Sean Tobyne

Computational Neuroscientist, Data Scientist & Project Manager

Personal Info

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GitHub
github.com/stobyne

LinkedIn
linkedin.com/in/sean-tobyne

Personal Website
www.backpropagated.com

Software

MATLAB
Expert

R, Python
Advanced

Keras/TensorFlow, OpenCV, SQL
Familiar

Java, JavaScript, C/C++
Novice

Skills

Applied Machine Learning
Advanced

Project Management & Problem Solving
Advanced

Data Analysis & Visualization
Expert

Troubleshooting/Debugging
Advanced

Natural Language Processing
Intermediate

Experience neuroscientist nearing the completion of his PhD with 13 years of project management experience and 10 years of experience in behavioral, cognitive and computational neuroscience research including biomarker development, clinical trial outcomes and applied machine learning.

Experience

2011 - present

Project Manager/Senior Researcher

MGH - Dept. of Neurology/Martinos Center for Biomedical Imaging

• Lead researcher for laboratory using advanced neuroimaging to investigate multiple sclerosis

• Manage team of 6 researchers, fellows and research assistants to successful study completion - including 5 peer reviewed publications (2 first author) and 20+ conference presentations

• Design and implement applied machine learning algorithms to classify patient and control groups, stratify patients groups and conduct image segmentation

2006 - 2011

Project Manager

Praxis, Inc.

• Managed R&D/proof of concept component of software development projects at STTR funded boutique psycho-educational startup software company

• Delivered 5 successful field research projects to programming team

• Developed key field site research methodology for vetting research-based instructional design

Education

2018

Boston University School of Medicine

- PhD Computational Neuroscience (Winter, 2018)
  - Developed novel machine learning applicationsto predict brain area recruitment during cognitive tasks using information about how the brain is wired
  - Published 3 first author papers, presented 3 invited talks at the Society for Neuroscience meeting and numerous poster presentations
  - Awarded NIH F31 fellowship award ($165,000) and Computational Neuroscience Training Grant ($65,000)

2011

Boston University

- MA Psychology

2005

Saint Michael's College

- BA Psychology

Selected Publications

2018

Tobyne, S.M., Somers, D.C., Brissenden., J. A., Michalka, S.W., Noyce, A., and Osher D.E. (2018). Prediction of Individualized Task Activation in Sensory Modality-Selective Frontal Cortex with ‘Connectome Fingerprinting.’ *NeuroImage* 183:173-185. DOI: 10.1016/j.neuroimage.2018.08.007.

- "Connectome Fingerprinting" is an applied machine learning technique that estimates the unique functional topography of an individuals brain by mapping their unique inter-areal network-level interactions.

2017

Tobyne, S.M., Osher, D.E., Michalka, S.M. and Somers, D.C. (2017). Sensory-biased attention networks in human lateral frontal cortex revealed by intrinsic functional connectivity. *NeuroImage* 162:362-72. DOI: 10.1016/j.neuroimage.2017.08.020.

- In this work we developed methodology to extend findings from our small, in-house neuroimaging datasets by leveraging the 'big data' of the Human Connectome Project, an extremely large high-quality neuroimaging dataset.