Yu-Hsien Liu — Data Scientist

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Technical Skills

Programming languages: Python, R, Matlab, C/C++, Java

Cloud solutions: Azure, AWS

Database: MySQL, ElasticSearch

Version control tools: Git, SVN, Docker

Visualization tools: Tableau, matplotlib, pandas, ggplot2

Technical writing: LaTeX, Markdown

Professional Experiences

Analyst
Employment and Social Development Canada, Ottawa – Gatineau *2019–Present*

- Evaluated heterogeneous treatment effects with causal machine learning forests at the individual, group and overall levels
- Presented on the uses of Machine Learning for labour market program evaluation, which involved a review of the methodological literature, data preparation, and analysis
- Effectively transformed numerical results into intuitive graphics and concise descriptions in evaluation reports and presentations

Project: Horizontal 3rd Cycle Evaluation of the Labour Market Development Agreements

- Successfully implemented Machine Learning techniques to build alternative comparison groups for evaluating the effectiveness of labour programs (e.g. Career Focus, Gender-Based Employability Skills and the Aboriginal Skills Employment Training Strategy)
- Produced in- and post-program outcome estimates, such as employment insurance benefits and social assistance dependence, for individuals participating in labour programs

Research Assistant
Bank of Canada, Ottawa ON *2016–2019*

- Successfully launched pilot stages of implementing new applications, including visualization software, cloud computation services, and Azure Virtual Machines)
- Succinctly summarized recommendations and advice on research methodologies from technical and non-technical audience
- Efficiently extracted, transformed, and loaded information from unstructured web-scraped textual data into pipelines

Project 1: Can Media and Text Analytics Provide Insights into Labour Market Conditions in China?

- Creatively operationalized a novel alternative labour market conditions indicator with predictive power was built and verified with statistical, Machine Learning, and time-series econometric techniques
- Carefully Validated the usefulness of proposed index was validated by conducting rolling macroeconomic time series, regression and sentiment analysis

Project 2: Understanding and Predicting Chinese Monetary Policy

- Analytically created a Chinese monetary stance index by analyzing unstructured textual data from both official statements from the government and commercial news articles
- Skillfully engaged and articulated research findings to audience at internal and external workshops, conferences, and seminars

Projects

Face Recognition and Gender Classification with K-Nearest Neighbours (KNN) **Python**
Carleton University, Ottawa ON *2019*
I constructed facial recognition programs with KNN algorithm from scratch to identify the names and gendors of actors/actresses in a subset of the FaceScrub dataset.

Space Weather Forecast **Python – Tensorflow**
National Research Council Canada, Ottawa ON *2018*
I forecasted observational matrices of magnetograms, the Suns magnetic fields strength and location, with a cGAN model.

Conferences

53rd Annual Canadian Economics Association Conference
Banf BC *2019*
Bank of Canada: Textual Analysis of Central Bank Communications / Banque du Canada : Analyse textuelle des communications de la banque centrale

52nd Annual Canadian Economics Association Conference
Montreal QC *2018*
Bank of Canada: Big Data and Machine Learning / Banque du Canada : Mgadonnes et apprentissage automatique

Education

Master's of Data Science and Economics
Carleton University, Ottawa ON *2018 - 2019*

Joint Honours Bachelor's in Mathematics and Economics
University of Ottawa, Ottawa ON *2013 - 2017*