

# Zvezdomir Todorov

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## Summary of Skills

Doctorate student in economics, specializing in econometrics, researching theoretical and empirical applications of optimal model averaging. Extensive experience in applying cutting-edge statistical models in Python, R, Stata, and Matlab. Computer skills further include typesetting systems LaTeX and Bookdown, version control system Git, and command language BASH.

## Education

### McMaster University

Hamilton, Ontario

DOCTORATE IN ECONOMICS, GPA 11.7/12

Sep. 2016 - Present

- Proposed model averaging method for threshold regression models and demonstrated its asymptotic optimality and empirical superiority over competing model averaging and model selection methods
- Used parallel computing environment, Sharcnet, to alleviate the burden of resource-intensive computations
- Currently investigating how model averaging improves the estimation of treatment effects derived from the synthetic control estimator
- Tested and found little to no evidence for the presence of asymmetric pass-through in the Canadian retail gasoline prices

### McMaster University

Hamilton, Ontario

MASTER OF ARTS IN ECONOMICS, GPA 11.6/12

Sep. 2015 - Jun. 2016

- Implemented dynamic discrete choice model estimators in R to predict labor force participation of woman post childbirth
- Applied Bayesian GARCH and Markov switching models to analyze predictability of stock market returns in R
- Contrasted the ability of several parametric and non-parametric estimators to forecast house prices using R

### York University

Toronto, Ontario

BACHELOR OF ARTS IN FINANCIAL AND BUSINESS ECONOMICS, GPA 7.2/9

Jan. 2011 - Apr. 2015

- Member of the Dean's Honour Roll for Academic Success

## Work Experience

### McMaster University

Hamilton, Ontario

RESEARCH ASSISTANT

May 2018 - Present

- Funded through the Productivity Partnership to further focus on personal research towards my doctorate dissertation

### McMaster University

Hamilton, Ontario

RESEARCH ASSISTANT

Sept. 2017 - Apr. 2018

- Analyzed optimal reserve prices that lead to the highest profits for competing auctioneers
- Numerically searched for equilibrium in mechanism design problems with R
- Customized R's graphing utility to report results

### McMaster University

Hamilton, Ontario

TEACHING ASSISTANT

Sept. 2015 - Apr. 2018

- Evaluated exams and assignments for graduate level industrial organizations and advanced econometrics courses, as well as various undergraduate courses
- Marked and debugged student's Matlab code and presented correct test answers in post-exam sessions

### York University

Toronto, Ontario

RESEARCH ASSISTANT

Jan. 2014 - Aug. 2014

- Worked independently to collect data for an economics professor, Dr. Salisbury, to support research exploring the relationship between married women's property laws and national banking in the U.S. during the mid to late 19<sup>th</sup> century.
- Used Microsoft Excel extensively for the data collection process to sort and organize data entries for studying Confederate Pensions in American South during the late 19<sup>th</sup> and early 20<sup>th</sup> century

## Extracurricular Activities

### Kaggle (Data Science and Machine Learning Community)

COMPETITIONS CONTRIBUTOR

Jan. 2018 - Present

- Used pre-trained word embeddings, word2vec, and fasttext, to automatically flag toxic Wikipedia comments
- Combined textual, pictorial and numerical data using neural network library Keras to predict demand for classified ads on Avito platform
- Extracted features from relational tables to predict defaults on home loans for Home Credit Group
- Applied Bayesian optimization to fine-tune individual models, as well as various ensemble and model averaging techniques to increase predictive performance