

# MENGCHEN QIU

940 Macomber Drive, Urbana, IL 61801  
2176939372 | mcqiu3@gmail.com

## EDUCATION

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### University of Illinois Urbana-Champaign

Champaign, IL

*MCS, Master of Computer Science*

*Aug. 2022 – Dec 2023*

**Planned Future Coursework:** Communication Network, Distributed System, Parallel Computing, Operating System Design, High Performance Computing, Combinatorics(PhD), Mathematical Statistics(PhD).

### University of Illinois Urbana-Champaign

Champaign, IL

*BS, Mathematics and Statistics; Minor in Computer Science GPA: 3.9 Major: 4.0*

*Aug. 2018 – May 2022*

## PROFESSIONAL & RESEARCH EXPERIENCE

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### Hwabao Warburg Pincus Fund Management Co., Ltd

Shanghai, China

*Software Developer Intern*

*May. 2019 – July 2019*

- **FOF Strategy Research:** Constructed research on multi-asset FOF strategies(Risk Parity) and coded with **python**. Made improvements for existing strategy by modifying input data flow.
- **Financial Time Series Dataset:** Used **PyTorch** & **scikit-learn** training multiple models(**ARIMA**, **Regression Tree**, **LR**, **LSTM**) on CSI500 time series dataset. Results are directly used by Portfolio Manager.
- **Trading Engine Maintenance:** Cleaned and maintained trading data using **pandas** and generated reports on strategy performance which are used by the whole team.

### Illinois Geometry Lab

Champaign, IL

*Software Developer Intern (Advisor: Prof. Richard Sowers)*

*Jan. 2021 – June. 2021*

- **Gait Dynamics:** Worked with gait video datasets to **recognize Multiple Sclerosis (MS) and Parkinson's disease**. Implemented deep learning algorithms(**LSTM**, **CNN**, **DNN**) using **PyTorch** for data points features extracted via Open-Pose and applied multiple optimization methods to training process. Currently model hit **99.2 %** validation accuracy on average, which **increased 50%**.
- **Point & Vector Class:** Built a light-weight Point and Vector class in **C++ 17** which are used by several Research Scientists for the project's high-dimensional data computing

### Cyber Physical Computing Lab

Champaign, IL

*Research Engineer / Software Developer Intern (Advisor: Prof.Tarek Abdelzaher)*

*May. 2021 – Jan. 2022*

- **DARPA SocialSim:** Worked as a **Data Engineer** on DARPA SocialSim Challenge. Collaborated with PhD students and wrote **Python** code for data cleaning, data visualization, network filling and model evaluation. Cleaned and formatted raw data and optimized space by **20%**. the data are used by the whole modeling team.
- **Blockchain API:** Built a Blockchain API in **React.js** to provide the most updated Blockchain price data for modeling teams and improved the speed by **30%**.
- **Web Backend:** Developed, deployed and maintained **RESTful APIs** to communicate with users and the **MongoDB** database using **Node.js** and **Express.js**; Developed CI/CD pipelines and enhanced the stability.

## SELECTED PROJECT

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### KD-Tree Based Multi-Dimensional Nearest Neighbour

*Skills: C++ 17, Template, CMake, OOP*

- Full Implementation of **K-D Tree** to find the nearest Point in N-Dimension using **C++** and its **template**.

### PIGEON: A Roommate Matching Web Applicatiton

*Skills: React.js, Node.js, Express.js, TypeScript, MongoDB, API Security*

- Created a web application and designed a sophisticated pairing algorithm to help campus students find their ideal roommates. Helped 50+ incoming students find their roommates. Awarded first place in Web Application Contest.

### Real-Time Chat Web Application

*Skills: HTTP, Socket.io, Node.js, Express.js, Jest Testing*

- Built a Real-Time Chat web with Node and WebSocket protocol, which allows users to send messages and share their locations in real-time. It also allows users to create group chats with a maximum of 500 users in each group.

## SELECTED SKILLS

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**Languages:** C++, C, Python, R, JavaScript, Java, Shell, Golang, HTML, CSS, SQL, MongoDB, Verilog, MIPS Assembly

**Frameworks:** React, Express, Node, Pandas, Matplotlib, Numpy, Torch, scikit-learn

**Other Tools:** Git, Docker, CMake, AWS