

# Chenyu Gu

☎ +86 136 2190 3078 | @ 12011123@mail.sustech.edu.cn | 📍 Shenzhen, China

## EDUCATION

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### Southern University of Science and Technology

*B. S. in Intelligent Medical Engineering; GPA: 3.82/4.00*

Shenzhen, China

*Aug 2020 – Jun 2024*

### KTH Royal Institute of Technology

*B. S. in Electrical Engineering and Computer Science; Exchange student*

Stockholm, Sweden

*Sep 2023 – Jan 2024*

### Imperial College London

*Data Science Bachelor Summer School; Grade: B-merit*

London, United Kingdom

*Jun 2022 – Aug 2022*

## PUBLICATIONS

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- C. Gu, W. Lin, X. He, L. Zhang, and M. Zhang, “IMU-based motion capture system for rehabilitation applications: A systematic review,” *Biomimetic Intelligence and Robotics*, vol. 3, no. 2, p. 100097, 2023, doi: 10.1016/j.birob.2023.100097.

## EXPERIENCE

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### Movement analysis using IMU sensors

*Visiting Student in Intelligent Heart Technology Lab (I-HeaL)*

Stockholm, Sweden

*Oct 2023 – Jan 2024*

- Extracting gait parameters and human center of mass to explore the relationship between human movement and cardiovascular function.
- Deploy a Kalman filter for orientation estimation and calibrate the angle and direction of the IMU. Also, develop algorithms to extract gait parameters and COM.

### Motion Capture for rehabilitation

*Project leader in Brain-robot Rehabilitation Lab*

Shenzhen, China

*April 2022 – May 2024*

- Apply inertial technology and use inertial measurement unit to develop a motion capture system to recovery human motion.
- Help develop Unity visualization and design the python code for signal transmission.
- Apply the system on healthy subjects for rehabilitation exercise and evaluate the effectiveness of the system.

### Navigation system for surgeries

*Project leader in Brain-robot Rehabilitation Lab*

Shenzhen, China

*Feb 2022 – Oct 2023*

- Design a surgery navigation system consisting of an on-handle module and an on-body module, equipped with a 9-axis IMU and a gyroscope, respectively.
- Evaluate the effectiveness of the system at both the sensor and system levels.
- Our proposed system has shown effectiveness in meeting the requirements of total hip arthroplasty surgeries via direct anterior approach.

### Center of mass estimation and rehabilitation applications

*Project Assistant in Brain-robot Rehabilitation Lab*

Shenzhen, China

*Oct 2022 – Aug 2023*

- Use IMU motion capture to estimate human three-dimensional center of mass for rehabilitation application.
- Analysis human center of mass to extract the feature of human motion and perform rehabilitation assessment.

### Review on motion Capture for rehabilitation

*Researcher in Brain-robot Rehabilitation Lab*

Shenzhen, China

*Jun 2022 – Oct 2022*

- Investigate the current application of IMU inertial motion capture technology in rehabilitation and write a review.

## PROJECTS

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### **Design a prototype of a cardiopulmonary resuscitation robot**

*Project Leader*

Course Project **Grade: A**

*Apr 2023 – May 2023*

- Designed a prototype of medical robot for cardiopulmonary resuscitation.
- Finish 3D modeling the drone robot in Solidworks and design robot kinematic and control flow.

### **Road network visualization of taxi data**

*Project Leader*

Course Project **Grade: A**

*May 2023 – Apr 2023*

- Visualize the data of taxi driver of Shenzhen and analysis the taxi data.
- Finish data washing to clean the original data and extract the origin-destination data and analyze the density of taxi order and give possible urban construction plan.

### **Word representation in biomedical domain**

*Project Assistant in Imperial College London*

Summer School **Grade: B**

*Jul 2022 – Aug 2022*

- Build deeplearning model for word representation in medical field, using n-gram and skip-gram for modeling and t-SNE for visualization

## AWARDS & ACHIEVEMENTS

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(School-level) Outstanding Student Scholarship of Zhicheng College	2021, 2022, 2023
(Provincial-level) "Internet Plus" College Student Innovation and Entrepreneurship Competition	Aug 2023
(School-level) "Internet Plus" College Student Innovation and Entrepreneurship Competition	Jul 2022
(School-level) Excellent Team of "Sycamore Tree" Campus Entrepreneurship Star Competition	May 2022
(National-level) RoboMaster 2021 Mecha Master Super Competition First Prize	Sep 2021
(Top 3 in the major) "Fu Turui" Fellowship, Department of Biomedical Engineering	Oct 2021
(Top 4 of the province) First Prize of Scholarship for Freshmen	Sep 2020

## EXTRACURRICULAR ACTIVITIES

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### **South university of science and technology archery team**

*Members of School Archery Team*

Oct 2020 – Oct 2021

*Shenzhen, China*

Join the school-level archery team and organize archery training and competition activities.

### **Student Union of Zhicheng College, Southern University of Science and Technology**

*Member of the propaganda department The propaganda department of the student union.*

Sep 2020 – Jun 2021

*Shenzhen, China*

Organize various activities, such as the New Year's Eve party, Nanke Voice, etc.

## LANGUAGES

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- **Chinese:** Native speaker
- **English:** Fluent (TOEFL: 100)
- **Japanese and Germany:** Elementary