BOLONG WANG

linkedin.com/in/bolong-wang-438946115 ◇ Github:https://github.com/Gonewiththewind4
3 Morgan Lane Flat18 O'Shea North Tweed House, Edinburgh, EH8 8FP
(+44)07422597539 ◇ b.wang-34@sms.ed.ac.uk ◇ 523443113@qq.com

EDUCATION

University of Edinburgh, UK *Sept. 2018 - Present*
School of Mathematics
MSc Mathematics, Computational Mathematical Finance

Jilin University, China *Sept. 2014 - Jul. 2018*
School of Mathematics
B.S. Information & Computational Mathematics Overall Percentage: 88.06
(awarded Outstanding Thesis)

Jilin University, China *Sept. 2015 - Jul. 2018*
School of Economics
B.S. Finance Overall Percentage: 86.64
(awarded Outstanding Thesis)

RESEARCH &ACADEMIC EXPERIENCE

Probabilistic Analysis of Stochastic Gradient Descent Algorithm *Sept. 2018-Jan. 2019*
Advisor: Lukasz Szpruch

- Reviewed the paper: *Mean Field Analysis of Neural Network* and the use of stochastic gradient descent algorithm in deep learning. Added the elliptical proof by rigorously deriving the result and personal interpretation of the result.
- Grade: 34/50.

Value Investing via Deep Learning *Nov. 2017 - Jun. 2018*
Advisor: Professor Tian Dong
Jilin University, School of Mathematics

- Reviewed the history about scholars' work on quantitative investment in stock market via neural network and machine learning.
- Theoretically analyzed the function of fundamentals factors and established a value investing multifactor model based on future fundamentals.
- Scrapped and wrangled the large-scale financial data. Established multilayer RNNs model with LSTM and GRU units and compared the effect of different optimization algorithm, including SGD, AdaGrad, AdaDelta, RMSprop.
- Defended the dissertation and discussed the related work in the School of Mathematics.

Application of Autoregressive Time Series in Actuarial Science *Mar. 2016-Jun. 2017*
Advisor: Professor Dehui Wang
Jilin University, School of Mathematics

- Team-based research with 2 lead students(incl. me) and 2 support student.
- Established the risk model based on AR model, at first AR(1), and later generalized to AR(2), AR(4), AR(7) and AR(p). Derived the properties of the models and figured out the parameters of the AR(1) by the method of moment estimation. Gave the exponential upper bound of ruin probability in the model and established the numerical simulation to show the models' accuracy and validity.

- Delivered presentations to defending this research, showed how the model would be used in car insurance, obtained the funding in the competition and bonus from university and awarded Outstanding Project.
- Paper link: `https://arxiv.org/abs/1710.10692`
- Successfully applied funding CNY ¥10,000 for the project; Awarded CNY ¥7,500

The Impact of Chinese Monetary Policy on the Stock Market *2017*
Advisor: Professor Hongwei Liao
Jilin University, School of Economics

- Theoretically analyzed the impact of Interest, Money supply(M2), Social financing scale, Credit control, Required Reserve Ratio and Open Market Operation on stock market.
- Scrapped and wrangled the data from the website of People's Bank of China and WIND.
- Established a Hysteresis Fourth Order SVAR model, applied impulse response analysis and analysis of variance to do the empirical analysis

ADDITIONAL TECHNICAL LEARNING

ESG Model and Calibration Training *Present*
Advisor:Natasha Margariti, Andrew Tadrowski.
Moody's Analytics

- Risk neutral valuation: calculate the market consistent value of the portfolio and analysis the weakness of the valuation.
- Real word projection: construct a composite portfolio, calculate the Value at Risk and perform the analysis.

Barclays Monte Carlo Simulation Workshop *Feb. 2019*
Advisor: Malek Jawad, Katie Larkin
Barclays & University of Edinburgh,School of Mathimatics

This project is about simulation in counterparty credit risk, using Pandas in python to return expected exposure as CCR calculator and using EE curves to view the margin period of risk.

Object-oriented Programming with its Application (C#) *Sept. 2018-Jan. 2019*
Advisor: Gawlikowicz Witold

- Numerical Methods: Newton methods, Finite difference method, etc.
- Black-Scholes Formula, Monte Carlo method,Calibration of Vasicek model,Heston Model and its calibration, pricing exotic option including lookback option, asian option,rainbow option, etc.

Financial Derivatives Workshop *May. 2018-Jul. 2018*
Advisor: Professor Kai Zhang, Professor Haiming Song, Shisen Qian, Na Wang, etc.
Co-organised by Everbright Futures Company, Jilin University, School of Mathematics and Tianyuan Mathematical Center in Northeast China

- Applied the technical analysis methods and fundamental analysis methods to agricultural products options and futures market to estimate the long-term tendency and decide the exact point to buy or sell.
- Designed option strategies, reviewed recent papers about numerical methods to gain optimal stopping time problem with Black-Scholes equation and did the code review and reproduction.
- Entered a company-sponsored simulation competition and finished strongly and awarded CNY ¥2000.

HONORS AND AWARDS

- The College Excellent Student *2018*
- Second-class Scholarship *2018*
- School-level Outstanding Project for Student's Platform for Innovation and Entrepreneurship Training Program *May. 2017*
- Individual Scholarship *2017*
- Third-class Scholarship *2017*
- Second Prize for China Undergraduate Mathematical Contest in Modelling (Provincial level) *2016*
- Second Prize for Provincial Mathematical Contest in Modelling *Aug. 2016*
- Third-class Scholarship *2016*
- Second-class Scholarship *2015*

TECHNICAL SKILLS

Modeling and Analysis	C#, Python, Matlab, C/C++, R, Linux, Javascript(D3), Word-press
Software & Tools	MS Office, Latex, PowerBI
Research Interest	Computational Mathematics, Algorithmic Game Theory Machine Learning, Computational Finance

EXTRA CURRICULA INTEREST

Geek Entrepreneurial Association *Oct. 2014-Jul. 2016*
Secretary

- Responsible for designing web pages, helping set up crowd-funding platforms for college students' entrepreneurship and find appropriate projects for the web.

Students' Union *Oct. 2014-Apr. 2016*
Secretary, Outreach Department

- Supported in attracting sponsorship.