BRUCE LAU

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EDUCATION

2022-2023 **Imperial College Business School**   **London, UK**
MSc Risk Management & Financial Engineering
Expecting Merit
Relevant modules: Machine Learning for Finance (79.5), Text Mining (71.6), Empirical Finance (71.5),
Financial Engineering (67.2), Advanced Options Theory (65.1)

2019-2022 **University of Bristol**   **Bristol, UK**
BEng Computer Science & Electronics
Achieved Second-Class Honours (First Division)
Relevant modules: Data-Driven Computer Science (81), Discrete Maths (76), Engineering Maths I (74),
Computer Systems B (68), and Computer Systems A (64)

WORK EXPERIENCE

2021   **TTM Technologies OPCM**   **Hong Kong**
Jun - Sept **Data Analyst Intern**
- Saved +60% (averaging +$48k USD) revenue per batch from overproduction, by implementing machine learning model to predict scrap yield percentage of different PCBs based on their design properties
- Optimised machine performance and reduced average scrap quantity by 43% through quantitative methods such as design of experiment, t-testing and fractal regression and logical reasons to justify modifications
- Automated weekly data processes, statistics calculations and generating production sheets with Python, saving operations department an average of half an hour from manual work

2021   **Bank of East Asia**   **Shanghai,**
Mar - Apr   **Asset Management Intern**   **China**
- Conducted research on electronics, PCB, and manufacturing industry in different areas of China to analyse risks of interbank bonds transactions valued more than ¥50m with other Chinese banks such as Wuxi Rural Commercial Bank
- Built automation scripts with Python to process big data for further analysis, including extracting market data and applying inflation rates and historical events as simulation, as well as documenting and teaching colleagues how to run and operate it daily
- Analysed historical trades performance for past quarter, designed a poster including customised reports and charts presented to Bank of East Asia's social media and clients

PROJECTS

2023   **Numerical Options Pricing:**
Aug - Sept
- Priced exotic options such as look-back, barrier, American and Asian
- Solved PDE's with finite difference methods (Implicit, Explicit and Crank Nicolson scheme)
- Fitting and simulating stochastic processes (Heston model, Vasicek, Cox-Ingersoll-Ross) with MLE and priced path dependent options with Monte-Carlo simulations in Python

2023   **Market Neutral Trading Strategy:**
May - Jul
- Attained average annual PnL of 71% and 1.16 Sharpe ratio through historical back-testing
- Forecasting volatility of S&P 500 with GARCH and a linear stochastic factor model then shorting volatility with option combinations (straddle, strangle, iron-condor, iron-butterlfy)

2023   **NLP Sentiment Analysis:**
Feb - Mar
- Trained XGBoost and BERT model to predict changes in implied volatility of tech stocks given weekly tweets, achieving an AUC of 0.61

ACHIEVEMENTS

2023   **Level 4 Diploma in Applied Finance (Amplify Trading)**
- Competed against best performing students from Imperial, Oxford, Cambridge, LBS and LSE in Amplify Trading's Elite Traders Competition

2022   **IPC Asia Scholars Program First-Class (TTM Technologies)**
- Received for proposing and presenting solutions to general managers and board directors around APAC and developing new standard manufacturing procedures

ADDITIONAL SKILLS

Technical skills:
Python, R, C, Golang, Java, Git, TensorFlow, SciPy, Matplotlib, NLP (word2vec, BERT), Probability and Statistics, Stochastic Calculus, PDE

Languages:
English (native), Cantonese (native), and Mandarin (conversational)