Ziheng (Jack) Chen

+1 312-823-6315 ⋄ zihengchen2000@gmail.com ⋄ zihengjackchen.com ⋄ linkedin.com/in/zihengjackchen/

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 Dependable AI Systems, Machine Learning, Data Science Analytics, Communication Networks

Work Experience

Software Engineer Intern (co-op), StoneX Group – Chicago, IL   Jan 2023 – June 2023
- Prototyped an evaluation pipeline in `Python` to efficiently back-test the performance of commodity price indices
- Brainstormed approaches and collaborated with marketing associates for feedback and further feature requirements
- Outperformed SPGCCI by 23.3% in 10-year total return and 8.8% in Sharpe Ratio with the leading tested index
- Created a widely utilized `Python` script for `CI/CD` to automate `Databricks` workflow migration across environments

Data Engineer Intern (full-time), StoneX Group – Chicago, IL   Aug 2022 – Dec 2022
- Discovered and deployed `Envoy Proxy` to integrate crucial `Okta` authentication into an existing cloud application
- Optimized the data curation pipeline for the data-serving application to cut waiting time from 120 to 5 seconds
- Created a real-time `Splunk` dashboard for ongoing application usage analysis, filtered by associates and categories

Data Engineer Intern (full-time), Ecolab – Saint Paul, MN   May 2022 – Aug 2022
- Profiled global sales history table in `Snowflake` and provided key insights, including finding 201M invalid rows
- Automated `SQL` query generation using `Python` to efficiently examine quality and usability of data using `APIs`

Teaching Experience

Graduate Teaching Assistant, University of Illinois Urbana-Champaign   Aug 2023 – Present
- Facilitated semiweekly discussions on computer science concepts for CS/ECE 374: Introduction to Algorithms
- Conducted weekly office hours to offer tailored guidance and clarification on assignments and worksheets

Projects

Watch Out for the Safety-Threatening Actors, *Research, Autonomous Vehicles, Safety Metrics*   Aug 2023 – Present
- Sampled the reachable area of a vehicle following the bicycle model in under 0.3 seconds per frame in `Python`
- Integrated the area calculation method into the simulation pipeline in `CARLA` to assign risk to vehicles in real-time
- Trained `RL` Agent using `DQN` in `PyTorch` to emergency brake in adverse scenarios to mitigate up to 50% of accidents

Addressing the Insufficiencies in CARLA Simulator, *Research, Autonomous Vehicles*   Sept 2022 – May 2023
- Reviewed previous literature and improved the friction model of vehicles as a function of weather settings in `CARLA`
- Generated and analyzed over 8,000 vehicle traces in varying rainy conditions, creating up to 300% more accidents

GymLog, *Web Application, Frontend, Backend, Full-Stack Development*   Oct 2022 – Dec 2022
- Developed a responsive workout session logging web app for enhanced UX utilizing `React.js` and `TypeScript`
- Established a `MongoDB` database, integrating it with the frontend using `Mongoose`, and deployed the app on `Heroku`

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

OpenFlights, *Data Structures, Network Algorithms, Large-Scale Data Processing*   Mar 2021 – May 2021
- Designed data structures to host 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

Skills

Programming Languages	`Python, C, C++, JavaScript, TypeScript, HTML, CSS, SQL, x86, CUDA C`
Frameworks and Tools	`Git, Linux, Docker, React, pandas, PyTorch, NumPy, Azure DevOps`