# Xinyi Wang

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https://github.com/WANGXinyiLinda

## EDUCATION

**The Hong Kong University of Science and Technology** *Sep 2016 - Aug 2020*
*B.Sc | Applied Mathematics and Computer Science | School of Science* *Hong Kong*
- GPA: 3.7 / 4.3
- Honors/Awards: The S.S. Chern Class for Elite and Talented Students in Mathematics (2017), University's Scholarship Scheme for Continuing Undergraduate Students (2017)

**University of California, Los Angeles** *Sep 2019 - Dec 2019*
*Non-degree term exchange | Mathematics | College of Letters and Science* *Los Angeles*
- GPA: 3.9 / 4.0 (Dean's Honors List)

**University of California, Santa Barbara** *Sep 2020 - Aug 2025*
*Ph.D. (expected) | Computer Science | College of Engineering* *Santa Barbara*
- Advisor: William Yang Wang
- Honors/Awards: Academic Excellence Fellowship (2020)

## Publications

- **Xinyi Wang**, Yi Yang. Neural Topic Model with Attention for Supervised Learning. AISTATS 2020, full paper.

## RESEARCH & WORK EXPERIENCE

**Neural Topic Model with Attention for Supervised Learning** *Jun 2019 - Oct 2019*
*Junior Research Assistant (Supervisor: Yi Yang)* *Hong Kong*
- Bring the supervised deep learning model, RNN, and the VAE based topic model together by designing a novel attention mechanism.
- Our model significantly outperforms the baselines, in terms of regression, classification, and perplexity, on three public datasets 20newsgroups, wiki10+, and Movie Review Data.
- First-authored paper *Neural Topic Model with Attention for Supervised Learning* is accepted by AISTATS 2020 with all three reviews as 'good paper - accept'.
- Paper link: https://drive.google.com/file/d/1Z-JV7VFBd1EKQJ2ltXYh5y6uwkXfCXvw/view
- Code link: https://github.com/WANGXinyiLinda/Neural-Topic-Model-with-Attention-for-Supervised-Learning

**Predicting Stock Volatility Using Domain Lexicon Enhanced Representation Learning** *Sep 2018 - Mar 2019*
*Part-time Student Research Assistant (Supervisor: Yi Yang)* *Hong Kong*
- Train the Word2Vec based word embedding model on financial documents while incorporating semantic information on different levels by reducing the Euclidean distance of the words embedding in the same semantic group.
- Test the usefulness of the embeddings on the volatility prediction task using Support Vector Regression with RBF kernel.
- Report link: https://drive.google.com/file/d/1QN5qs9_KnsljTeSEDsQeIRZs1sZOUL4H/view

**Direct Proof of the Formation of Droplet Surface Shape and the Principle of Minimizing Free Energy** *Jun 2017 - Aug 2017*
*Undergraduate Research Opportunities Program (UROP) (Supervisor: Xiaoping Wang)* *Hong Kong*
- Elaborated on some existing findings of the static liquid behaviors on solid surfaces.
- Unintentionally derived a direct proof of that, ideally, smooth surface of a droplet is a sphere under the principle of minimizing free energy, 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, which is now under review at Acta Physica Sinica.

## PROJECT EXPERIENCE

**Cell Counting by Adaptive Fully Convolutional Redundant Counting** *Jan 2019 - May 2019*
*Course Project (COMP4901J Deep Learning for Computer Vision)* *Hong Kong*
- Based on the state-of-art cell counting algorithm fully convolutional redundant counting, Count-ception, our proposed model enables fast domain transfer between different kinds of cells by pretraining on a simple synthetic microscopic cell image dataset, VGG cells, and only train the residual adapters.
- Significantly outperforms the training-from-scratch baselines on both the benchmark datasets and our proposed dataset collected from Professor Hong Xue's biochemistry lab.
- Project code and report: https://github.com/WANGXinyiLinda/adaptive-count-ception

**Bitcoin Trading Agent with Reinforcement Learning Algorithms** *Sep 2018 - Jul 2019*
*Capstone project (Supervisor: Yuan Yao)* *Hong Kong*
- Proposed some variants of deep Q learning trading algorithms by improving the algorithm we implemented in RIPS-HK.
- To incorporate the risk factor, proposed a policy gradient algorithm to directly maximize the Sharpe ratio over a fixed period of time.
- Both models significantly outperform the (tabular) Q learning baseline on a Bitcoin dataset.
- Project code and report: https://github.com/WANGXinyiLinda/Deep-Q-Learning-Bitcoin-Trading-Agent
- https://github.com/WANGXinyiLinda/Policy-Gradient-Trading-Algorithm-by-Maximizing-Sharpe-Ratio

**Applying Q-Learning to Algorithmic Bitcoin Trading** *Jun 2018 - Aug 2018*
*Research in Industrial Projects for Students (RIPS-HK 2018)* *Hong Kong*
- Sponsored by the HKUST MATH department, IPAM at UCLA and RealAI.
- Implemented several Q learning trading algorithms by using the current price information as the sate and using the profit of each trade as the reward, all of which outperform the buy-and-hold strategy baseline.
- Poster presented by our groupmate Katherine won the "Outstanding Poster Award" at the 2019 Joint Mathematics Meetings.
- Project code and report: https://github.com/chpark17/rips_realai