

Ziheng (Jack) Chen

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Education

University of Illinois Urbana-Champaign Aug 2023 – May 2025
Master of Science in Computer Engineering GPA: 4.00/4.00

University of Illinois Urbana-Champaign Aug 2019 – May 2023
Bachelor of Science in Computer Engineering, Minor in Mathematics GPA: 3.99/4.00 (Highest Honor)

Relevant Coursework Data Structures, Operating Systems, Communication Networks, Web Programming

Work Experience

Software Engineer Intern (co-op), StoneX Group – Chicago, IL Jan 2023 – June 2023

- Engineered from scratch an evaluation pipeline with pandas to benchmark prototypical commodity price indices
- Quantified the potential profitability of commodity indices generated from 200 index configurations, surpassed target by 23.3% in 10-year total return and 8.8% in Sharpe Ratio with the top-performing tested index
- Expedited benchmarking processes by scaling up job clusters in Databricks, reducing waiting time by 3,000%
- Created an actively utilized Python script for CI/CD on Azure DevOps to automate Databricks workflow migration from testing to production environments, eliminated manual operations and greatly enhancing overall productivity

Data Engineer Intern (co-op), StoneX Group – Chicago, IL Aug 2022 – Dec 2022

- Researched and deployed a proxy to integrate Okta authentication into an existing cloud application using Docker
- Optimized the data curation ETL pipeline for a data-serving application to cut waiting time by 20 times to 5 seconds
- Developed a real-time usage analysis dashboard in Splunk, featuring dynamic filters for associates and categories

Data Engineer Intern (full-time), Ecolab – Saint Paul, MN May 2022 – Aug 2022

- Profiled global sales history table in Snowflake, identifying 201M invalid rows to enhance data integrity
- Automated SQL query generation through Python and APIs to streamline the evaluation of data quality and usability

Teaching Experience

Graduate Teaching Assistant, University of Illinois Urbana-Champaign Aug 2023 – Present

- Facilitated discussion sessions on concepts in computer science for CS/ECE 374: Introduction to Algorithms
- Conducted weekly office hours to offer tailored guidance and clarification on assignments and worksheets

Projects

GymLog, *Web Application, Frontend, Backend, Full-Stack Development* Oct 2022 – Dec 2022

- Created a responsive cross-platform workout logging web app with React and TypeScript, deployed on Heroku
- Supported user authentication via Firebase to facilitate tracking and deliver personalized recommendations
- Established a MongoDB database for seamless data synchronization, employing Mongoose for frontend integration
- Earned recognition for exemplary prototyping, securing runner-up accolades in class upon project completion

OpenFlights, *Data Structures, Network Algorithms, Large-Scale Data Processing* Mar 2021 – May 2021

- Designed data structures to host large-scale flight data with 8,000+ airports and 67,000+ routes in C++
- Implemented Landmark, PageRank, and Dijkstra's algorithms to search for possible paths with routing options

Traffic Risk Assessment and Mitigation, *Autonomous Vehicles, Machine Learning* Aug 2023 – Present

- Proposed innovative method to assign risks to other vehicles in traffic and introduced methods to improve safety
- Generated more than 20,000 simulation runs in parallel using subprocess and ThreadPoolExecutor in Python
- Trained Reinforcement Learning Agent in PyTorch using calculated vehicle risks to mitigate up to 50% of accidents

Skills

Programming Languages Python, C, C++, JavaScript, TypeScript, HTML, CSS, SQL, Assembly, CUDA
Frameworks and Tools Git, Linux, Docker, React, pandas, PyTorch, NumPy, Azure DevOps