Esther (Ruochen) Zhao

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EDUCATION

Nanyang Technological University   **Singapore**
Ph.D. in Artificial Inteligence   *Expected Jan. 2025*
Mentored by Prof. Shafiq Joty Rayhan, member of NTU-NLP team
Research focus: Natural Language Processing, Machine Learning Explainability, Natural Language Generation

Harvard University   **Cambridge, MA**
M.S. in Data Science; GPA: 3.835 out of 4.0   *Dec. 2020*
Relevant Coursework: Machine Learning, Time Series, Data Science I and II, Business Analytics, Statistical Inference
Course Projects: Spotify Recommender System, Inventory Optimization using Gurobi, Predicting Food Reviews with RNN in Machine Learning, Image Modification using CNN and Bayesian Autoencoders

New York University   **New York, NY**
B.A. in Mathematics; GPA: 3.836 out of 4.0; Double Minor in Computer Science and Economics   *May. 2019*
Honors: Dean's Award, Mathematics Award, National Phi Beta Kappa Honors Society, Dean's List Honors for four years
Fellowships: Women In Science Fellowship, Grace Hopper Fellowship

WORK EXPERIENCE

Rex   **Redwood City, CA**
Summer Data Scientist   *Jun. 2020 – Aug. 2020*
- Led a Natural Language Generation project in automatically generating house sale descriptions by learning human-written descriptions, used Encoder-Decoder Network with Attention, and trained on a large amount of data using GPU
- Used feed-forward neural network with self-defined loss to build an interpretable neural network for price prediction
- Analyzed the effect of holding house showings virtually on housing transactions using statistical hypothesis testing coded in Python, used SQL queries to pull and clean data from the company database, and presented the final report to stakeholders
- Company presentation on autoencoders, utilized git workflow management, and developed production-ready packages

Compstak. Inc.   **New York, NY**
Summer Data Analyst   *May. 2018 – Aug. 2018*
- Processed and analyzed more than 10,000 computational data in the crowdsourced commercial real estate industry through formula-based excel work and internal data pipeline, including data on rent, transaction SQFT, building amenities, etc
- Utilized internal data pipeline (SpecialK) to specialize in Utah Real Estate market trends and improved its grouping
- Conducted data cleaning and data standardization projects to optimize data transparency

Sugih Energy International Ltd   **Singapore**
Summer Finance Analyst   *Jun. 2017 – Aug. 2017*
- Conducted detailed industry research by gathering data from institutional reports on market dynamics, competitive landscape, and dynamic coal pricing on the international energy market; presented research briefings to seniors in the group
- Gathered data and developed a quantitative analysis of the pricing trends from China, Australia, and Indonesia by building Excel models to help the firm make informed decisions regarding future deal flows of coal international trade

RESEARCH, VOLUNTEERING, LEADERSHIP EXPERIENCE

Harvard University   **Cambridge, MA**
Research Assistant   *Aug. 2020 - Now*
- Conducted research with Dr. David Perkes in the Econ-CS lab while focusing on Natural Language Processing
- Used BERT and tf-idf models to build predictive price models from email text data

New York University   **New York, NY**
Independent Researcher   *Sep. 2018 – Dec. 2018*
- Mentored by a senior professor in the NYU Math for Finance graduate program to lead research on Statistical Arbitrage
- Analyzed ~1,000,000 stock data, formed pairs using 3 cointegration tests, empirically tested trading strategies by coding up a simulation trading in Python, and critically analyzed its strengths, weaknesses, and real-life applications

SKILLS

- **Programming Skills**: Proficient in Python, Java, SQL, Excel, Powerpoint; Experienced in Pytorch and Tensorflow machine learning development; Intermediate in Matlab, R, C; Relevant projects in NLP and CV
- **Interests**: Texas Hold'em Poker, Travel blog, Kayaking, and Canoeing