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 Network**, **Neural Network & DL**, **Big Data** Analytics, **Database**, **Blockchain**
Skills: **Python**, **React**, **Django**, **Flask**, **FastAPI**, **MySQL**, **HTML**, **CSS**, **JavaScript**, **Solidity**, **Full-Stack Development, Socket Programing**, **Spark/hadoop**, **Tensorflow**, **Git**, **GCP,** Threading, Pandas, NumPy, Matplotlib, Plotly, GeoPy, 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 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 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 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 on non business 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 audit **two-way connections** between PC and lab equipment automatically(**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 heat map (with more than 100 selectable base maps), pie chart, scatter plot with 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 setting, usually less than 0.5 second).
- Added Login page with **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 frontend. When a user enters their username we would 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.