Hongchao Hu

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Professional Skills

- **Programming Languages: Python**(Advanced), **Java** (Advanced), **C++/C** (Advanced), JavaScript (Intermediate)
- **Web Development: HTML**(Intermediate), **CSS**(Intermediate), **Node. Js**(Intermediate)**, React.js** (Intermediate)
- **Databases and Data Analysis: MySQL** (Intermediate), **R** (Advanced), **MongoDB** (Intermediate)
- **Machine Learning Frameworks: PyTorch** (Intermediate), **TensorFlow** (Intermediate)

Professional Experience

Mobalytics June 2023 - August 2023
Data Analyst Internship

- Used **Python** and **R** on data cleaning and data validation for Mobalytics to promote a robust performance analysis platform for video game players. Resulting in a 16% active user increase.
- Implemented **k-means clustering**, enhancing analysis accuracy by 12%.
- Used **MySQL** to assist end-users in creating custom reports and actionable insights.
- Evaluated test data of over 30 cases and performed 8 data visualization and regression analysis requests.
- Conducted player database analysis and industry market research to propose a strategic shift towards new immersive Augmented Reality experiences.

CTC (China Telecommunications Corporation) June 2020 - August 2020
Network System Administrator Assistant Internship

- Increased customer demand on cloud data center by boosting data processing efficiency by 35% through designing and incorporating the use of neuro network （implemented with **PyTorch**)
- Developed an adaptive database for small to medium online businesses using **Node.js** and **MongoDB**.
- Implemented cybersecurity protocols, ensuring the integrity of user data and reducing potential threats by 20%.
- Conducted extensive research for a total of 6 startup company projects.

Education

The University of California San Diego Graduate in June 2024
Bachelor of Science in **Mathematics and Computer Science**, Minor in Business Economics

- GPA: 3.16
- Relevant Coursework: Computer Graphics, Design & Analysis of Algorithm, Data Science in Practice
- Professional Development: Discrete Math & Graph Theory, Numerical/Linear Analysis

Projects

Pinyin Hand-writing Recognition Model [Python, MySQL]

- Used **PyTorch** to train, validate, and improve a neural network model.
- Implemented advanced hyperparameter tuning techniques to optimize model performance, resulting in a 15% improvement in prediction accuracy over baseline models.
- Improved a Database management system using **MySQL** to store and encode analyzed data efficiently.
- Integrated the neural network into a local database system, ensuring seamless functionality

SecureSight Data Stream [CryptoJS, Python]

- Designed a data transmission system for schools and companies to present analysis in real-time safely.
- Utilized **CryptoJS** library to create a data encryption model, improving data privacy and integrity for text-based communication.
- Integrated the system with various third-party APIs and databases, ensuring compatibility and seamless functionality while maintaining rigorous encryption standards.

GenomeGuard Compression Suite [C++]

- Developed a **Huffman algorithm-based** tool for efficient file compression, addressing significant data storage challenges for files up to 10 MB.
- Engineered an undirected Graph class to represent and analyze viral sequence networks, calculating DNA sequence distances and enabling advanced transmission clustering.
- Undertook meticulous testing protocols, ensuring unparalleled accuracy in data compression and setting a gold standard in viral spread analysis.

First-Person Shooter Arena [C, OpenGL]

- Designed and Implemented a first-person shooter game mechanics, enemy AI, and physics engine for smooth gameplay using **C** and C++. Boosted the visual effect by using OpenGL for rendering.
- Constructed a character-behavior data stream to train a Neural Network model for predicting the interaction of the in-game modules and boosting in-game optimization.