Dan Wang

Email: william0423118@gmail.com
25 Ave at Port Imperial, Apt. 410, West New York, NJ, 07093
Mobile: +1-201-657-8646

Education

Stevens Institute of Technology — Hoboken, NJ
Doctor of Philosophy & Master in Financial Engineering (Machine Learning), GPA: 4.00 — *Expected May. 2021*

Beihang University — Beijing, China
Bachelor of Science in Optical Information — *July. 2015*

Skills & Certification

Languages: Python(Advanced), MATLAB(Advanced), C++, SQL, VBA, q, R, Julia

Certification: Level III CFA candidate; Certified Base Programmer for SAS 9

Research

Machine Learning in Credit Rating (Joint Work with UBS) — Hoboken, NJ
Applying Deep Neural Network and NLP to predict quarterly and daily corporate rating — *Aug. 2018 - Present*

- Study best architecture to assess corporate credit rating using machine learning algorithms (SVM, CNN, LSTM).
- Investigated the CNN model power by encoding 1D financial statement data into 2D image.
- Feature selection in Energy sector with genetic algorithm, feature permutation, feature null importance method.
- Adopted NLP techniques (Doc2Vec, Bag-of-Words, TF-IDF) to transform an unstructured textual financial report into a numeric vector, which enables Machine Learning algorithms accept it as an input.

Alpha Driven Trading Competition — Hoboken, NJ
Building an algorithm trading system driven by Alpha signal using cross-sectional method — *Nov. 2018 - Mar. 2019*

- Constructed database by scraping exchange data (Price and Volume) and fundamental data from Bloomberg.
- Built a back-tested platform to seek alpha signal using cross sectional model and technique analysis method.
- Constructed a portfolio optimization problem with Beta target and Dollar neutral.
- Built an automate order place system servers for CQA trading competition using selenium.

Markets Volatility Transmission — Hoboken, NJ
Investigating volatility contagion effect in global markets using high frequency time series model — *Nov. 2018 - Present*

- Decomposed BEKK-GARCH model into volatility spillover using Markov Chain Monte Carlo (MCMC).
- Analyzed the influence of volatility spillover for global markets in high frequency (intraday) level.

Working Experience

Financial Analyst — New York, NY
Morningstar — *May. 2020 - Present*

- **IR impact study:** Designed and developed credit rating platform for US RMBS and Student Loan predictive model for interest rating impact study.
- **Cash flow Model:** Modeled EU Surveillance transactions using Intex Dealmaker and IntexCalc.

Adjunct Faculty Instructor — Hoboken, NJ
School of Business, Stevens Institute of Technology — *Aug. 2018 - Present*

- **Course Instructor:** Introduction to Python for Financial Applications.
- **Teaching Assistant:** Machine Learning in Finance; Financial Market Microstructure & Trading Strategies.

Algorithmic Trader Fall Analyst — Hoboken, NJ
Fair Value Partner Inc — *Sep 2017 - Oct 2017*

- Developed a system to scrape and clean treasury bond data from Thomson Reuters using python API.
- Built a hierarchical machine learning models in Python for determining Cheapest To Delivery bond for basis trading, and built a back-tested model to simulate PnL for trading strategy.

Selected Publication

D. Wang, T. Wang and I. Florescu, "Is Image Encoding Beneficial for Deep Learning in Finance?" *IEEE Internet of Things Journal, doi: 10.1109/JIOT.2020.3030492.*

P. Golbayani, D Wang, and I Florescu."Application of Deep Neural Networks to assess corporate Credit Rating." *arXiv preprint arXiv*, 2003.02334 (2020).

Y Zhou, L Han, and D Wang, "A moment-based criterion for determining the number of components in the normal mixture model", *Journal of systems Engineering and Electronics*, Vol. 28, No. 4, August 2017.