



Gary Hasey, MD, FRCP(C), MSc



HEALTH SCIENCES
Psychiatry & Behavioural
Neurosciences

Research Work

Dr Hasey is an Associate Professor in the Department of Psychiatry and Behavioural Neurosciences, the Department of Electrical and Computer Engineering member and the School of Biomedical Engineering at McMaster University. He trained at the University of Alberta, the University of Toronto and the University of Pittsburgh. In 1997 he founded Canada's first therapeutic repetitive transcranial magnetic stimulation (rTMS) program, housed in the Lillian and Donald Mair TMS Suite at St Joseph's Hospital. This clinic uses advanced brain imaging technology to enhance the effectiveness of TMS. Dr Hasey leads an engineering/psychiatry team that has developed Machine Learning algorithms that analyze an individual's EEG signal and other clinical data to diagnose mental illness, assess risk of suicide and predict the response to rTMS, various medications and cognitive behaviour psychotherapy. This team received the RO Jones prize from the Canadian Psychiatric Association in 2014, the Digitech Innovation Prize from Paris-based Universal Biotech in in 2018, and was invited to represent Canada in the information technology sector at the Sci-Innovation Professional Finals competition in Shenzhen China in 2019.

Current Research Projects Include:

- Prediction of response to rTMS using machine learning analysis of EEG signal
- Prediction of suicidal ideation using machine learning analysis of EEG signal
- Prediction of the degree of cognitive impairment and the antidepressant response to ECT using machine learning analysis of pretreatment neuropsychological test results.

Engagement Opportunities

Introductory Level

Intermediate Level

Advanced Level

- Assemble rTMS treatment outcome and match with pre-treatment EEG to train outcome prediction machine learning algorithms
- Analyze pre-ECT neuropsychological test score data in order to predict the magnitude of post ECT antidepressant response and cognitive change

If you are interested in learning more, please leave your contact information with the Research Office and/or contact Dr.Hasey at haseyg@mcmaster.ca