrodes from several hours to a few minutes. First, mathematical models describe a person's



brain accurately. Then systems of differential equations that represent neuron behavior are solved numerically. This combination allows doctors to see the results of different strategies in real time and speed their patients' return to normal lives.

Image: Tom Fogal and Christopher Butson, PhD,
Scientific Computing & Imaging (SCI) Institute, University of Utah.

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