TINGTAO ZHANG

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WORK EXPERIENCE

Research Assistant

Shenzhen University Jiang Yizhou's BioLab

📅 Sep 2021 - Jun 2023   📍 Shenzhen, China

- **Mechine Learning**: Leveraged advanced machine learning techniques to design and implement a Support Vector Machine (SVM)-based classifier for single-cell expression profiles, markedly enhancing cell type identification accuracy to over 99%.
- **Python and R:** Analyzed and replicated core algorithm principles from [Freyja](SARS Virus Variant Detection), efficiently translated Python code to R for compatibility with Lab's Linux server.
- **[Published Paper]:** Collaborated with senior to analyze murine gene expression data using R; employed t-SNE clustering to discern patterns and utilized ggplot2 and Prism for visualization.

PROJECTS

Environmental Data Analyst

Shenzhen University

- **Data Cleaning:** Utilized KNN imputer to address missing values in the water quality dataset, employing a systematic approach that included creating column lists for numerical data, fitting the model to data, and generating a new, transformed dataframe.
- **Data Visualization:** Employed Matplotlib and Pyecharts for insightful visualization of the water quality data, using box plots and PCA dimensionality reduction to uncover and illustrate significant patterns, trends, and outliers in the dataset.
- **Machine Learning Models:** Analysis from PCA clustering visualization indicated low separability and clustering within the dataset, resulting in similar accuracy rates around 60% for all four applied machine learning algorithms (CART decision trees, Random Forest, KNN, and Naive Bayes).

Financial Data Analyst

Shenzhen University

📅 Feb 2021 - May 2021

- **Deep Learning:** Employed LSTM deep learning techniques with CUDA acceleration to predict stock price fluctuations, utilizing PyTorch and conducting comparative analysis with TensorFlow, both frameworks exhibited approximately 5% error margins in predictions.
- **Numpy, Pandas and Visualization:** Utilized Numpy and Pandas for effective data manipulation, paired with Pyecharts and Matplotlib for visualization, and applied K-means and Lasso regression on China's stock data, uncovering key trends and patterns.

OBJECTIVE

My multidisciplinary background stems from my special undergraduate education, where I cultivated a keen interest and sensitivity towards data through extensive studies in mathematics, physics, biology, and chemistry. Currently enhancing my coding proficiency with a Master's in Computer Science at Boston University (BU), I am eager to apply my broad academic knowledge and technical skills to innovative projects, particularly in the realms of data analysis, machine learning, and artificial intelligence.

EDUCATION

M.S.
Computer Science
Boston University

📅 Sep 2023 - Dec 2024(Expected)
📍 Boston, MA

B.S.
Math and Applied Mathematics
Shenzhen University

📅 Sep 2019 - Jun 2023

SKILLS

- Python
- Pytorch
- TensorFlow
- Keras
- Machine Learning
- Deep Learning
- Matplotlib
- R
- ggplot2
- MySQL
- git, Linux
- Java
- C
- Excel