

## Yumeng Si

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Personal website: <https://yumengqueensu.github.io/>

## EDUCATION

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### Queen's University

*Master of Engineering in Electrical and Computer Engineering*

GPA: 3.74/4.00

Thesis Topic: Exploring the Efficiency and Robustness of AutoML Models in Wireless Signal Classification and Adversarial Attack Resistance

**Kingston, Canada**

Sep 2022 – Jun 2024

### Tianjin Normal University

*Bachelor of Engineering in Software Engineering*

GPA: 3.57/4.00

Thesis Topic: The Design and Implementation of Students' Associations Small Program

**Tianjin, China**

Jul 2016 – Jun 2020

## PORTFOLIO

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### IFRS 9 ECL Modeling and Stress Testing Framework for Canadian Retail Credit

<https://github.com/YumengQueensU/YumECL-SAS>

*Integrated SQL-SAS Project*

- Developed a comprehensive data infrastructure for IFRS 9-compliant Expected Credit Loss (ECL) modelling and regulatory stress testing in the Canadian retail lending sector.
- Built an integrated SQL-SAS framework establishing robust data schemas, automated feature engineering pipelines, and real-time risk scoring capabilities.
- Implemented advanced payment behaviour analytics, macroeconomic variable integration, and SICR (Significant Increase in Credit Risk) staging logic to support PD/LGD model development.
- Created scalable data preparation workflows processing loan portfolios across multiple product types whilst ensuring OSFI E-23 documentation compliance and maintaining full data lineage for model governance requirements.

### Monte Carlo European Option Pricing with CORRA/OIS Discounting and Simplified XVA

<https://github.com/YumengQueensU/can-mc-xva>

*Python Project Created via Jupyter Notebook*

- Built a reproducible pricing and risk framework for European options that benchmarks Monte Carlo estimates against the Black–Scholes closed form, tailored to Canadian practice via CORRA/OIS discounting.
- Implemented variance-reduction (antithetic pairing, control variates) and an adaptive stopping rule targeting a 95% confidence interval to deliver auditable precision–cost trade-offs.
- Extended the engine with simplified XVA: discrete EPE-based CVA using hazard-rate segments and collateral/netting assumptions (CSA) to show exposure and capital impacts.
- Produced Pillar-3-style tables/figures and a Model Card documenting assumptions, validation, and governance.

### Portfolio Optimisation Project

<https://github.com/YumengQueensU/portfolio-optimisation>

*Python Project Created via Jupyter Notebook*

- Developed a quantitative investment platform to compare classical and machine-learning based portfolio construction strategies.

- Implemented the Markowitz mean-variance model, risk parity allocation, and ML-driven approaches (Lasso, Random Forest, XGBoost, MLP, LSTM, GRU), using `yfinance`, `pandas`, and `scipy.optimize`.
- Delivered interactive visualisation with Streamlit/Plotly, demonstrating that deep learning models can outperform classical methods in risk-adjusted returns.

### **FGO Material Calculator**

<https://c.c1nd.cn/BSi7P>

*WeChat Mini Program*

- **Independent work in Tianjin Normal University.**
- It contains the complete front-end and back-end system, applied with Java Language, SSM framework and MySQL database
- Users can query the basic numerical values of the game roles, past activities in the game and the guide for the mission accomplished of all kinds of bosses and other information in this program.

### **Design of Students' Association Management System Based on WeChat Mini Program and Bmob Frame**

*Thesis Project in Tianjin Normal University*

- Conducted a graduation design with an aim to bring the main activities of the traditional campus association development model online.
- Used WeChat open platform, Bmob development framework, LayUI, WXML, JavaScript and other front-end development technologies for the development of the system that consisted of a small program body for student users and a management end of the backend maintainer.

## **COLLABORATIONS**

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### **Pollution is Colonialism (Game)**

Sep 2019 – Jan 2020

<https://suyoatucl.github.io/PIC/> ; <https://yumisuyoworkshop.itch.io/pic>

*Joint Development with Siyang Quan from University College London*

- **JavaScript-based Interactive Fiction Game for the Web**
- This project explores the intersection of digital storytelling and humanities themes, serving as an innovative model for digital humanities research and pedagogy.
- Initially designed as an educational tool for digital humanities coursework, aiming to engage players with environmental issues from a humanities perspective, garnering 1,000+ users.

