Xinyi Wang

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Education

2016–2020 **The Hong Kong University of Science and Technology**
B.Sc in Applied Mathematics and Computer Science.
CGA: 3.74/4.30

Sep–Dec 2019 **University of California, Los Angeles (Exchange)**
Majoring in Mathematics

Research Experience

Jun 2019 – Oct 2019 **Neural Topic Model with Attention for Supervised Learning**
Xinyi Wang, Yi Yang. [paper] (Under review at AISTATS 2020)

I continued to work with professor Yi Yang as a Junior Research Assistant this summer. In this new project we bring the supervised deep learning model and topic model together by designing a novel attention mechanism. After conducting comprehensive expriments on three public datasets with different type of labels, we conclude that our proposed topic attention model significantly outperforms the baselines on both the supervised tasks and perplexity.

Sep 2018 – May 2019 **Predicting Stock Volatility Using Domain Lexicon**
Xinyi Wang, Yi Yang. [report]

Under the supervision of Prof. Yi Yang as a part-time student research assistant, I trained word embeddings on the financial documents with the incorporation of semantic information on different levels, then test the usefulness of the embeddings on the volatility prediction task. However, after comprehensive experiments, we concluded that our proposed method only outperforms the baselines by a very small margin.

Jun 2017 – Aug 2017 **Direct proof of the formation of droplet surface shape and the principle of minimizing free energy**
Kang Jin, Xinyi Wang, Kaihang Gui. [script in Chinese] (Under review at Acta Physica Sinica)

Under the guidance of Prof. Xiaoping Wang, I elaborated on some existing findings of the static liquid behaviors on solid surfaces under the University Research Opportunity Program (UROP) of HKUST. I unintentionally derived a direct proof of that, ideally, the surface of a droplet is a sphere, using the calculus of variation and Lagrange multiplier. An interesting follow-up is that, as I posted my proof online, two years later, Dr. Kang Jin from Northwest University (China) contacted me about using it in his publication.

Interesting Projects

Jan 2019 – May 2019 **Cell Counting by Adaptive Fully Convolutional Redundant Counting** (Course project)
Xinyi Wang, Daofu Zhang, Dajun Sun [repo]

To enable fast domain transfer between different kinds of cells in the cell counting task, we propose to pre-train the network on a simple dataset, then freeze the domain agnostic parameters and only train the domain-specific parameter on a new dataset. Experiment results show that our proposed method significantly outperforms the training-from-scratch baselines.

Feb 2019 – Jul 2019 **Policy Gradient Trading Algorithm by Maximizing Sharpe Ratio** (Capstone II)
Xinyi Wang, Yuan Yao. [repo]

Under the supervision of Prof. Yuan Yao, I designed a trading algorithm using policy gradient to directly maximize the Sharpe ratio over a fixed period of time. The proposed algorithm performs significantly better than the Q learning baseline on a Bitcoin dataset.

Sep 2018 – Dec 2018 **Bitcoin Trading Agent with Deep Q-Learning Algorithms** (Capstone I)
Xinyi Wang, Yuan Yao. [repo]

I continued to explore the topic of my RIPS-HK 2018 group project and proposed some variants of deep Q learning trading algorithms.

Jun 2018 – Aug 2018 **Applying Q-Learning to Algorithmic Bitcoin Trading** (RIPS-HK)
Chun Ho Chris Park, Matthew Thomas Sturm, Katherine Thai, Xinyi Linda Wang. [repo]

I participated in the Research in Industrial Projects for Students (RIPS-HK), sponsored by the HKUST Math department, IPAM at UCLA and RealAI. Our team implemented several Q learning trading algorithms, all of which outperform the buy-and-hold strategy baseline.

Scholarships and Academic Honors

2017-Present The S.S. Chern Class for Elite and Talented Students in Mathematics
2017-Present University's Scholarship Scheme for Continuing Undergraduate Students