JOSEPH D VIVIANO

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EDUCATION

2018–present **MSc. Professional, Computer Science.** Université de Montréal, QC/CA.

Focus on machine learning, deep learning, & reinforcement learning.

2011–2013 **MSc. with Distinction, Biology.** York University, ON/CA.

Thesis Supervised by Dr. Keith Schneider.
'Tremotopic mapping of the human thalamic reticular nucleus'.

2005–2009 **BSc. Hons., Psychology.** Queen's University, ON/CA.

INTERESTS

Precision Medicine **Automated methods for extracting patient-specific clinical knowledge from unstructured data, and effective clinical data management.**

Deep Learning **Relationship with theoretical neuroscience, applications to medical images and clinical records.**

EXPERIENCE

2014–2017 **Research Methods Specialist**
Dr. Aristotle Voineskos, Kimel Translational Imaging and Genetics Research Lab, Centre for Addiction and Mental Health

- Managed the design & implementation (team of 5) of a sophisticated data management platform used daily by researchers (team of 20).
- Invented an accurate machine learning test that identifies vulnerable patients, & directed 2 other similar successful projects, including 1 deep learning project.
- Managed R&D (team of 3) of quality assurance tools that repair corrupted data & detect critical hardware failures.
- Lead developer of production analysis code used by our scientists.
- Managed a 22-node compute cluster.

2013–2014 **Data Analyst**
Dr. Gary Turner, Cognitive Aging Neuroscience & Neuro-intervention Lab, York University

- Architect of a custom platform for data pipeline development, now used in multiple research institutions.
- Responsible for maintaining a fleet of 5 computers.
- Mentored graduate students in neuroimaging analysis approaches.

PUBLICATIONS

* = equal contributions.

Hawco C, Buchanan RW, Calarco N, Mulsant BH, Viviano JD, Dickie EW, Argylean M, Gold JM, Iacoboni M, DeRosse P, Foussias G, Malhorta AK, Voineskos AN, for the SPINS group. 2019. Seperable and replicable neural strategies during social brain function with and without severe mental illness. American Journal of Psychiatry. Jan 4 (Online).

Viviano JD, Buchanan RW, Calarco N, Gold J, Foussias G, Bhagwat N, Stefanik L, Hawco C, Malhotra AL, Voineskos AN, for the SPINS group. 2018. Resting-state connectivity biomarkers of cognitive performance and social function in schizophrenia spectrum disorders and healthy controls. Biological Psychiatry. 84(9), 665-674.

Stojanovski S, Felsky D, Viviano JD, Shahab S, Bangali R, Burton C, Devenyi GA, O'Donnell LJ, Szatmari P, Chakravarty MM, Ameis S, Schachar R, Voineskos AN, Wheeler AL. 2018. Polygenic risk and neural substrates of attention-deficit/hyperactivity disorder symptoms in youth with a history of mild traumatic brain injury. Biological Psychiatry. 12 July (Online).

Hawco C, Voineskos AN, Steeves J, Dickie EW, Viviano JD, Downar J, Blumberger D, Daskalakis ZJ. 2018. Spread of activity following TMS is related to intrinsic resting connectivity to the salience network: a concurrent TMS-fMRI study. Cortex. 108, 160-172.

Bhagwat N, Viviano JD, Voineskos AN, Chakravarty MM. 2018. Modeling and prediction of clinical symptom trajectories in Alzheimer's disease using longitudinal data. 2018. PLoS Computational Biology. 14(9), e1006376.

Chavez S, Viviano JD, Zamyadi M, Kingsley PB, Kochunov P, Strother S, Voineskos AN. 2018. A novel DTI-QA tool: automated metric extraction exploiting the sphericity of an agar filled phantom. Magnetic Resonance Imaging. 46, 28-39.