### **Development of University Campus Life Assistant App**

Sep 2019 – Jan 2020

*Intern in the Practice/Training in Tianjin Normal University*

- Integrated application of the WeChat developer tools and Bmob database technology.
- Got involved in the design of several modules of a small program for making friends on campus.

### **Virtual Simulation Information Collection and Sharing Platform Project**

Sep 2020 – Mar 2021

*Member of Professor Wang Guoping's Team, School of Information Science and Technology, Peking University*

- Collected information from major websites and compiled them into one navigational site.
- Participated in the front and back-end development of websites using Python tools such as Beautiful Soup, Ajax, and MySQL databases.

## **PROFESSIONAL EXPERIENCES**

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### **Guixue Education Ltd., Beijing, China**

Oct 2020 – Jun 2022

*Teaching Assistant & Online Community Operator*

- Optimized student learning process through personalized plans, tracked and analyzed student performance data to improve learning outcomes by 12-15%.

- Developed and implemented risk management protocols to identify and mitigate community misconduct and maintain a healthy environment.

**China Electronics Corporation Co., Beijing, China**

May 2018 – Aug 2018

*Full Stack Developer Intern*

- Project: Wisdom City of Renqiu - Municipal Services Platform (<https://www.hebyun.com.cn/html/download.html?siteId=a78769b71d9043b5857ccb3a7eb6dd8d>)
- In charge of the common users' front-end web design and its project management system, mainly applied to HTML, CSS, JSP and LayUI.
- Developed and deployed financial service modules (loans, taxation, corporate credit, social insurance) serving 100,000+ citizens of Renqiu, Hebei Province.
- Implemented credit risk assessment workflows for loan applications, including data validation and eligibility scoring algorithms.
- Built enterprise credit inquiry system with real-time data integration from multiple government databases using Android SDK + Java + MySQL.
- Ensured data integrity and compliance with government security standards for sensitive financial information.

## **EXTRACURRICULAR ACTIVITIES**

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| ▪ Deputy president of Vex Robot Association in Tianjin Normal University | 2019 |
| ▪ Manager in the Speech club in Tianjin Normal University                | 2017 |
| ▪ Manager in the Anime club in Tianjin Normal University                 | 2017 |
| ▪ Class monitor in Tianjin Normal University                             | 2017 |

## **AWARDS & HONORS**

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| ▪ Third Class Scholarship in Tianjin Normal University   | 2020 |
| ▪ Second Class Scholarship in Tianjin Normal University  | 2019 |
| ▪ University-level 3rd Prize of Undergraduate and College Students' Innovation and Entrepreneurship Training Programme | 2019 |
| ▪ University-level 3rd Prize of Application Design Competition in The Five Provinces of North China                    | 2018 |
| ▪ First Class Scholarship in Tianjin Normal University   | 2018 |
| ▪ University-level Outstanding Student Leader in Tianjin Normal University   | 2017 |
| ▪ Award of University-level Triple-A Student in Tianjin Normal University  | 2017 |
| ▪ First Class Scholarship in Tianjin Normal University   | 2017 |

## **LANGUAGES SPOKEN**

Highly Proficient: English (IELTS 7.5), Mandarin Chinese

Proficient: Japanese

## **TECHNICAL SKILLS AND OTHERS**

Programming & Mark-up: Python, R, JavaScript/TypeScript, Java, C#, C++, MATLAB, SQL, XML, HTML, WXML, JSP, CSS; Regex

Data Science: Pandas, NumPy, SciPy, scikit-learn, PyTorch, TensorFlow, Keras

NLP & Language Models: Hugging Face Transformers, BERT

Data Acquisition & Web: Beautiful Soup, Scrapy; REST APIs

Databases & Storage: MongoDB, MySQL; OrbitDB/IPFS; object storage & artefact versioning

Cloud & MLOps: Docker; CI-driven evaluation (GitHub Actions); remote training/evaluation on cloud VMs (Azure/GCP, AWS)

Visualisation & Front-end: React, LayUI, Plotly, Matplotlib, Seaborn

Research Analytics: NVivo, Stata, SAS, Gephi

Tooling & Workflow: Git/GitHub, Unix shell, LaTeX/Overleaf, Jupyter/Notebooks

Design & Interactive Media: Adobe Creative Suite (Photoshop, After Effects, Audition, Premiere Pro), Unity, Unreal Engine

Diving Skill: PADI OW (Open Water Diver)

Hobbies: stray secure, cosplay, anime, reading, painting, playing the violin, drama play, cultural exchange

More skills being learnt ...