

Yaqi Hu

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EDUCATION

University of Southern California 01/2023 - Present
Master of Computer Science
Macau University of Science and Technology 09/2018 - 07/2022
Bachelor of Engineering in Computer Science at Faculty of Information Technology GPA: 3.91/4.0
Honors:
Dean's Honor List (Top 10), 2019&2020&2021&2022;
Dean's Scholarship (Top 1), 06/2019
Dean's Scholarship (Top 1), 06/2022

PUBLICATION

[1] A New Approach for Liver Plus Tumor Segmentation in CT Image by TransNUNet. Yaqi Hu, Xiaoniu Yang, Xiaolin Tian. 2022 International Conference on Communication Engineering, Electronic Information and Artificial Intelligence (CEEIAI 2022) May 21-22.2022. Hangzhou. China.
[2] A New Approach for Liver and Its Tumor Segmentation in CT Image by an Improved TransUNet with Cbam. Yaqi Hu, Xiaoniu Yang, Xiaolin Tian. The 26th International Conference on Image Processing, Computer Vision, & Pattern Recognition (ICCV'22: July 25-28, 2022, USA).
[3] TransUNet with Attention Mechanism for Brain Tumor Segmentation on MR Images. Enhao Wang, Yaqi, Hu, Xiaoniu Yang, Xiaolin Tian. 2022 International Conference on Communication Engineering, Electronic Information and Artificial Intelligence (CEEIAI 2022) May 21-22.2022. Hangzhou. China.

RESEARCH EXPERIENCE

Machine Learning Method to RNA/ATAC Multi-modal Data 04/2023 - Present

Research Assistant, Supervisor: Assistant Prof. Jing Zhang, UC Irvine

Goal: Aimed to find a multi modal way to dealing with anomalies in biomedical dataset using RNA-ATAC data

- Explored the RNA/ATAC data, a multi-modal dataset, used UMAP/PCA to do dimensional reduction, plot the distribution of normal/anomaly data, understood data features that RNA contains 3000 dimensions and ATAC contains 12k dimensions
- Acquired how to preprocess RNA & ATAC data, write code to preprocess it, and feed them into an encoder-decoder model to see the preliminary result
- Found a benchmark method to help us better understand the dataset and get a shallow view of different models' performance on our dataset
- Found ADBench and reproduced benchmark result - ADBench [Author: Yue Zhao]
- Utilized contrastive learning with graph matching and graph neural network to enhance the performance

Liver and Its Tumor Segmentation Challenge

10/2021 - 06/2022

Research Assistant, Supervisor: Prof. Xiaolin Tian

Goal: Aimed to use deep learning network to solve Liver and Its Tumor Segmentation Challenge and explore how to improve the network performance by changing the hyper parameters and network structure.

- Conducted preliminary studies of machine learning/deep learning platform and networks
- First worked on reproducing the results that the model has produced on the heart segmentation challenge. Then the applied the network to liver and tumor segmentation challenge, conducted results and verify the accuracy and time consumption of the network
- Analyze the results obtained by the network and explore ways to improve the accuracy of the network and reduce the training time. Sort out the research process and results and write papers

COVID-19 Image Recognition and Chinese Medicine Image Recognition

06/2020 – 06/2021

Research Assistant, Supervisor: Professor Zhanchuan Cai

Goal: Aimed to utilize machine learning techniques to recognize and judge COVID-19 CT images; acquired and identified Chinese medicine images by combining machine learning and deep learning methods for the identification and classification of Chinese medicine

- Studied and researched the existing papers on COVID-19, reproduced the methods and experimental results based on the TensorFlow platform, and improved the models by adjusting hyperparameters, the parameter requirements of certain functions, and input image processing to enhance the recognition accuracy and efficiency
- Processed the existing TCM images, input the obtained training sets into the model based on the neural network model
- Trained the model for deriving a learning model and judged the test and validation set to confirm whether the obtained model has a good performance

Robotics Group, IEEE Macau

10/2018 - 06/2020

Participant

Goal: Designed to participate in the RoboMaster Robotics Competition by modifying and refining the basic DJI robot based on the robot platform provided by DJI and the competition manual, and writing and improving the vision and motion algorithms

- Participated in the vision group to learn about the DJI robotics platform and engaged in the walkthrough of the controls and improvements with the manuals provided by DJI
- Involved in various vision and motion algorithms on mdk5 IDE and Github
- Made refinements and modifications for existing algorithms, such as robot turret attitude correction, robot path correction, robot path recognition, rapid camera recognition of hitting targets, for the purpose of enhancing the accuracy rate
- Made the turret and wheels of DJI robots better using science and engineering methods
- Helped electrical and mechanical teams to debug robots and trained operators to manipulate the robots

INTERNSHIP EXPERIENCE

Inspur, Jinan, China

06/2020

Software Development Engineer (C programming)

- Responsible for the testing and submission of daily tasks on C programming, and working with team members to develop software by writing and debugging the module for verification
- Conducted daily summaries and reports, and collated development records and research progress

SELECTED COURSE EXPERIENCE

Summer Program at University of British Columbia

07/2019 - 08/2019

- Attended the course named *Algorithm*, learning Classical algorithms such as greedy, bag, divide and conquer
- Took the *Computer Network* course to create web pages using JavaScript, CSS, and HTML and independently made websites with some basic functions

EXTRACURRICULUM ACTIVITY

Group Leader, Membership, IEEE Macau

09/2018 - Present

Vice President of Publicity Department, Students' Union of School of Information Technology

09/2018 - 06/2021

SKILL

- Computer Languages: C (4 yrs); Python (2 yrs);
- Languages: Mandarin; English