

# Harmony Chen

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## EDUCATION

### University of North Carolina at Chapel Hill

NC, US

Master of Information Science, GPA: 3.8/4.0

Sep.2021 - May.2023

- Core Course: Information Retrieval, Data Mining, Natural Language Processing, Deep Learning, Machine Learning

### East China Normal University

Shanghai, China

Bachelor of Engineering in Software Engineering

Sep.2010 - Jun.2014

- Core Course: Database, Probability Theory and Statistics, Java Programming, Data Structure and Algorithms

## PROFESSIONAL EXPERIENCES

### eMatrix Energy Systems. Inc

MI, US

Data Engineer Intern

May.2022 – Apr.2023

- Boosted 300% runtime efficiency, saved 140% cost by constructing automated data ETL pipeline, aggregated data sources from different hardware platforms into Odoo database.
- Designed and developed automated data ELT pipeline to Google BigQuery for organizing 100+GB battery product test data from scratch with Apache Airflow.
- Designed real-time dashboard by creating 3 data schemas for battery manufacturing, testing, and shipping departments and developing real-time dashboard across different teams with Python and Looker.
- Communicated with CTO weekly and presented dashboards to stakeholders from different departments.

### Ernst & Young Parthenon

Shanghai, China

Business Analyst Intern

Feb.2021 - Jun.2021

- Utilized Python to collect and preprocess 20M+ rows of multi-source datasets towards oil industrial development and built linear model with 50+ features such as oil price, basic cost and the city's GDP to predict the industry revenue in the coming 5 years.
- Provided insight about labor loss impact on fiscal decrease based on scholar papers and models, delivered solutions aiming to boost retention by 16% in next 3 years from perspectives of work-study combination and disciplines upgrading in universities.
- Visualized oil industrial distribution and revenue change with Tableau and presented insights about transferring the main industry in that city from oil to tech R&D industry.

### Capgemini

Shanghai, China

Business Analyst Intern

Aug.2020 - Oct.2020

- Applied DBSCAN and k-means clustering on 723 survey samples to identify demographic segmented consumers' preferences for online healthcare consulting by considering region, age, online utility time, monthly revenue as major features in Python.
- Interviewed 3 industry experts and drafted research reports aimed at analyzing business opportunities for health information technology, which mainly includes upgrading the national-wide Hospital MIS with total amount of 60 billion dollars in 3 years.
- Led 3 members to conduct research on business models and market trends of current Chinese healthcare industry and proposed investment strategies on 5 major business tracks, which will breakthrough 10 trillion dollars of revenue in 2023.

## PROJECTS

### Fake Reviews Detection of Yelp

Sep.2021 – Nov.2021

- Tried with classifying typical machine-generated text based on sentimental analysis score, feature engineering with word2vec.
- Trained Tree Models (Scikit-learn), CNNs, LSTMs, fine-tuned BERT (Pytorch) model to improve performance, fine-tuned BERT achieves precision 77%.

### Wells Fargo Fraud Detection

Nov.2021 – Dec.2021

- Performed statistical modeling on 14k+ customers transactions using PrecisionAtRecall80 to capture fraud transactions patterns and create advanced fraud prevention mechanisms to reduce risk loss for elder customers.
- Conducted stratified random sampling to solve imbalanced datasets, keeping label ration in each dataset to avoid analytics bias impact on business judgement.
- Set up strategies about model selection based on PCA analysis, tunned hyperparameter with F1 score, and achieved 95.65% accuracy on Random Forest, 96.7% accuracy on AdaBoost model.

### Trading Factor: Shake Shack Sales Prediction from MTA Data

Jun.2021 – Aug.2021

- Applied Python (BeautifulSoup4, geopy) to collect data from MTA and Shake Shack websites to dig novel insights about passenger traffic in New York related to Shake Shack Sales trend from 2015 to 2021.
- Preprocessed and transformed 8M+ raw datasets, and generated new features based on further data exploration and business comprehension from quarterly financial reports of Shake Shack.

## SKILLS

- **Programming:** Python (Pytorch, Tensorflow, Pandas, Sk-learn, Beautifulsoup4), R, Javascript, Apache Airflow, Linux, Tableau
- **Distributed Database:** SQL, GCP (BigQuery, Looker), AWS (S3, EMR), Github, Spark (PySpark)
- **Models:** Regression (Ridge, Lasso), Logistic, SVM, Ensemble Learning, Clustering, DRL, CNN, RNN, LSTM, BERT