Liangzong, Ma

lzma@pku.edu.cn | (+86)18813020759 | Peking University

EDUCATION

Peking University, School of Economics   *Beijing, China*

Major in Finance, Double Major in Applied Mathematics, Core GPA: 3.83 / 4.0 (Ranking: 5%)   *09 / 2018 – 07 / 2022*

- **Relevant Courses**: Econometrics **(98)**, Mathematical Economics **(100)**, Microeconomics **(97)**, Advanced Mathematics **(96)**, Linear Algebra **(96)**, Probability and Statistics **(92)**, Data Structure and Algorithm **(96)**, Computer Science **(94)**, International Finance **(100)**
- **Awards and Honors**: Third-class scholarship of Peking University (Top: 10%); First Prize (Province) in CPHO

PROFESSIONAL EXPERIENCE

HuaTai Securities   *Beijing, China*

Quant Intern, Financial Engineering Group   *06 / 2020 – 08 / 2020*

- Participated in the research about *Industry Configuration landing: Index Enhancement* and wrote the related report; explored the types of industry rotation model applicable to index enhancement through Monte Carlo simulations
- Used Python and MATLAB to create 0-1matrix based on Monte Carlo simulations and binomial distribution to predict the tendency of industries; used linear and quadratic programming to solve the maximum returns based on multi-factor Alpha models and prediction
- Drew the conclusion that CSI 300 is the most suitable security for industry rotation strategy by running strategies on CSI 300, CSI 500, CSI 1000 and verified the conclusion according to the existing CSI 300 fund in the market

Shenzhouchiji Fund Management Co., Ltd   *Beijing, China*

Quant Intern, Strategic Investment Research Division   *04 / 2020 – 06 / 2020*

- Used Python to construct packages contained frequently-used time-series, cross-section and element-wise functions with corresponding docs; used Python packages like *bottleneck* and improved algorithms to highly promote the efficiency
- Developed the back-test system in Python supporting the assessment of a strategy through graded annualized abnormal return and IC histograms, cumulative multiple / empty / portfolio and graded net worth curves and factor turnover
- Constructed hedging strategies system supporting automatically creating hedging strategies through matching the stock value and short value of CSI300 or CSI500 stock index futures when a trading list is passed in; utilized operations like locking positions to highly reduce down the trading costs

Beijing TaiChuang Investment and Management Co., Ltd   *Beijing, China*

Quant Intern, Investment Research Division   *01 / 2020 – 04 / 2020*

- Realized pattern recognition in A-share market by detecting whether the tendency of several indexes such as mutual information, NDCG and IR have appeared similarly in the past; built up strategies based on the result of pattern recognition with Sharpe Ratio over 2
- Used machine learning models like XGBOOST, Random Forest, LASSO, Regression/Decision Tree and time-series data to construct return ratio prediction model
- Used Python and MATLAB to realize the functions abstracted from the logic of factors mentioned in research reports and papers and constructed a function database; independently created Genetic Programming model based on the function database to explore quantities of new factors

RESEARCH EXPERIENCE

Research on CSI 300 Stock Index Futures Pricing Based on Stochastic Analysis   *PKU, Beijing, China*

Core Member, Advisor: Professor Yiming Wang (Dean of Finance Department), School of Economics   *06 / 2020 – 12 / 2021*

- Tried to explore the pricing model of CSI 300 stock index futures by consulting BS formula and other existing theoretical pricing models of commodity futures based on stochastic analysis
- Studied the fitness and possible improvement of several models like ECM_GARCH and Geometric Brownian motion process by realizing the model based on CSI 300 market and analyzing the result

Research on Structural Change of Middle class in Rural China   *PKU, Beijing, China*

Core Member, Advisor: Professor Li-an Zhou (Associate Dean of GSM), GSM.   *05 / 2020 –*

- Used Python to filter the rural mid-income group and divide their assets and income; carried out the macro portrait of such group by analyzing the mean and variance of each asset and income part; used matplotlib to visualize the result
- Traced assets and income of several special samples and discussed the possible explanation

Research on Inequality Carried by Entry of Big Companies   *Stanford University, Beijing, China*

Remote Research Assistant, Advisor: Franklin Qian (PHD)   *04 / 2019 – 06 / 2019*

- Searched the information of companies such as the time and place of establishment, jobs providing, salary and whether still in operation, to verify the accuracy of the database; checked whether the enterprise has policy and welfare support and other information for future use

EXTRACURRICULAR ACTIVITIES & SKILLS

- Assistant teacher of microeconomics, School of Economics, Peking University   *09 / 2020 – 01 / 2021*
- Programming & Languages: Python, C++, C, MATLAB, Stata, R, Web Making, Office; Chinese (native), English (fluent; CET4: 638/710)
- Interests: Swimming

