

# ZHANG Yehang

ZhangYeHang2002@outlook.com | +8615845813698

## EDUCATION

---

China University of Geosciences, Wuhan(CUGW), Hubei, China

09/2019 - 07/2023

- Bachelor of Engineering in **Computer Science and Technology**, School of Computer Science
- Average Score: **88.32** | GPA: **3.57**

## PUBLICATIONS

---

- **Y. Zhang**, “PCSA: Enhancing CNN Performance with Pyramid Channel and Spatial Attention,” *IEEE Access*, pp. 1–1, 2024, doi: 10.1109/ACCESS.2024.3368801.
- **Y. Zhang**, Q. Ding, and C. Liu, “An Enhanced XGBoost Algorithm for Mobile Price Classification,” in 2023 IEEE 6th International Conference on Big Data and Artificial Intelligence (BD AI), IEEE, Jul. 2023, pp. 154–159. doi: 10.1109/BD AI59165.2023.10256847.

## RESEARCH EXPERIENCES

---

**PCSA:Enhancing CNN Performance with Pyramid Channel and Spatial Attention** 01/2023 – 06/2023

- My graduation research (also see in the **top 5% “Excellent Graduation Thesis”** at CUGW) proposed a new attention mechanism—PCSA block—which can extract and combine multi-scale information efficiently by fusing channel weights and spatial weights
- As a plug-and-play module, it can be applied to the backbone network for improving the performance of two experimented target models named as VGG-PCSA and PCSANet, respectively
- Used Grad-CAM algorithm to produce a visual explanation of the experimental result, with proven model performance superior to those applied other soft attention mechanism
- A relevant research paper has been submitted to IEEE Access

**Body Pose Recognition With MediaPipe**

06/2022 – 09/2022

- Created a visualization program for gesture detection and yoga pose classification through monocular camera using Python and PyQt5 (which was recorded for oral presentation as an excellent example for the class)
- Achieving human body pose detection and yoga pose classification through the MediaPipe framework; implementing hand keypoint detection through deep learning and a human skin color segmentation algorithm.
- Trained landmark time series data in Artificial Neural Networks and LSTM for dynamic gesture prediction

**An Enhanced XGBoost Algorithm for Mobile Price Classification**

02/2022 – 05/2022

This project developed and experimented a novel classification model that combines the Dung Beetle Optimizer (DBO) and XGBoost to achieve accurate mobile price classification.

- Designed a feature filtering strategy that took into account the importance of each feature in the dimensionality reduction phase using PCA
- Conducted experiments on multiple classification datasets, which showed the proposed DBO-XGBoost model can improve classification accuracy and has better generalization ability compared to other baseline models such as Decision Tree (DT), Random Forest (RF), and AdaBoost
- A relevant research paper was accepted for publication and oral presentation by 6th International Conference on Big Data and Artificial Intelligence (**BD AI 2023**)

**Satellite Coverage Area Measurement and Visualization**

04/2021 – 06/2021

- Leveraged latitude and longitude coordinates with proficient C++ programming skills to compute time windows and coverage areas for satellite-to-ground targeting. Developed a visualization program with Qt to enhance data presentation.
- Further evaluated coverage simulation outcomes with genetic algorithm and particle swarm optimization methods (This coursework scored 95/100).

## COMPETITIONS

---

### First Prize, 2021 Big Data Challenge For College Students

- Fetched mask-wearing and facial framework recognition data from XML
- Utilized the YOLO-v5 algorithm to detect mask-wearing states based on the competition dataset. Conducted model evaluation and compared performance with classical target detection algorithms
- Enhancing the YOLO-v5 algorithm with the Squeeze-and-Excitation (SE) attention mechanism

### Second Prize, 2021 Teddy Cup Data Analysis Challenge Competition

- Performed data mining (historical sales data) in Pandas and analyzed sales performance of a given telecom product.
- Activated time series prediction in Python based on LSTM neural network to forecast profitability
- Supported teammates to verify the programming of a digital board for data display

## PERSONAL SKILLS

---

- **IT Skills:** proficient in C++, Python, PyTorch, Qt
- Personal Blog (CS/DS Study Notes and Technical Blogs): zhangyh2002.run
- Interests: Calligraphy, Swimming; Vocal Music (tenor of CUGW Student Choir)
- First Prize, The Second National College Students' English Vocabulary
- First Prize, 2023 "ETTBL" National College Students English Vocabulary Challenge Cup
- 200+ Volunteer Service Hours (Silver Prize for Outstanding Volunteers in Heilongjiang Province)