Hawco C, Viviano JD, Chavez S, Dickie EWE, Calarco N, Kochunov P, Argyelan M, Turner J, Malhortra AK, Buchanan RW, Voineskos AN. 2018. A longitudinal human phantom study of multi-center T1-weighted, DTI, and resting-state fMRI data. Psychiatric Research: Neuroimaging. June 9 (Online).

Dickie EW, Anticevic A, Smith DE, Coalson TS, Manogaran M, Calarco N, Viviano JD, Glasser MF, Van Essen DC, Voineskos AN. 2018. ciftify: A framework for surface-based analysis of legacy MR acquisitions. bioAxiv.

Dickie EW, Ameis SH, Viviano JD, Smith DE, Calarco N, Shahab S, Voineskos AN. 2018. Personalized intrinsic network topography mapping and functional connectvitiy deficits in autism spectrum disorder. Biological Psychiatry. 84(4), 278-286.

Viviano JD, Park MTM, Voineskos AN, Chakravarty MM. 2018. Homology of functional connectivity and structural covariance between the human cerebellum and cortex. Under review.

Kochunov P*, Dickie EW*, Viviano JD*, Turner J, Kingsley PB, Jahanshad N, Thompson P, Ryan M, Fiermans E, Novikov D, Hong EL, Malhotra AK, Buchanan RW, Chavez S, Voineskos AN. 2017. Integration of routine QA data into mega-analysis may improve quality and sensitivity of multi-site diffusion tensor imaging studies. Human Brain Mapping. 39(2), 1015-1023.

Hawco C, Buchanan RW, Calarco N, Mulsant BH, Viviano JD, Dickie EW, Argyelan M, Gold JM, Iacoboni M, DeRosse P, Foussias G, Malhotra AK, Voineskos AN, for the SPINS group. 2017. Distinct patterns of neural circuit engagement during a socio-emotional fMRI task are related to cognitive performance but not psychiatric diagnosis. In submission.

Hawco C, Kovacevic N, Malhotra AK, Buchanan RW, Viviano JD, Iacoboni M, McIntosh AR, Voineskos AN. 2017. Neural activity while imitating emotional faces is related to both lower and higher-level social cognitive performance. Scientific Reports. 7, 1244.

Lemire-Rodger S, Lam J, Viviano JD, Stevens WD, Spreng RN, Turner GR. 2017. Functional topology of executive control in the human brain. In submission.

Spreng NR, Stevens WD, Viviano JD, Schacter D. 2016. Attenuated anticorrelation between the default and dorsal attention networks with aging: Evidence from task and rest. Neurobiology of Aging. 45, 149-160.

Ameis SH, Lerch JP, Taylor M, Lee W, Viviano JD, Pipitone J, Nazeri A, Croarkin P, Voineskos A, Crosbie J, Brian J, Soreni N, Schachar R, Arnold P, Anagnostou E. 2016. A diffusion tensor imaging study in children with ADHD, autism spectrum disorder, OCD, and matched controls: distinct and non-distinct white matter disruption and dimensional brain-behavior relationships. American Journal of Psychiatry. 173(12):1213-1222.

Wheeler AL, Felsky D, Viviano JD, Stojanovski S, Ameis SH, Szatmari P, Lerch JP, Chakravarty MM, Voineskos AN. 2016. BDNF and sex dependent effects on amygdala-cortical connectivity and depression risk in children and youth. 2017. Cerebral Cortex. 1-11.

Viviano JD, Schneider KA. 2015. Interhemispheric interactions of the human thalamic reticular nucleus. Journal of Neuroscience, 35(5):2026-32.

DeSimone K, Viviano JD, Schneider KA. 2015. Population receptive field estimation reveals new retinotopic maps in human subcortex. Journal of Neuroscience, 35(27):9836-47.

McKetton L, Williams J, Viviano JD, Yücel YH, Gupta N, Schneider KA. 2015. High-resolution structural magnetic resonance imaging of the human subcortex in vivo and postmortem. Journal of Visualized Experiments, 106.