

# Design and Apparatus for Mapping and Modeling Neurological Networks

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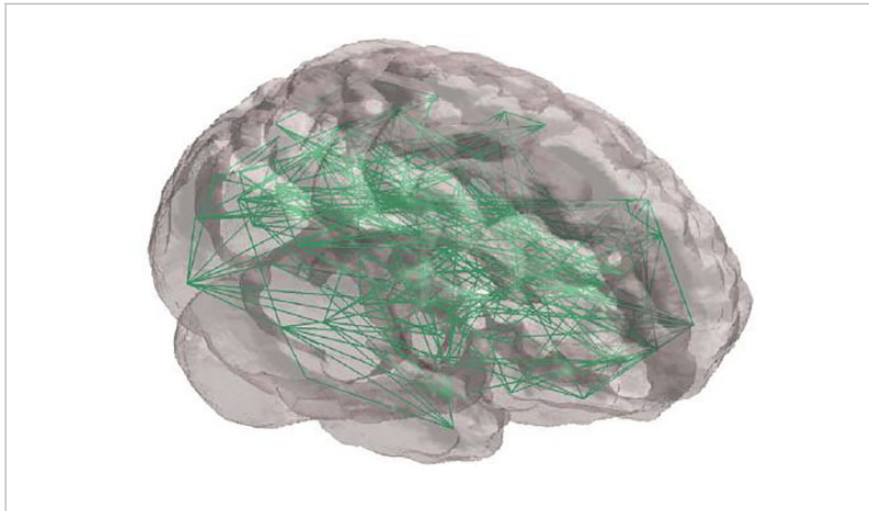


Illustration of Invention

## Technology Summary

Magnetic resonance (MRI) image data can be quantified and transformed into a model of neural architecture. Regions of interest in MRI data are identified and mapped into a connectivity matrix. The connectivity matrix can be transformed into a partial correlation matrix, which can be further transformed, automatically, into a generative neural model indicative of the connectivity matrix.

## Application & Market Utility

Current methods of acquiring neural data produce vast quantities of data that are difficult to interpret. This tool maps neural networks using MRI data, allowing differentiation of normal and abnormal neural activity, providing diagnostic information about particular brain maladies. This approach models a neural network with a small number of parameters, making it possible to provide indication of specific conditions (Alzheimer's, concussion) affecting the patient. It also helps understand effects of specified compounds on neural pathways for use in drug development.

## Next Steps

Seeking research collaboration and licensing opportunities.

### TECHNOLOGY READINESS LEVEL

#### Seeking

Investment | Licensing | Research

#### Keywords

- Neural mapping
- MRI diagnostics
- Neural modeling
- Alzheimer's
- Concussions

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