Bingfan Liu

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SUMMARY OF QUALIFICATION

- 4-year experience using R, Python for data analysis and 1-year experience in using SQL for data query and manipulation.
- Machine learning experience using Keras, PyTorch, Scikit-learn, Numpy, Matplotlib, Pandas and Google Colab.
- Computer vision experience using Scikit-image, ChainerCV, Torchvision, PIL.
- Strong statistics background in statistical modeling, Bayesian statistics, experiment design and hypothesis testing.

EXPERIENCE

Machine Learning Researcher in Functional Brain Signal Data Analysis Jan. 2020 - Aug. 2020
University of Waterloo, Department of Statistics and Actuarial Science, Waterloo, Canada
- Designed a novel algorithm for allocating disease related brain area using functional support vector machine.

Teaching Assistant in Statistics Sep. 2019 - Aug. 2020
University of Waterloo, Department of Statistics and Actuarial Science, Waterloo, Canada
- Tutored over 700 undergraduate students' probability, statistics theories and data analysis using R.

Data Scientist Research Intern Jun. 2019 - Dec. 2019
UNDP, Remote
- Achieved 83% accuracy in forecasting the sever rain fall for agriculture using machine learning.

Research Assistant in Law Economics Jan. 2017 - Apr. 2017
University of Waterloo, Department of Economics, Waterloo, Canada
- Improved the speed of data collection by 400% for Canadian legislative activities by designing Python algorithms.

EDUCATION

Master of Mathematics in Statistics Sep. 2019 - Aug. 2020
University of Waterloo, Canada
- **Relevant Courses**: computer vision, machine learning, Bayesian statistics, experimental design, non-parametrics.

Honors Econometrics Joint Honors Statistics (Major Average: 90.69%) Sep. 2016 - Apr. 2019
University of Waterloo, Canada
- **Relevant Courses**: time series, GLM, linear regression, algorithm, money and banking, international trade.

PROJECT

Machine Learning: Life Satisfaction Prediction, Kaggle Competition Feb. 2020 - Apr. 2020
- Obtained 88.3% AUC scores in predicting life satisfaction level using machine learning and deep learning.

R Package: fdp, Functional Data Preprocessing Package Jan. 2020 - Apr. 2020
- Developed a convenient functional data processing package including data smoothing and dimension reduction.

Computer Vision: Deep Image Prior, Semantic Segmentation, Semi-Supervised Segmentation Dec. 2019 - Apr. 2020
- Analyzed CNN prior information and it's applications in denoising, inpainting and super-resolution.
- Performed supervised Semantic Segmentation by constructing a self-designed neural net using PyTorch.
- Implemented a Microsoft adopted semi-supervised Segmentation algorithm using graph cut and clustering.

Time Series Analysis: Bitcoin Price Forecast Sep. 2018 - Dec. 2018
- Forecasted bitcoin price 1 day ahead using driven factors and substitutional digital coin price.

Quality Control/Experimental Design: Factorial Design and ANOVA Test Apr. 2018 - Aug. 2018
- Constructed productive CRD, RBD, Factorial Design and ANOVA tests for multiple treatments experiments.

GLM (Generalized Linear Model): Diseases Modelling Apr. 2018 - Aug. 2018
- Modeled over-dispersed data using mixed model methods for lung function deterioration in a Cystic Fibrosis study.

AWARD

[1] The American Statistical Association DataFest 2019 - Prize of Honorable Mention May 2019
- Led a team of 4 predicting and visualizing athlete fatigue level using times series and random forest.

[2] The American Statistical Association DataFest 2018 - Prize of Best Use of External Data May 2018
- Led a team of 5 analyzing the demand and supply structure of the labor market in the next 5 years.