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**
Term exchange, non-degree | CGA: 3.90/4.00 (Dean's Honors List)

Research Experience

Jun 2019 – Oct 2019 **Neural Topic Model with Attention for Supervised Learning**
Xinyi Wang, Yi Yang (supervisor). [paper] (Published at **AISTATS 2020**, long paper)
- **Job Title**: Junior Research Assistant.
- Bring the supervised deep learning model and unsupervised topic model together by designing a novel attention mechanism.
- Significantly outperforms the baselines, in terms of both supervised tasks and perplexity, on three public datasets with different types of labels.

Sep 2018 – May 2019 **Predicting Stock Volatility Using Domain Lexicon Enhanced Representation Learning**
Xinyi Wang, Yi Yang (supervisor). [report]
- **Job Title**: Student Research Assistant (Part-time).
- Train word embeddings on financial documents with incorporation of semantic information on different levels.
- Test the usefulness of the embeddings on the volatility prediction task.

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)
- Work from the University Research Opportunity Program (UROP) of HKUST.
- Using the calculus of variation and Lagrange multiplier.
- Dr. Kang Jin from Northwest University (China) contacted me about using it in his publication as he saw my proof online.

Projects

Jan 2019 – May 2019 **Cell Counting by Adaptive Fully Convolutional Redundant Counting** (Course project)
Xinyi Wang, Daofu Zhang, Dajun Sun [repo]
- Based on the state-of-art cell counting algorithm *Count-ception* using redundant counting.
- Enable fast domain transfer between different kinds of cells by adding residual adapters.
- 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 (supervisor). [repo]
- Using policy gradient to directly maximize the Sharpe ratio over a fixed period of time.
- Significantly outperforms 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 (supervisor). [repo]
- Proposed some variants of deep Q learning trading algorithms by considering the mathematical form of Q-function.

Jun 2018 – Aug 2018 **Applying Q-Learning to Algorithmic Bitcoin Trading** (RIPS-HK)
Chun Ho Chris Park, Matthew Thomas Sturm, Katherine Thai, Xinyi Wang. [repo]
- Research in Industrial Projects for Students (RIPS-HK), sponsored by the HKUST Math department, IPAM at UCLA and RealAI..
- Implemented several Q learning trading algorithms, all of which outperform the buy-and-hold strategy baseline.
- Poster (presented by Katherine) won the "Outstanding Poster Award" at 2019 Joint Mathematics Meetings.

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