Hanbo Guo

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Education

University of Illinois, Urbana Champaign, Illinois, US **Expected May 2024**

*Bachelor of Science in **Computer Science*** *GPA: 3.87 / 4.00*

Interests: *Distributed systems, system engineering, cloud computing*

***Programming language*:**

Python, C, C++, SQL, Java, OCaml, Verilog, x86 Assembly,

***Coursework**:*

Distributed Systems *Operating Systems & Design* *Deep Learning for CV (IP)* *Applied Parallel Programming (IP)*

Project Experience

EVE-Online REST API, *Python* (GitHub: link) March 2022 – Present

- Provides RESTful API for market data analysis and profit maximization in EVE-Online, a MMORPG game.
- Develop an asynchronous Swagger client with compatible OAuth2 authentication and supports requests/response caching, asynchronous web requests, customized response parsing and storage.
- Developing a data pipeline for retrieving, formatting, and storing market data from EVE servers, with multiple SQLite database that caches intermediate results, such as API responses, JWT / SSO results, E-Tag headers.
- Maintain a MySQL database for raw market data and market analytics signals using statistical models.
- Use trunk-based development as version control and is adopting continuous integration for potential contributors.

IDunno, a distributed ML inference engine, *Python* (GitHub: link) Sept 2022 – Dec 2022

- Developed a fault-tolerant and scalable Ray-like distributed system from scratch (sockets), with group membership, distributed storage, and fair-time scheduling.
- Implemented a purely distributed group membership service using multicast dissemination with a ring backbone and SWIM failure detector.
- Distributed file system ensures total ordering and can tolerate up to f = 3 machine fail-stops with replication control, and all file transfers are implemented from scratch via TCP sockets.
- The inference engine accepts a wide range of models (Resnet-50, Alexnet, etc.) and tolerates f = 3 failures.
- Implemented a Fair-Time scheduling algorithm to ensure a maximum 20% query inference time difference among all running models.

Airplane ticket searcher, *Python & SQL* (GitHub: link) June 2021 – Aug 2021

- Developed a ticket searching website like Kayak that searches cheap tickets with fuzzy input parameters.
- Independently developed an asynchronous Python web scraping script, using Pyppeteer and aiohttp, that scrapes flight and ticket data with counter anti-scrapping functionalities.
- Designed a Google Cloud MySQL database with norm form concepts and advanced queries.

City navigation algorithm using adjacency list and A*, *C++* (GitHub: link) Feb 2021 – May 2021

- A city navigation application like Google Maps using A-star algorithm on the adjacency list data structure.
- Independently developed Adjacency List graph data structure in C++ with data parser compatible with ".map" file.
- Developed a map drawer that could draw the map with highlighted routes between two points in a second.
- Responsible for all backend data processing, including data structure implementation and data cleaning.

Professional Experience

Course Assistant at ***UIUC*** Sept 2022 – May 2023

- Graded CS 433 Computer System Organization assignments and gave students feedback.
- Hosted office hours with a team of CA for CS 425 Distributed Systems.

Data Analysis Intern, Harvest Fund Management, *Beijing China* Dec 2020 – Jan 2021

- Completed a companies' product-category matching model using edit distance and attention mechanism.