



McGill

Department of
**Epidemiology, Biostatistics
and Occupational Health**

Biostatistics Seminars

Winter 2017

SPECIAL SEMINAR

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High Dimensions, Inference and Combinatorics. A Journey Through the Data Jungle

Tuesday, January 24, 2017

3:30 pm – 4:30 pm

Purvis Hall, 1020 Pine Ave. West, Room 24

ALL ARE WELCOME

Abstract:

This talk takes us on a journey through modern high-dimensional statistics. We begin with a brief discussion on variable selection and estimation and the challenges they bring to high-dimensional inference, and we formulate a new family of inferential problems for graphical models. Our aim is to conduct hypothesis tests on graph properties such as connectivity, maximum degree and cycle presence. The testing algorithms we introduce are applicable to properties which are invariant under edge addition. In parallel, we also develop a minimax lower bound showing the optimality of our tests over a broad family of graph properties. We apply our methods to study neuroimaging data.

Bio:

Matey Neykov is a postdoctoral research associate in the Department of Operations Research and Financial Engineering at Princeton University. Prior to Princeton, Matey received his PhD in Biostatistics at Harvard University under the supervision of Professors Jun S. Liu and Tianxi Cai. Neykov's interests lie at the interface of statistics and machine learning, and he has worked on graphical models, dimension reduction, high-dimensional inference and their applications to biomedical data. His work has been published in peer-reviewed journals and conferences such as JMLR and NIPS, and has received the IMS Travel award twice. For more information visit his homepage at <http://mneykov.mycpanel2.princeton.edu/>.

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