Russell Kim

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Professional Experience

NLMatics New York, NY
NLP Research Intern Feb 2020 – May 2020

- Used principles from classic NLP, graph theory, bayesian probabilistic inference, bioinformatics, active learning, reinforcement learning and deep learning to create text sentiment analysis tools on large amounts of text data.
- Developed core API calls that implement an abstractive text summarizer based on a neural sequence to sequence model
- Worked with research training datasets such as GLUE and create self labeled datasets from publicly available corpuses based on in-house written algorithms such as siamese neural networks and deep Q-Learning.

Princeton University Princeton, NJ
Undergraduate Research Fellow/ Keller Center Feb 2019 – Sept 2019

- Advisor: Prof. Frederick Wherry (https://sociology.princeton.edu/people/frederick-wherry)
- Time series analysis of credit card delinquencies based on financial data provided by the Brooklyn Financial Clinic and the Consumer Financial Protection Bureau.
- Implemented a web spider on Facebook and created keyword network graph using a co-occurrence matrix to determine customer sentiment.
- Resulted in data contributed towards several research papers.

Point72 Asset Management, LP New York, NY
Aperio Data Modeling Intern Jun 2018 – Aug 2018

- Worked under David Loaiza, PhD, on home construction company sales data and forecasting volatility trends
- Designed and implemented an automated script that would webscrape 12 different home construction websites periodically and store them in SQL databases.
- Developed an ARIMA time series forecasting the number of foreclosures and mortgage cancellations by exploring default trends and volatility in similar bunches of locations.
- Gave specific recomendations to change in project direction based on analysis over 8 years of home building data.

CASTLE Labs at Princeton University Princeton, NJ
Undergraduate Research Intern Feb 2017 – May 2018

- Mentored by Prof. Warren Powell at the Computational Stochastic Optimization and Learning Lab at Princeton University
- Designed a testing environment for various reinforcement learning policies to trial competing policy classes in various environments
- Simulated Google's AdWords system to exploit strengths of different policy classes in a second-price auction. Results and strategies were then implemented and used in a partnership with a hotel advertisement agency.

Education

Princeton University Princeton, NJ
B.S.E in ORFE with an emphasis on applied math and optimization Sept 2016 – Jun 2020
Thesis: A Reinforcement Learning Based Approach to Pricing and Hedging Financial Derivatives (https://git.io/Jfrv7)
Advisor: Prof. Mete Soner (https://soner.princeton.edu/)

Skills

Programming : Python, Spark, SQL, UNIX, Matlab, LaTeX, Bash, R, Java
Frameworks : Tensorflow, Flask, PyTorch, OpenAI Gym, NLTK, spaCy, Keras, Gensim
Languages : English, Korean, French

Research Interests

Topics: Nonparametric reinforcement learning, stochastic systems under closed MC simulation, derivatives pricing, convexity in explainability AI.

- Nonparametric discrete definition of financial derivatives.
- Confidence bounding in boundary decision problems with sparse input features.
- One-shot learning of complex objects using siamese neural networks.