Jiahao (Aaron) Huang

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Education

- **National University of Singapore** — Singapore
  MSc in Industrial and Systems Engineering (Specialization in Data Analytics) — *Aug 2023 - Jul 2024 (Expected)*
- **Northwest A&F University** — Shaanxi,China
  BEng in Computer Science and Technology; GPA: 3.74/4.0 (Top3) — *Sep 2019 - Jul 2023*

Core Competence

- **Programming Languages** (Python, SQL, JS)
- **Database Tools** (MySQL, Tableau, ETL)
- **Libraries** (Numpy, Pandas, Sklearn)
- **Linux**
- **Data Analysis**
- **Machine Learning**
- **Self-learning**
- **Independence**
- **Attention to Detail**
- **Leadership**
- **Cooperation**
- **Time Management**

Experiences

- **Shanghai Idea-Interaction Tech. Co. , Ltd.** — Shanghai, China
  Python Development Intern — *Sep 2022 - Mar 2023*
  - **Led** the development and management of two Python-based software applications with weekly version updates via GitHub, delivering over **5 enhancements and updates in a month**.
  - Implemented and thoroughly tested **5+ new features within two-week cycles**, resulting in a **25%** reduction in overall development cycles.
  - Tackled **data discontinuity** issue employing regular expressions and incorporated **multithreading** for real-time updates and interactive attributes, culminating in extraction and visualization of data with a mere **0.1‰ data loss rate**.
- **Unsupervised Feature Selection via Feature-Grouping and Orthogonal Constraint** — Shaanxi,China
  Research Leader (published in 2022 26th International Conference on Pattern Recognition) — *Jun 2021 - Jun 2022*
  - **Spearheaded a team** of 3 colleagues to tackle the demand for an unsupervised feature selection model through **weekly group discussions** and **self-learning** of linear algebra, culminating in the design of the innovative model.
  - Addressed a model optimization challenge through extensive research and weekly **brainstorming** sessions with my supervisors, leading to **four unique sub-algorithms** and solving them with **Sklearn** and **Numpy**.
  - Confirmed superior performance of freshly algorithm through comparative experiments against eight other algorithms on **six facial and biological datasets**, yielding a peak accuracy enhancement of **11%** and a maximum normalized mutual information boost of **23%**.

Coursework & Projects

- **Design and Implementation of Curb Detection Algorithm Based on Deep Learning** | Deep Learning, Object Detection
  - **Innovated** an advanced curb detection and segmentation system autonomously, harnessing the prowess of the YOLOv7 network for detection and fusing a fully convolutional neural network for precise segmentation, achieving a inference rate of **49 frames per second**.
  - Amplified the **data complexity fourfold** via Mosaic and Mixup data augmentation techniques to tackle complex roads, curb diversity, and weather alterations, bolstering the generalization capability and localization proficiency of the model.
  - Designed an intuitive **user interface** (UI) for the curbstone detection system through PyQT and multithreading, delivering video loading speeds approximately **50%** faster than serially-loaded videos, alongside video playback control, model loading, and label data saving.
- **Automatic Association Search Engine Based on Trie Tree** | MySQL, Java EE, HTML, CSS, jQuery, AJAX
  - **Pioneered** a bilingual Chinese-English semantic database management system using the **Spring, SpringMVC and MyBatis** (SSM) framework, facilitating the transmission, filtration, and querying of over **10,000 data entries**.
  - Handled the demand for rapid data querying and searching via the **Trie tree** rooted in the array and map, leading to a significant leap in search efficiency, reducing query time to a scant **0.14%** and search time to a mere **1.3%** of the time consumed by **MySQL**.
- **Automated career data crawler** | SQL, Python, Xpath, Selenium
  - Addressed the need for systematic career data harvesting from an employment website via the development of a **Python Selenium** web crawler, resulting in the successful extraction and processing of over **1000 job listings**.
  - **Streamlined** system operations by automating data filtration and structuring, resulting in a **50%** reduction in processing time and orchestrating a daily dispatch of career information to over **500** designated mailboxes.

Qualifications & Interests

- **Languages**: Chinese (native), English (fluent)
- **Interests**: Reading, Running, Cycling, Travelling, Table Tennis, Swimming
- **Certifications**: China National Scholarship, Professional Scholarship, Excellent Student Cadre, Social Practice Pacesetter