

JIAQIAN XU

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Education

University of Toronto

Toronto, Canada

Honors Bachelor of Science (Graduate with High Distinction)

Sep. 2017 – Aug. 2021

Major: Mathematics | Minor: Computer Science and Statistics

GPA: 3.73/4.0 (Est. Top 8%) | Upper Year: 3.9/4.0

Award: Dean's List Scholar (2020); Dean's List Scholar (2021)

Guangdong University of Foreign Studies

Guangzhou, China

Bachelor of Economics | Major: Finance

Sep. 2010 – July 2014

Awards: Third Prize, GDUFS Model APEC (2014); Undergraduate Fellow, University of Hong Kong (2013);

Academic Scholarship Top 10% (2013); 2nd Prize, GDUFS Speech Contest (2013)

Research Experience

Memory and Perception Lab | University of Toronto

Toronto, Canada

Research Assistant

Sep. 2018 – Mar. 2020

HippoCamera Project (Clinical memory data classification)

- Position in the Memory and Perception Lab with a focus on HippoCamera Project, which works on mitigating memory impairment in older adults and Alzheimer's disease prevention.
- Innovation on traditional manual memory recall data classification. Used a combination of Latent Dirichlet Allocation, Kernel machines, and Convolutional Neural Network for text classification to optimize research efficiency.
- Independently developed and applied machine learning algorithms (Topic Modeling and Neural Networks) to analyze and classify over 5000 lines from psychiatric text datasets for the HippoCamera project.
- Programmed in Python, packages used include but are not limited to scikit-learn, numpy, keras, and tensorflow.

Perception Study (Trajectory tracking project)

- Wrote code to clean data from its raw form, convert Excel files into Python readable data formats.
- Calculated distance measure by computing typical deviation from paths using several different methods (mean square, mean absolute, mean z-score, etc.).
- Constructed a correlation/distance matrix using available data.
- Calculated the mean path, median and quantile. Interpolated the path, then adjusted for different start and end points, normalized the length.

Conference | 2019 Lake Ontario Visionary Establishment Conference (Niagara Falls, Canada)

Poster Presentation: Probing Human Memory with Machine Learning

Working Experiences

RBC Capital Markets

Toronto, Canada

Technical Systems Analyst

May. 2020 – Aug. 2020

- Performed on financial data engineering for risk analysis and management with the RBC Capital Market Felix Data Service Team, which stores global trading data.
- Responsible for large matrix. Updated risk data platform to add new features and modernize existing library for risk data services to improve data processing performance.
- Monitored and fixed missing trading data on Tableau to generate updated reports.

Radica System Limited

Shanghai, China

Management Trainee (Big Data Consultant/HR)

July 2014 – Dec.2015

- Carried out research on marketing strategy for Disneyland and global luxury trend study. Project Coordinator of marketing promotion project for Watsons. Managed deadlines and kept in close communication with clients.
- Selected as Trainer in AustCham for big data marketing with an adaptable marketing strategy specialization.
- Responsible for the People Development Department as the head of Radica University; responsible for training design, delivery, and evaluation; organized 5 CEO talks in Hong Kong, Guangzhou, Shenzhen, and Shanghai; published 10 company internal learning publications.

Selected Statistics Course Projects

Are females less likely to perceive world “risk” as opportunity than males in Canada? June 2021

R, RStudio, RMarkdown | Grade: 98, Class Average 70

- Used 1032 samples representing Canada collected by 2019 World Risk poll from Lloyd’s Register Foundation.
- Used propensity score matching method on gender to reduce effects of potential confounding variables in order to better interpret causal effects.
- Conducted logistic regression on genders and how they perceived risk, wrote a 15-page report including previous study, data cleaning, methods, hypothesis testing, conclusion, and discussion.

A survey analysis on the potential influencing factors for Canada federal election May 2021

R, RStudio, RMarkdown | Grade: 93, Class Average 78

- Visualized data using tables, frequency plots, and stacked bar chart. Made assumptions, carried out hypothesis testing on linear models, and wrote an 11-page report on the study.
- Used the 2019 Canadian Election Survey data to build logistic regression models to predict the likelihood of a vote for Liberals or Conservatives based on income and age.
- Used linear model on survey data to perform post stratification on language spoken to adjust for under and over sampled subpopulations in the 2017 General Society Survey on Family data to predict the likelihood of votes for Liberals or Conservatives within English- and French-speaking groups.

Further study of two nearest neighbors housing prices within Greater Toronto Area Dec. 2020

R, RStudio, RMarkdown | Grade: 93

- Sampled 150 data points from Toronto Real Estate Board and built pairwise correlation matrix between all numerical variables including sale price, list price, taxes, lot size, number of bedrooms, bathrooms, and parking.
- Used 3 different models, including linear regression model with all variables and two linear models with variables after backward elimination with AIC and BIC. Then, explored the limitations of the model using diagnostic plots, including Normal QQ plot, residual vs. fitted plot, residual vs. leverage plot, and scale vs. location plot.

Building Cross–Stitch Pattern for Images Nov. 2020

R, RStudio, RMarkdown | Grade: 90

- Wrote functions to process images using k nearest neighbor algorithms.
- Wrote report including scree plots, plots of color strips, and processed cross-stitch pattern given input image.

Selected Computer Science Projects

Othello Game Tree Search Project | *Python (Grade: 91)* Mar. 2020

- * Implemented Minimax, Alpha-Beta Pruning, Depth Limit, and Node Ordering Heuristic for the 2-player board game Othello. Tested and compared the performance of each algorithm.
- * Experimented with the depth limit on boards larger than 4x4 for depth first search algorithm given restricted run time.

Sokoban Puzzle Game AI Algorithm Development | *Python (Grade: 93)* Jan. 2020

- * Designed and implemented game strategy using 3 different methods including Manhattan Distance, Anytime Greedy Best-First Search, and Anytime Weighted A*.
- * Developed non-trivial heuristic algorithm for Sokoban based on Manhattan Distance algorithm, which achieved the best performance among all 4 algorithms used.

Hiring System Software Development Project | *Java, Git, Bash (Grade: 92, Ranked 1st)* July 2019

- * Grouped with 3 other students, built an interactive software system that job searchers can use to search and apply for jobs. HR can post new jobs, create interviews, and make hiring decisions.
- * Implemented object-oriented programming practices such as inheritance to create different users including Applicant, Admin, Interviewer, Referee, and Coordinator.
- * Used Java design patterns to create entire project, for example, Abstract Factory Pattern and Singleton Design Pattern, to make code more easily maintainable and extendable.

Volunteer and Interests

English Educator for Disadvantaged Kids | Byeolbang Children Center, Danyang, Korea | 3 Months, 2016

Global Volunteer | AIESEC Korea Environment Protection Project, Pusan, Korea | 6 Weeks, 2012

Biking (over 20,000 miles | Year 2020: 6,500 miles | Year 2021: ongoing)