



# Hierarchical optimization of settings for medical devices

**An algorithm for selecting settings on medical devices based on population data and incorporating patient preference and/or benefit of therapy delivered at tested settings.**

**IP Status:** Issued US Patent; Patent No.12,343,540

## Applications

- Optimization of medical devices
- Personalized neurostimulation

## Technology Overview

Patient settings for medical devices used to treat neurological diseases are usually selected based on small clinical trials and doctor experience. Researchers at the University of Minnesota have developed a method for using patient responses to a small set of stimulation parameters to develop a response model based on prior patients to settings beyond those tested. This approach optimizes individual medical device parameters for the patient, decreasing the associated cost and time for tailoring neuromodulation settings.

## Phase of Development

**TRL: 5-6**

Working prototype tested and used with clinical data

## Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

Please contact our office to share your business' needs and learn more.

## Researchers

- [Tay Netoff, PhD](#) Professor, Department of Biomedical Engineering
- [David Darrow, MD, MPH](#) Assistant Professor, Neurosurgery Department
- [Andrew Lamperski, PhD](#) Associate Professor, Department of Electrical and Computer Engineering

## Technology ID

2020-182

## Category

All Technologies  
Engineering & Physical  
Sciences/Instrumentation,  
Sensors & Controls  
Life Sciences/Health IT  
Life Sciences/Human Health  
Life Sciences/Neuroscience  
Software & IT/Algorithms  
Software & IT/Health IT

## View online page

