

# YUTAO ZHOU

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## EDUCATION

### Columbia University

New York City, NY

M.S. in Electrical Engineering GPA: 3.835/4.0

Expected Dec 2023

### University of California - Santa Barbara

Santa Barbara, CA

B.S. in Physics GPA: 3.67/4.00 Dean's Honors List in 2021 Winter.

Sep 2018 - Dec 2021

## SKILLS

Courses: Algorithms for Data Science, Computer Networks, Neural Networks & DL, Big Data Analytics, Database, Blockchain

Skills: Python, React, Django, Flask, FastAPI, MySQL, Neo4j, MongoDB, HTML, CSS, JavaScript, Solidity, Full-Stack Development, Socket Programming, Spark/Hadoop, Tensorflow, Git, GCP, Threading, Airflow, D3.js, Matplotlib, Shell script, MATLAB, Latex

## WORK EXPERIENCE

### Deepchem Co., Ltd: Python Intern

Beijing, China Feb 2022 - May 2022

- Designed and built calculation task distribution systems. Distributing calculation jobs from the distribution server to different calculation servers (Group project, 4 people in total (including one manager)).
- Communicated** and **collaborated** with front-end, and other co-walkers to create a web-based platform. **Represented team** to communicate with manager Finished building in 1 month.
- Checked job status on the platform and handled manual stop from user with **GET**. Handling exceptional cases e.g. distribution server offline. Stress tested on all 4 calculation servers.
- Check front-end job status and **submit log** content from calculation to the distribution server in **real-time** with **GET** and **POST**. Zip needed calculation results and uploaded files to the distribution server with POST (used for more than 10 jobs in business).
- Increased** overall calculation **efficiency** by **50% - 200%** (By keeping calculation servers busy during nonbusiness hours).
- Created **algorithms** to **find missing tuples** in the database from id queries CSV. **Data filtering** and **aligning**. Extract 3D Cartesian coordinates and get SMILES with **Pybel**(OpenBabel) python package.
- Constructed** and **maintained SQL database**. Extract data from XYZ file, CSV file, and convert SMILE and insert it into SQL database(including **checking redundant** data in database).
- Developed an **algorithm** to automatically audit two-way connections between PC and lab equipment (**Heartbeat**) with **SOCKET** (Individual project finished in 1 day).

## PROJECTS

### Independent Project: Used Car Data Visualization WebApplication

Jun 2022 - Jul 2022

- Built with **streamlit**, dealing **large data sets**(365K data points) with **Desk**, **Pandas**, and **NumPy** for data filtering and cache data.
- Visualize data** with scatter plot on the heat map (with more than 100 selectable base maps), pie chart, scatter plot with the trend line, with packages e.g. **plotly**, **leafmap**, **pydeck**.
- Added VIN lookup function with Get from NHTSA (National Highway Traffic Safety Administration)'s **API**.
- Designed AI key phrase extraction from listing description with **spacy**, and visualization with **wordcloud** with VIN query results (VIN query, key phrase generation, and word cloud should take less than 5 seconds, usually 2 seconds).
- Implemented **geocoding** and filtering data with user input distance from user query location with **geoencoder** in **GeoPy** (Entire query should take 3 seconds depending on the setting, usually less than 0.5 seconds).
- Added Login page with the **cookie**. **Hosting** web applications on a personal server with **domain redirection**.

### Independent Project: JavaScript and React web application series

Jan 2023 - Mar 2023

- A fancy **Weather App** that could change units by clicking on the temperature. Also, the background would change with the weather. Including getting **user location** and search functions. A great **Todo App** that would store a to-do list on local storage. It comes with great animation with tons of details. Both build with pure **JavaScript**, **CSS**, and **HTML**. An online **calculator**. Build with **React**.

### Full stack Course Project: MBTI Personality Analysis and Prediction

Oct 2022 -

Dec 2022

- We used **Flask** as the backend and **HTML**, and **CSS** as the front end. When a user enters their username we will fetch the user's Tweets using **Twitter API(tweepy)**. Then we would process fetched data and use the **pre-trained model** to make predictions. Then we would present corresponding results to the user.

### Course Project: My Own internet

Nov 2022 - Dec 2022

- Configure **OSPF** and **iBGP** to connect 8 routers and 6 hosts in my **Autonomous System**.
- Configure **eBGP** to perform different routing policies for **inter-AS** connection with my **provider**, **customer**, and **peers**. e.g. Achieved **no valley routing**. Achieved **preferred customer routing**(preference in this order: customer, peer, provider). **Inbound traffic engineering**: prefers traffic coming from one link of a provider(that has multiple links). Guide traffic to prefer coming from one provider over others. Successfully fetched data across our internet(with working policy) formed with my classmates.