

# CHEN Yuling (Max) - Curriculum Vitae

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## EDUCATION HISTORY

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### University of Oxford

2020/10-2021/10

MSc in Statistical Science with a Distinction.

Supervised by Prof. Gesine Reinert and Prof Mihai Cucuringu, Univeristy of Oxford.

Co-supervised by Prof Mihaela van der Schaar, University of Cambridge.

Program Type: 1-year full time with dissertation.

### University of Toronto

2016/09-2020/06

BSc in Statistics with a High Distinction,

Double-Majored in Math Application in Finance and Economics

Cumulative GPA 3.95/4.0.

Program Type: 4 Years full time.

## ACADEMICS

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### Research Assistant (contract period 2021/10 - 2022/09) supervised by Prof Brian Sheil, at the Engineering Department (University of Oxford)

The project aims to develop an intelligent model for pile installation drivability forecasting via Bayesian analysis. Cooperating with the experts in Physics and Engineering, my role is to analyze the real data and interpret the statistical results into engineering terms. Specifically, it involves Bayesian modeling and inference, model comparison and evaluation, and some machine learning techniques etc.

### Dissertation (2021/06-2021/09): Clustered Bayesian Inverse Reinforcement Learning (BIRL) in clinical trials, supervised by Prof Mihaela van der Schaar (vanderSchaar Lab) and Prof Mihai Cucuringu (University of Oxford)

Based on synthetic clinical trials, train a deep learning model to imitate the reward and learn the policy (i.e. how doctors make clinical decisions) in a Markov chain dynamic environment. It is also designed for the multi-reward scenario, where different doctors of different characteristics make different decisions. This model learns the number of characteristics among the doctors, captures the multiple rewards and learns the various behaviors among the clinicians.

### Training Cascaded Classifier to discover/mine the risk factors of top diseases that affects the public health among the United States (2020-2021), Supervised by PhD Yao Xiao of MD Anderson Cancer Center, University of Texas

Training the Classifier using an “appropriate combination” of the statistical machine learning metrics like the random forests, boost, Bayesian, GLM, etc., and evaluate the Classifier based off its predictive performance using precision, recall, cross validation, etc. The data was extracted from the 2019 Behavioral Risk Factor Surveillance Systems (BRFSS), an open data source of the Centers for Disease Control and Prevention.

### Research Assistant of Risk Lab (2019-2020), U of T. Supervised by Prof. Luis Seco and Prof Alik Solokov

Participated as a team leader in the research project for undergraduates at Risk lab, University of Toronto.

- **Research interests:** Currently implemented algorithmic trading strategies of cryptocurrency. NLP metrics for embedding financial signals/indicators and market sentiments, e.g. transformer model.

### From Reinforcement Learning to Stock Trading (2019), Supervised by Prof. Keith Knight

The study mainly focuses on methods, including Tabular Method and Approximation Method in reinforcement learning, a subfield of machine learning. The study also introduces the concept of neural network, to discuss and explore how to better apply this statistical method into the financial services industry, help with tasks such as stock trading, risk control and portfolio management.

### Data Analysis Report Regarding Smoking Behaviors Among American Teenagers Using Generalized Linear Models (2019), Supervised by Prof. Patrick Brown

Analyzed the prevalence of different smoking practices among minors according to data from the 2014 U.S. Census. Summarized certain patterns, such as that the Caucasian underage people are more likely to smoke tobacco in a particular way than underage minors of other ethnic groups in the United States, given all other factors (e.g. gender, living region, etc.) fixed.

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## **Time Series Analysis Project Regarding Portfolio Construction and Return Prediction Based on Dow Jones 30 (2018), Supervised by Prof. Jen-wen Lin**

Based on historical trading data from the 30 constituent stocks of the Dow Jones Industrial Average, modeled with SARIMA model of time series. Use historical data to evaluate several portfolios that are constantly self-updated with different trading strategies, calculate parameters such as yield, volatility, with the assistance of 60 months rolling window, and rate each trading strategy.

## **Data Analysis Project Regarding Government Bond Yield Predictions Using Linear Interpolation and PCA (2018), Supervised by Prof. Luis Seco**

Based on parts of historical data on Canadian government bonds and Ontario government bonds, this project aims to make prediction and make comparison with real data for the yield curve and forward rate curve of bonds for some past years. This project introduces multiple methods, including linear interpolation, to find the optimal forecasting method, and hence, to predict future curves and conduct principle component analysis to historical data.

