

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, Data Science Analytics using Probabilistic Graph Models, Machine Learning

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

Traffic Risk Assessment and Mitigation, *Autonomous Vehicles, Large-Scale Data Generation* Aug 2023 – Present

- Calculated the reachable area of a vehicle in Python following a bicycle model to identify risky vehicles in traffic
- Generated more than 20,000 simulation runs in parallel using subprocess and ThreadPoolExecutor in Python
- Cleansed and statistically analyzed generated datasets using pandas, and visualized outcomes with seaborn and matplotlib, proving efficacy of the proposed metric over current state-of-the-art risk assignment methods
- Trained Reinforcement Learning Agent in PyTorch using calculated vehicle risks to mitigate up to 50% of accidents

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

Coffee4Life OS, *Linux System Kernel, System Programming, Low-Level Programming* Mar 2022 – May 2022

- Developed a functional 32-bit Linux kernel in C and low-level x86 Assembly
- Supported paging, RTC, keyboard, terminal, file system, system calls, context switching, and scheduling operations

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