## **QIHAN CHEN**

Phone: (+86)15976346505 | Email: chenqh36@mail2.sysu.edu.cn | Address: Shenzhen

## **EDUCATION**

Sun Yat-sen University	Sep 2022 – Jun 2025
Control Science and Engineering Master School of Intelligent Engineering	GPA: 92.29/100 (2/30)
Sun Yat-sen University	Sep 2018 – Jun 2022
Intelligent Science and Technology Bachelor School of Intelligent Engineering	GPA: 3.9/4.0 (16/122)

## SELECTED AWARDS

The National Scholarship (0.2%), Ministry of Education of China	2020-2021
The FirstPrize Scholarship (5%), SYSU	2019-2023 (for five consecutive years)
Star Volunteer, Guangdong Volunteer Federation	2023
GuangDa Postgraduate Admission Scholarship, SYSU	2022
Excellent Graduates & Outstanding Undergraduate Thesis, SYSU	2022
Professional Quality Award, SYSU	2020-2021
Ethic Award, SYSU	2019-2020
Outstanding Student Leader, SYSU	2018-2019,2019-2020

## **PUBLICATION**

- 1. Qihan Chen, Mengtang Li, Haoxuan Wu, Wanquan Liu, Jianqing Peng, Design, self-calibration and compliance control of modular cable-driven snake-like manipulators, Mechanism and Machine Theory (Top journal of mechanism), 2024.
- 2. Qihan Chen, Jianqing Peng, Shen Zhao, Wanquan Liu, Automatic artery/vein classification methods for retinal blood vessel: A review, Computerized Medical Imaging and Graphics (JCR Q1), 2024.
- 3. Jianqing Peng, Haoxuan Wu, Chi Zhang, **Qihan Chen**, Deshan Meng, Xueqian Wang, Modeling, Cooperative Planning and Compliant Control of Multi-arm Space Continuous Robot for Target Manipulation, **Applied Mathematical Modelling (JCR Q1)**, 2023,
- 4. Jianqing Peng, Qihan Chen, Liang Kang, Haiqing Jie, Yu Han, Autonomous recognition of multiple surgical instruments tips based on Arrow OBB-YOLO network, IEEE Transactions on Instrumentation and Measurement (JCR Q1), 2022.

#### RESEARCH / INTERNSHIP

# Medical Company Cooperation Project: Multi-organ Segmentation and 3D Reconstruction of CT Images (3D Segmentation and Reconstruction) Sep 2023 - Present

- 1. Through the totalsegmenator data set screening cleaning, to meet the puncture surgery needs of high-quality data sets.
- 2. Based on the nnUnet framework, the multi-organ segmentation model is obtained, and through multi-stage training gradually improves the model in each organ performance.
  - 3. Through QT and VTK in Linux to build the organ 3D reconstruction software platform.

#### Design and Control of a Cable-driven Snake-like Robot (Robot Design and Control)

Sep 2022 - Sep 2023

- 1. Participate in robot design, through the key components of the modular convenient robot quick installation and maintenance.
- 2. Establish a kinematic model, through the motor drive screw rail module to achieve cable length control, to achieve end position control, and through the redundant cable to achieve robot self-calibration.
  - 3. Through the Newton-Euler method complete the dynamic modeling and realize the robot impedance control.

## Sun Yat-sen University Eye Center Hospital-Professor He Mingguang Summer AI Internship Project-Retinal Arteriovenous Classification (Semantic Segmentation)

May 2022 - Sep 2022

- 1. Unet was used to complete the preliminary classification of retinal arteriovenous in fundus color images.
- 2. The topological graph method is used to correct the results of deep learning classification to solve the problem of the lack of topological continuity.
- 3. Considering the lack of relevant review papers, a comprehensive summary of the retinal arteriovenous automatic classification method is completed through literature research and data statistics.

#### Endoscopic Surgical Instrument Autonomous Identification (Object detection)

Jun 2021 - Mar 2022

- 1. Aiming at the problem that the key information (length and angle) is missing in the traditional bounding box recognition method of medical surgery, the arrow bounding box model is proposed to consider the real-time and information expression.
- 2. The Arrow OBB-YOLO network for predicting the arrow bounding box is constructed, and the arrow is constrained inside the bounding box by coordinate transformation.
- 3. The model's prediction performance is enhanced by the optimal expression of the arrow error(the coordinate error, the length, and the angle error). The gradient explosion problem caused by multiple solutions of atan() is avoided by rewriting the angle error function. A step-by-step training optimization method for the arrow bounding box is proposed, which significantly speeds up the convergence speed of the model.

#### **SOCIAL PRACTICE**

Intelligent robot experiment course assistant- course experiment design and classroom guidance	Sep 2021 - Sep 2023
Xinkui volunteer team leader-"Ancient city walking" cultural activities, support teaching activities	Dec 2018 - Jan 2020
President of the Intelligent Technology Association	Sep 2019 - Oct 2019

### **SKILLS & INTEREST**

SKILLS: Python/C++ Pytorch Solidworks Matlab Ros CoppeliaSim

LANGUAGE: TOEFL 83