<div align="center">

马粮宗

北京市海淀区颐和园路5号北京大学38号楼 100871 邮箱：<u>lzma@pku.edu.cn</u> 电话：(+86)18813020759

</div>

教育背景

北京大学经济学院   中国，北京

金融学专业，数学与应用数学双学位，核心GPA: **3.83/4.0**（**5%**）   09/2018 – 07/2022

- 已修课程：计量经济学（98/100）数据结构与算法（96/100）计算概论（94/100）　　高等数学（96/100）
  线性代数（96/100）　概率统计（92/100）　　数理经济学（100/100）　微观经济学（97/100）

所获荣誉与奖学金：北京大学三等奖学金（校级10%）；全国高中生物理竞赛（CPHO）省级一等奖（2017年）

工作经历

华泰证券研究所   中国，北京

量化实习生，金融工程组   06/2020 – 08/2020

- 参与"行业配置落地：指数增强篇"为主题的研究与研究报告的撰写，通过进行大量蒙特卡洛模拟，系统探究适用于 A 股市场指数增强层面的行业轮动策略类型，为后续的有关研究指明方向
- 通过蒙特卡洛模拟生成以预测准确概率为参数的二项分布 0-1 矩阵，代表对行业涨跌的预测观点；结合预测观点对行业进行超低配，并在多因子 Alpha 模型的框架下使用线性规划与二次规划求解在模拟预测观点下的最大收益
- 通过在沪深 300，中证 500，中证全指选股空间上运行策略，利用超额收益与信息比率等信息得出沪深 300 最适合做行业轮动模型的结论，并根据市场上现存的沪深 300 指数增强基金，对结论进行验证

北京神州赤骥基金管理有限公司   中国，北京

量化实习生，策略投研部   04/2020 – 06/2020

- 利用Python实现量化日度因子挖掘常见的包括时间序列滚动，横截面，元素级别等函数，并配置对应的函数说明；同时通过调用诸如bottleneck / ta-lib等Python包配合算法的不断改进实现函数运行效率的大幅提升
- 独立在Python中开发回测系统，支持通过IC柱状图，分档净值曲线，分档年化超额收益柱状图，累计多/空/组合超额收益曲线，IC衰减与因子换手率考察股票投资策略的表现
- 构建股指期货对冲策略系统，支持通过预设初始交易资金，传入股票交易清单的方式自动实现利用沪深300或中证500股指期货构建对冲策略；系统支持期货移仓换月与利用多头合约进行锁仓从而尽可能减少手续费

北京的泰创投资管理有限公司   中国，北京

量化实习生，投资研究部   01/2020 – 04/2020

- 利用Python对A股市场进行模式识别，通过对比互信息，NDCG，IR，多头超额收益等指标值的近期与历史走势，探究个股近期走势是否为历史重演，并根据模式匹配程度研发对应的投资策略，夏普比率达到2.9
- 利用XGBOOST，随机森林，LASSO，回归树，决策树等机器学习模型，在时间序列上按照斐波那契数列作为时间窗口进行因子值与收益率的回溯，构建收益预测模型
- 通过券商研报和中外论文中股票市场高频因子的构建逻辑，抽象出通用函数，搭建函数库；并利用函数库独立搭建遗传规划机器学习算法，大量挖掘新高频因子

学术经历

沪深 300 股指期货定价研究与推广——基于随机分析的理论模型   中国，北京

核心成员，本科生科研立项项目，导师：王一鸣教授，北京大学经济学院（金融系主任）   06/2020 – 12/2021

- 力图通过结合BS公式与现有有关商品期货基于随机分析的理论模型，探究沪深300股指期货的定价模型
- 对文献中提到的部分模型，如ECM_GARCH模型，几何布朗运动模型等，利用沪深300股指期货价格进行实证分析，探究现有模型在沪深300股指期货市场上的适应度与可能的改进方向

中国农村中等收入群体结构变迁探究   中国，北京

核心成员，科研负责人：周黎安教授，北京大学光华管理学院（副院长）   05/2020 – 现在

- 基于CHFS数据集，利用Python筛选农村中等收入群体，将其收入和资产拆分为不同部分，通过分析各部分净值与占比均值和方差时间走势，对中国农村中等收入群体进行宏观画像
- 对数据集中的常驻样本进行时间序列上的追踪，观察其资产与收入变化特征，分析背后的经济学原因

大型企业进入带来的不平等   中国，北京

远程助理研究员，科研负责人：Franklin Qian，斯坦福大学（经济学博士）   04/2019 – 06/2019

- 在谷歌中搜索公司成立的时间，地点，提供的岗位，薪资以及是否仍在运行等信息，核实并补充数据库中样本公司的数据；同时查找企业进入是否有政策福利支持，承诺为当地提供的就业岗位数量以及是否兑现等

其他技能和经历

- 北京大学经济学院微观经济学助教   09/2020 – 01/2021
- 计算机与语言能力：Python / C++ / C / MATLAB / Stata / R / 网页制作语言 / Office，CET4: 638
- 兴趣爱好：游泳