

# Palermo S. Penano

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Citizenship: Canadian    Language: English, Tagalog

**Professional Profile** Graduate-level expertise in applied economics pursuing a career in data science. Over 5 years of data analytics experience in academia. Knowledgeable in a wide range of tools and datasets including geospatial data and large company- and individual-level panel data. Passionate learner with deep interest in machine learning and computer programming

**Education**    **Ph.D Studies (ABD), Economics**    2012 - 2017  
*University of Toronto*

- Project include studying the effect of large national highway systems on regional development in India and China. Wrote Python scripts to geolocate over >1,000,000 addresses of companies in India and China using Baidu's and Google's Maps API. Matched geolocated company data to highway segments using ArcGIS
- Wrote two empirical papers on occupational choice, economic growth, and trade liberalization using detailed individual-level national survey data spanning 20 years from India
- Selected PhD-level coursework in econometrics, empirical microeconomics, development economics, and international trade theory
- Awarded fellowship from 2012 to 2016
- Left program in good standing to focus on studying computer programming and machine learning

**M.A. (Doctoral stream), Economics**    2011 - 2012  
*University of Toronto*

- PhD-level coursework in microeconomics theory, game theory, and mechanism design
- Awarded fellowship during studies

**B.A., Accounting and Economics**    2011  
*York University*

- Selected coursework in applied probability and statistics, mathematical statistics, multivariable calculus, linear algebra, graph theory, and real analysis

**Data Science Skills**    **Programming Languages and Software**

- **Programming Languages:** Python (>4 years), Stata, Latex/Lyx, Bash and basic SQLite and MySQL
- **Software:** ArcGIS (including raster and network analysis), Lyx, and basic QGIS
- **Tools:** IPython Notebook, Pandas, Matplotlib, Numpy, Beautiful Soup, Scikit-learn, Git/GitHub, Virtualenv, and basic Flask and Keras
- **Cloud Computing:** AWS EC2, GCP Compute Engine

**Data Science Personal Projects (see GitHub)**    2017 - Present

- Comparison of Performance and Runtimes of Bagging, AdaBoost, Gradient Boosting, and XGBoost
- Feed-forward Neural Networks on Toxic Comments Classification using Keras
- Scraping EJMR: Web Scraping and Basic Applications of Python's NLTK Library
- Naive Bayes and Logistic Regression Toxic Comments Classification Web Application

**Continuing Education**    2017 - Present

- Machine Learning Engineer Program (udacity.com, in progress)
- Intro to Machine Learning (Coursera) and Learning from Data (edX)
- 6-weeks Advanced Python Programming (rmostr.com)
- Algorithms (Coursera) and Python for Data Science (edX)

**Work Experience**    **Business Analytics Related Experience**    Summer 2012 - Present  
*Research Assistant, University of Toronto*

- Worked on empirical projects (5) using a variety of datasets: historical ethnographic data, individual-level administrative panel data of call centre workers, geospatial data (both vector and raster) on transportation infrastructure and land-use in the Amazon rainforest, national firm-level surveys in India and China
- Digitized scanned handbooks on foreign direct investment (FDI) reforms in India

- Scraped detailed firm-level FDI data from Indian government website
- Regression analysis on the effects of FDI reforms on capital misallocation and effects of airports on firm growth and productivity
- Wrote Stata code to clean and process raw balance sheet and infrastructure projects data
- Calculated various spatial statistics using geospatial data (shapefiles and rasters) of the Amazon jungle
- Automated various geo-processing tasks using Python (including its implementation using parallel processors)
- Maintained detailed documentation of procedures to improve replicability. Used git for version control when feasible

### **Teaching Experience**

Summer 2011 - August 2017

*Course Instructor / Teaching Assistant, University of Toronto*

- Taught a course on International Trade theory (3rd-year undergraduate course)
- Assisted instructors in selected courses including M.A. math camp, M.B.A. statistics, applied econometrics, and empirical methods in microeconomics
- Consistently received “Excellent” and “Very Good” in evaluation