

LI-YIN(LILY) YOUNG

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RECENT PROJECTS

Stock price prediction using Hidden Markov Models

Mar 2017- Now

Adviser: Professor Yu-Jui Huang

- Transformed the machine learning model into Web app by utilizing React, Node.js and Flask.
- Processed the signals emitted from daily trading data by SciKit-Learn to identify hidden state for daily stock.
- Built financial time series model with HMM and Euler-Maruyama method to forecast stock price. The RMSE is 0.3%.

Generation of Financial Time Series by GANs

Jan 2020 - Present

Adviser: Professor Yu-Jui Huang

- Developed machine learning architecture by Tensorflow and Keras to approximating a realistic asset price for financial trading strategies. The Root Mean Square Error(RMSE) of the model is 0.1%.
- This work involved developing the architecture of generative adversarial networks (GANs) algorithm and writing highly optimized programs for investigating multidimensional data.
- Released Python open source library for recognizing feature in multidimensional objects to PyPI. The computational time is 50% less than Monte Carlo method.
- Implemented the unit test from data collection to machine learning algorithm to achieve maximum coverage for data pipeline to infrastructure of neural network.

Detect the hidden pattern using machine learning

July 2018-Feb 2020

Adviser: Professor. Xiaochuan Cai and Professor. Daniel Appelo

- Extracted patterns' information on any kind of geometric surface by finding the solutions of PDE using machine learning algorithm.
- Built a data-efficient deep learning algorithm by Tensorflow using only 10% of the same training data from other papers to achieve 95% accuracy. The total time successfully drop down 50% after that.
- Distributed training across multiple nodes with MPI in Docker in Azure.

WORK EXPERIENCE

Full Stack Developer

Main Street Exchange

Jun 2016 - Aug 2018

- Developed major functionality on the website's portal including form creation, form validation, page creation third-party app integration and database management.
- Integrated third party API to the website.
- Implemented with scripting tools and virtual server environments to troubleshoot real-time system issues.
- Responsible for full stack web development, utilizing primarily MySQL, PHP, JavaScript.

Machine Learning Engineer

TopicTechnology

Jan. 2016 - May 2016

- Engineered a natural language, concept search web application in Node.js backed by semantic role labeling.
- Built machine learning systems for extracting sentimental information to identify the market and competitive landscape.
- Created classifier with topic model for coping with large amount of unstructured text information from online media.

Software Engineer Intern

Millennium Engineering & Integration

July 2014 - Aug 2014

- Built the support vector machine(svm) application on time series prediction with C++.
- Setup clusters to scale up training data and distribute the parameters on multiple machines.

PUBLICATION

Li-Yin Young, **The Effect of Moderator bots on Abusive Language Use** *Proceedings of the International Conference on Pattern Recognition and Artificial Intelligence*. ACM, New York, NY, USA. 2018

EDUCATION

Master of Science, Applied Math, emphasis on machine learning

University of Colorado Boulder, Boulder, CO, U.S.A., Aug 2018 - May 2020

Master of Science, Computer Science,

University of Colorado Boulder, Boulder, CO, U.S.A., Aug 2013 - June 2015

SKILL

- Python, MySQL, C++
- Docker, Azure, Git, TensorFlow, Keras, MPI, multiprocessing, multithread, SciKit-Learn