Dan Wang

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EDUCATION

Stevens Institute of Technology — Hoboken, NJ
Doctor of Philosophy in Financial Engineering (Machine Learning in Finance) — Dec. 2021

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

SKILLS & CERTIFICATION

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

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

WORKING EXPERIENCE

Director of Machine Learning — New York, NY
Moody's Analytics — Dec. 2021 - Present

- Design and develop a model to measure KYC score for location, reputation, watch-list, business activity risk
- Led a team to develop a reputation score including credit, compliance and ESG risk.

CMBS Methodology Development and Researcher — New York, NY
Morningstar — May. 2020 - Aug. 2021

- Built a predictive model to predict Net Cash Flow change for CMBS using statistical and machine learning methods
- Responsible for the research on interest rate impact in terms of prepayment, PoD, LGD
- Responsible for implementing stressed test on cash flow for RMBS model

Adjunct Python Instructor — Hoboken, NJ
School of Business, Stevens Institute of Technology — Aug. 2018 - Dec.2021

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

RESEARCH

Machine Learning in Credit Rating (Joint Work with UBS) — Hoboken, NJ
Applying Deep Neural Network and NLP to predict quarterly corporate credit rating — Aug. 2018 - Dec. 2021

- Implemented and optimized Machine/Deep Learning algorithms to assess time-series corporate credit ratings
- Investigated the encoding input data structure by converting 1D financial statement data into 2D image
- Adopted NLP techniques to transform textual financial reports (10-K) into a numeric vector as additional features
- Constructed a counterfactual explanation to provide insight recommendation for company to improve credit rating

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

- Developed a back-tested platform for alpha signal generation using cross sectional model by machine learning
- Constructed and solve portfolio optimization problem with Beta target and Dollar neutral using mathematical tools
- Developed an automate trading model with risk control and order place system using selenium

Markets Volatility Transmission — Hoboken, NJ
Investigating volatility contagion effect in global markets using high frequency time series model — Nov. 2018 - Dec. 2019

- 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

SELECTED PUBLICATION

"Is Image Encoding Beneficial for Deep Learning in Finance?"   *IEEE Internet of Things Journal.*, 2020

"Application of Deep Neural Networks to assess corporate Credit Rating." *IJMIE*, 2020.

"A Sparsity Algorithm with Applications to Corporate Credit Rating." *Conference Proceeding* 2021.

"A moment-based criterion for determining the number of components in the normal mixture model", *JSEE*,2017.