

## Education

2020/08 - 2024/06 **Southern University of Science and Technology (SUSTech)**, *Undergraduate*.

- Major / GPA: Intelligent Medical Engineering; GPA: 3.84 / 4; Rank 2 / 22.
- 2021 - 2022 Department of Biomedical Engineering “**Fortunatt**” **Scholarship**
- 2021 - 2022 SUSTech Outstanding Student Scholarships - **First Prize**

2023/02 - 2023/07 **University of Zurich**, *Regular Visiting Student*.

- Main Subject / GPA: Neuroinformatics; 5.3 / 6.

## Research Experience

2023/07 - Now **Harvard Medical School (Undergraduate Research Assistant)**, *Supervisor: Dr. Jingyuan Chen*.

- Overview: Employing metabolic (FDG-PET) and BOLD signals from the resting brain, we identify boundaries that indicate abrupt change in functional connectivity as putative boundaries of the different brain regions, and compare boundaries derived from these two methods.
- Contribution: Principle contributor of the project;

2022/09 - Now **Southern University of Science and Technology**, *Supervisor: Dr. Quanying Liu*.

- Overview: We collected calcium imaging data from zebrafish brains under various drug conditions using epifluorescence microscopy. Subsequent data analysis was performed to explore the effects of distinct drugs on neural activity across various brain regions.
- Contribution: Wrote code for preprocessing and analysis of zebrafish data.

2022/03 - 2022/07 **Southern University of Science and Technology**, *Supervisor: Dr. Quanying Liu*.

- Overview: We proposed a transfer learning framework to investigate the relationship between cognitive tasks, and compared the task relations reflected by transfer learning to that defined by task-evoked activities.
- Contribution: Analyzed fMRI data collected from *Neurosynth*; Helped with writing the paper.

## Publications, Submitted Papers and Posters

- 2023 / 07 Qu, Y., Wei, C., **Du, P.**, Che, W., Zhang, C., Ouyang, W., Bian, Y., Xu, F., Hu, B., Du, K., Wu, H., Liu, J., & Liu, Q. (2023, July). Infusing cognitive science into artificial general intelligence test. **Submitted** to Nature Human Behaviour.
- 2023 / 07 Qu, Y., Che, W., **Du, P.**, Jian, X., & Liu, Q. (2023, July). Assessing Generalization of Cognitive Tasks Using Multi Regional Modular Recurrent Neural Networks With Transfer Learning. **Poster** accepted to 5th Chinese Computational & Cognitive Neuroscience Conference.
- 2022 / 07 Qu, Y., Jian, X., Che, W., **Du, P.**, Fu, K., & Liu, Q. (2022, July). Transfer learning to decode brain states reflecting the relationship between cognitive tasks. In International Workshop on Human Brain and Artificial Intelligence (pp. 110-122). Singapore: Springer Nature Singapore.
- 2022 / 06 **Du, P.**, We, C., Ri, H., & Liu, Q. (2022, June). CT Image Segmentation of Key Organs For Nasopharyngeal Cancer Radiation Therapy. **Poster** accepted to Comprehensive Design Project Demonstration, College of Engineering, SUSTech.

## Awards

- 2022 / 07 2022 CLS-CIBR-IDG – **Merit Student of Summer School in Neuroscience**
- 2022 / 06 2022 Guangdong Biomedical Engineering Design Competition – **First Prize**
- 2022 / 05 13th "Challenge Cup" Guangdong Entrepreneurship Plan Competition – **First Prize**
- 2021 / 09 Contemporary Undergraduate Mathematical Contest in Modeling – **Winning Prize**
- 2019 / 11 Certified Software Professional-Senior (CSP-S) – **First Prize**
- 2019 / 05 The 13th Asia and Pacific Informatics Olympiad (APIO) – **Bronze Medal**

## Summer Schools and Competitions

2022 / 08 **2022 Neuromatch Academy Computational Neuroscience Summer School.**

- Overview: I studied computational neuroscience fundamentals such as reinforcement learning, leaky Integrate-and-Fire models, Hodgkin-Huxley models with my teammates. We then conducted an project on RNN and working memory, and presented our results to other teams.

2022 / 07 **2022 CLS-CIBR-IDG Summer School in neuroscience.**

- Overview: I attended various neuroscience lectures in the summer school, followed by our team's presentation on a chosen paper. I was recognized with a Merit Student Award.
- Host Institute: Chinese Institute for Brain Research; Tsinghua University; Peking University;

2022/03 - 2022/06 **2022 Guangdong Biomedical Engineering Design Competition, Supervisor: Dr. Quanying Liu.**

- Overview: We utilized a deep learning model, combining Transformer and UNet, for labeling key organs in radiotherapy CT images. Our unique pre-training approach ensured high segmentation accuracy and reduced computational cost, earning us first prize in the competition.
- Contribution: Team captain; Main developer of the model; Wrote the report.

2021/11 - 2022/05 **13th "Challenge Cup" Entrepreneurship Competition, Supervisor: Dr. Quanying Liu.**

- Overview: We developed a business plan for manufacturing intelligent brain health monitors for critically ill newborns, and won first prize in the competition.
- Contribution: Team Captain. Proposed technical ideas; Wrote business plan.

## Teaching experience

S 2021 & S 2022 **JAVA Programming A, Teaching Assistant, SUSTech.**

- **Responsibilities include:** Grading exams and assignments; Holding weekly sessions to assist students in mastery of material; Designing assignments.

S 2022 & F 2022 **Workshop on Basic Programming, Instructor, SUSTech.**

- **Responsibilities include:** Designing informal workshops to help students gain a better grasp of programming; Leading review sessions for exam preparation.

## Extracurricular Experience

2021/06 - 2022/06 **College student tutor, Shuren college, SUSTech.**

2020/08 - 2021/06 **Member of Volunteer Federation, SUSTech.**

## Language Ability

**English:** TOEFL score 106. (Reading 30, Listening 29, Speaking 24, Writing 23)

## Technical Skills

**Proficient:** JAVA, Python, Freesurfer, Matlab, C/C++, Latex, Git, Linux, Machine Learning, Pytorch.

**Working Knowledge:** MNE, SPM, Html, CSS, Tensorflow, Circuit Design, Optical Experimentation.