Wenhao (Scott) Fan

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**EDUCATION**

**New York University** NY, USA **Aug 2020** **— May 2024**

BSc Computer Science

• Relevant Coursework: Basic Algorithms, Computer System Ontology, Data Management and Analysis, Data Structures, Discrete Mathematics, Linear Algebra, Natural Language Processing, Operating System, Web Design, Web Development

**SKILLS**

**Programming Language:** Java / Python / C# / CSS / HTML / JavaScript / PHP

**Framework/Techniques:** GCP / AWS / TensorFlow / Scikit-Learn / Git / Jupyter Notebooks / MySQL

**Certifications:** Meta Front-End / Back-End Developer Professional Certificate

**PROFESSIONAL EXPERIENCE**

**Wicresoft Co., Ltd****Jul 2023 — Aug2023**

*Software Engineer Assistant Shanghai, China*

* Implemented spreadsheet web data extraction using Requests in Python; Developed intricate algorithms (60+ lines of code) to scrape raw data, ensuring the accuracy and reliability of the dataset for analysis.
* Leveraged PowerBI, a powerful business analytics tool, to create impactful visualizations; Developed interactive heat maps, decision trees, and ROC curves, offering deep insight into various models such as global cancer incidence heat map, regional brand performance analysis, and sale trend analysis.
* Implemented advanced algorithms like Support Vector Machines (SVM) and Logistic Regression; Significantly improved the testing accuracy from 87% to an impressive 93% through iterative refinement and model fusion.

**Jabil Circuit Co., Ltd May 2023 — Jun 2023**

*Software Engineer Assistant Wuxi, China*

* Streamlined queries involving real-time sensor data retrieval and complex join operations across multiple database tables; Enhanced the query structure and indexing strategies to reduce execution time by 30%.
* Implemented advanced caching mechanisms to eliminate redundant data retrieval operations; Identified and replaced 1000 redundant queries with cached results to ensure the system reduced unnecessary database hits by 40%, streamlining the process to only 600 queries.
* Assisted in optimizing of existing C# database, employing profiling tools like VS Performance Profiler, and achieved a remarkable 20% improvement in application performance, leading to faster data processing and analysis.

**Neural Network in Named Entity Recognition March 2023 — May 2023**

*Leader & Participant*   *NYU*

* Presented neural network-based algorithms for named entity recognition (NER) that leverage deep learning techniques without the feature extraction process; Simplifies the overall process while potentially enhancing model performance

by eliminating the need for manual feature engineering.

* Proposed algorithms incorporate Recurrent Neural Networks (RNN) and Transformers to create efficient and effective NER solutions; Experimented with two standout models, the Flair and BERT models, and implemented specific optimizations and adjustments to improve their performances.
* Found the Flair-based model performs the best with a weighted F1-score of 0.82; Concluded the entity type GPE performs the best for all models; Confirmed neural networks have slightly better performance than the base model without manual features engineering.

**Web Development on Chatroom March 2023 — May 2023**

*Leader & Participant*  *NYU*

* Developed a dynamic and user-friendly web platform and chatroom, enabling seamless student communication through real-time chat functionalities, promoting collaborative learning, and fostering a sense of community.
* Implemented PHP and Swoole WebSocket technology along with CSS, HTML, and JavaScript.
* When a user connects, a unique user object with a file descriptor ('fd'), a randomly generated 'name,' and an 'avatar' is created. Messages sent by users are broadcasted to all connected clients, excluding the sender, in real-time.
* Incorporated a memory table to manage user data efficiently, enhancing the performance of the chatroom application.

**Neural Networks Versus Ensemble Algorithms in Solving Zero-Sum Games June 2022 — Aug 2022**

*Research Assistant Remote*

* Collaborated with Professor David Woodruff from Carnegie Mellon University to conduct research on the effectiveness of different learning models in solving zero-sum games.
* Utilized MATLAB, a powerful numerical computing environment, to implement and evaluate various learning models, including Convolutional Neural Networks, Recurrent Neural Networks, Multi-Layer Perceptron, and Light Gradient Boosting Machines.
* Employed Linear Programming techniques to analyze and optimize the strategies employed in zero-sum games, aiming to identify optimal solutions and strategies.
* Found that RNNs demonstrated superior effectiveness when compared to other learning models such as CNN, MLP, etc; Concluded that RNNs are a more suitable choice for solving zero-sum games, especially in scenarios involving sequential data.

**2D Soccer Game December 2021**

*Programmer*  *Remote*

* Designed a soccer game with 6 forwards and 2 goalkeepers, allowing both player versus player and AI versus AI.
* Implemented Random function and Python library to simulate the movement of players. Collision detection was implemented to make the game more realistic.

**Data analysis about shard homestay in China March 2021 — May 2021**

*Research Assistant* *Remote*

* Analyzed the data using Stata; Built a multi-variable model to predict the future market mainly after the pandemic.
* Implemented scatter plot and linear regression, which demonstrates the potential of the domestic Airbnb industry.

**EXTRA-CURRICULAR ACTIVITIES**

**Chess Club, NYU Sep 2021 – present**

*Member NYU*

● Attended meetings and activities; Communicated Chess tactics; Participated in College Competitions

**ESPORTS (PHANTON) Team, NYU Sep 2022 - present**

*Member NYU*

● Played for CLOL tournament; Competed against other universities with team members for qualification

**Tennis Club, NYU Sep 2020 - May 2021**

*Member NYU*

● Played against club members; Exchanged techniques; Joined regional matches