

Kelly Liu

437-986-3560 | kellyliu12126@gmail.com | <https://www.linkedin.com/in/tsai-ying-liu/> | <https://github.com/kellyliu12126> | Canada

SKILLS & KNOWLEDGE

Programming Tools: Python, SQL, and PyTorch, Spark, AWS, Graph Database (Neo4j), Data Visualization (Tableau)

Statistical Methods/Modeling: Adept in A/B testing, hypothesis testing, time series analysis, Regression, PCA, SVM

Machine Learning: Neural Networks (RNN, LSTM, GRU, CNN), Tree-based Models (Random Forests and Gradient Boosting), Clustering & Boosting (K-means and XGBoost), with experience in Graph Embedding and Knowledge Graphs

EXPERIENCE

ML Engineer, Freelance @ SwiftHire

Feb 2024 - Present

SwiftHire is a two sided curated talent marketplace connecting job seekers with top growing companies

- Enhancing job match efficiency and customer engagement by leading **Job Matching LLM-based model** deployment on AWS, optimizing ETL pipelines with Elasticsearch and Langchain for streamlined data handling

Data Scientist @ Scotiabank

March 2023 - Present

Scotiabank is the third-largest Canadian bank by deposits and market capitalization. 2021 FT Data Innovation awardee

- Empowered to mitigate sanction risk by capturing 15% more False Negatives through pioneering a high-visibility **NLP project**, crafting an advanced model to address first-layer screening gaps and computational hurdles from inception
- Achieved a 97% auto-closure rate for False Positives in the downstream layer by orchestrating the comprehensive migration and optimization of **name-screening NLP models**, ensuring regulatory compliance and mastery over complex codebases
- Boosted team AI expertise and knowledge sharing by spearheading educational sessions on Graph Neural Networks and generative AI, and enhancing skills through the Vector Institute's Anomaly Detection Bootcamp

Data Scientist @ Uplift Inc.

December 2020 - May 2022

Uplift is leading North American travel BNPL provider partnered with United Airlines, Lufthansa, Carnival Cruise Line, and Wyndham

- Delivered \$15M annual savings with just a 2% reduction in loan origination volume by crafting resilient risk rules and **Fraud XGBoost models** to pinpoint and deter high-risk loan applicants
- Halted fraudulent activities and saved \$500k monthly by conducting in-depth Exploratory Data Analysis to uncover active fraud rings and patterns and deploying effective **Random Forest models**
- Accelerated fraud investigations by 80% and reduced daily manual review time by 70% through training analysts in SQL query delivery and Tableau dashboard creation for streamlined refunds and claims tracking

Fraud Analyst @ Uplift Inc.

September 2019 - December 2020

- Enhanced productivity by 25% by developing and implementing internal fraud detection scripts, leveraging loan performance and PII data, and effectively communicating fraud definitions to the customer service team
- Double precision in identifying suspicious loans for manual review by developing a Fraud Backend Ruleset using a **Random Forest model**, surpassing the efficiency of previous solutions
- Saved 30% project time on data preparation by creating reusable Python modules for Data Cleaning, Visualization, and Feature Engineering, enhancing code quality and efficiency across data science teams

EDUCATION

University of Toronto, B.S. in Applied Statistics

September 2015 –May 2019

GPA 3.6/4.0, Mathematical and Computational Sciences Honor Roll

Relevant Coursework: Statistics, Advance Machine Learning, Deep Learning, Data Structures and Algorithms.

ML RESEARCH

Recommendation System Graph Embedding Research ([GitHub](#)): Utilizing DeepWalk, Node2vec, and DeepFM

Stock Price Movement Prediction Research ([GitHub](#)): Demonstrating expertise in HMM and various RNNs