## **INTERNSHIP AND WORK**

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### **Data Scientist at Unsworth Realty Inc (A real estate Start-Up based Toronto) 2020/06 - 2020/10**

Work content: Teamed with 3 people and was responsible of the Data Analysis on the realty market reports that we provided to the clients. This includes but not limited to: data extraction from the raw data base; data cleaning; exploratory analysis using tables/box-plots/scatter plots; time-series analysis on the sales and rent realty markets in Toronto; clustering analysis based on the property types (condo vs residential), neighborhoods, etc.; market forecast and sensitivity analysis.

### **Teaching Assistant at Mathematics Department, University of Toronto 2019/09 - 2020/04**

Work content: Mentored freshman first year calculus and sophomore second year linear algebra and math proofs. Participated in exams invigilation and assignment/test grading.

### **Mentor at Statistics Department, University of Toronto 2018/09 - 2018/12**

Work content: Helped freshman of STA130 (a first year statistics course) get involved in the campus and in their school works. Hear their concerns and give them academic advices on program selection, course selection, study strategies, career planning, etc. Supervise freshmen to fulfill the course requirements.

### **Business Development Specialist at Lazer Property Management 2018/12 - 2019/04**

Work content: Participated in the service platform information logging, maintenance and updates for tenants and asset owners, and credit assessment based on the tenant's habit and frequency of rent payment. Explored more alternative cross-border payment methods for U.S. tenants. Provided information and investment advice on the U.S. real estate market for potential Canadian investors.

### **Math Tutor and Academic Advisor at Uforse Edu (An Educational Institute based Toronto) 2016/12 - 2017/12**

Work content: Tutored Year-12 calculus, functions and geometries. Helped with their preparation for Euclid Math Contest held by the University of Waterloo. One of my students won School Board Champion and three of them won School Champion under their hard work and our joint team efforts.

### **Corporate Client Manager at Bank of China 2017/07 - 2017/08**

Work content: Assist the company customers to complete the approval of enterprise loan and credit business. Conduct credit assessment and credit rating adjustment for potential corporate customers. Performed industry research on the automobile industry in North China.

## **ACTIVITIES**

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### **Student Representative at the Statistical Department, Oxford 2020-2021**

Served as one of the 2 student representatives throughout the school year. Connected the bridge between the Master classmates and the Department of Statistical Science in University of Oxford, collected questions and concerns from the students and forwarded to the department. Participated the meetings of the Teaching Committee in the Stats and Math Department, brought the students' feedback on the teaching structure and the curriculum setup, gave suggestions to the faculty on the interaction with the students via online lecturing.

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## **WeSport**

**2019 Summer**

Founding member of WeSport. Responsible for the activity planning, preparation and organization. Collected and designed latest information on short-term travelling and leisure activities around the Greater Toronto Area. Organized regular work out and gym activities and invite professionals to give sharing sessions on body building.

## **Traditional Chinese Martial Art Association**

**2019 Summer**

Founding member of the Traditional Chinese Martial Art Association at University of Toronto. Focused on daily training of the association, and the introduction of Traditional Chinese Martial Art. Organized regular training sessions with different themes for members. The training content includes Wing Chun, kick-boxing and T'ai chi.

## **SpeakTU**

**2017-2018**

Founder and leader of SpeakTU, a community that engaged to provide a communication platform for the cultural and language exchange between Canada and China.

## **Volunteering Notes Sharing through all Academic Years**

**2016-2018**

Helped with the lecture notes taking for classmates with mobility difficulties. Contributed to notes sharing on official school platform through academic semesters from 2016 to 2018.

## **HONORS AND CREDENTIALS**

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| Passed CFA level 1 exam, with top 10% performance globally.                          | <b>2019/06</b>   |
| Winner of the In Course Scholarship of St.Michael's College for 3 consecutive years. | <b>2017-2020</b> |
| Passed FRM level 1 exam.   | <b>2018/11</b>   |
| Winner of Dean's List Scholar for 4 consecutive years.                               | <b>2017-2020</b> |

## **SKILLS&HOBBIES**

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**Skills:** Python (Pytorch, Tensorflow, Numpy, Pandas, Matplotlib), R, R markdown, Tabular, Microsoft Office. Presentation and public speaking skills.

**Hobbies:** Traditional Chinese Martial Art, Work out, Skiing, Ping Pong, Horse-riding and Hiking.