HONGGANG WANG

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EDUCATION

Ph.D. in Statistics, Texas A&M University *Aug 2018 - May 2023 (Expected)*
Advisor: Prof. Anirban Bhattacharya Overall GPA: 3.89/4
B.S. in Mathematics, Nankai University *Sep 2014 - Jun 2018*
Graduated as 3/78 Overall GPA: 3.88/4
Minors in Finance

SKILL SET

Strength: Statistics, Machine Learning, Deep Learning, Data Analysis, Modelling.
Programming: Python (including ML and DL packages), R, SQL, Linux, C++, LaTeX

WORK EXPERIENCE

Goldman Sachs Group, Inc. (New York Office) *Jun,06,2022 - Aug,12,2022*
Quantitative Researcher (Asset Management Division) *Mentor: Eric Ryckman*

Investigating Factor Selection Strategy for Hedge Fund and Long Only Investment:

- Use a hybrid method which employs filtering selection (Clustering by self-defined metric) and embedding selection (Sparse Group Lasso) and beat the existing method LASSO on given data set.
- Conquer the factor selection problem given the high-dimensional and highly correlated factor pool and use the filtering and Sparse Group Lasso to achieve stable parameter curves by rolling analysis.
- Establish the Python package which wraps up multiple modules such as data pre-processing, factor pool refinement, clustering-SGL and others, and document it in a great detail.
- Summarize the potential future works on this thread for the Strats team.

Pay Down Analysis Using Leverage Under Deferral Structure on PE Secondary Market:

- Figure out the process of return sensitivity analysis for using leverage under deferral structure as the payment method and add it to the front end to support the business decision.

Huatai Financial Holdings (Hong Kong) Limited *Jan 2022 - Apr 2022*
Quantitative Researcher (Equity Derivatives Department) *Mentor: Veloma Jiang*

- Construct Momentum Strategies on the stock market and implement it with Python.
- Test with different factor models for the cross-sectional regression.
- Apply the Machine Learning (Sequential Learning) to track the trend.

Instructor *June 2020 – July 2020*

- Teach the stat 302 in TAMU Statistics Department for the undergrad level and received a good teaching review. Responsibility includes teaching course, assigning homework and holding exams.

PUBLISHED WORK

Structured Variational Inference in Bayesian State-Space Models *Sep 2020 – Oct 2021*

- Raise and summarize the Variational Inference algorithm for the generalised State Space Model.
- Establish the proof framework for the convergence rate of structured Variational Inference in $\alpha-$posterior setup and show its theoretical optimality.
- Capture the dependence between the non-i.i.d data and implement it by Python.
- Published in AISTAT 2022.

WORKING-ON RESEARCHES

Model Selection in Hierarchical Log Linear Models *May 2022 – Present*

- Adapt the MCMC as a model selection strategy for the Hierarchical Log Linear Models in the high dimensional setup.
- Use the Approximate Laplace Approximation to boost the computation speed.
- Find the best log-linear model for the tensor data with a much faster speed.
- Preparing a journal paper in 2023.

Unified VI in the Non-linear State Space Model *Dec 2021 - Present*

- Adopt the Iterated Extended Kalman Smoother in the Generalized Mean-Field Variational Inference as a plug-in to proceed the forward and backward algorithm.
- Use the Taylor expansion to handle the Non-linear state space model when the transmitting process family is given.
- Apply the Recurrent Neural Networks (RNN) to approximate the non-linearity while transmitting and emitting process are unknown.
- Preparing a conference paper in 2022.

OTHER PROJECTS

Sales Data Analysis (Course Project) *Jan 2022 - May 2022*

- Use the variational inference State-Space Model structure to capture the behind-trend for market sales data and do the interpretation.

QA system based on Chinese in NLP (Graduation Project) *Sep 2017 – Dec 2017*
Advisor: Zhonghua Li *Nankai University*

- Use the word2vec with NLTK in python to extract the latent features embedded in Questions and find the answer which includes the features matching most .

HONORS

National Encouragement Scholarship (5%): 2015, 2016, 2017.