

WENXIN CHE | RESUME

- » **University:** Southern University of Science and Technology (SUSTech)
- » **Major:** Intelligent Medical Engineering
- » **GPA:** 3.75 / 4.0 & 91.12 / 100.0
- » **Email:** chewx2020@mail.sustech.edu.cn
- » **Languages:** English (C1), German (A1), Chinese



»»» Education

- 2023.2 ~ 2023.6 **University of Zurich & ETH Zurich**
- ✓ Regular visiting student at the University of Zurich (UZH). Learning courses from UZH and ETH Zurich.
 - ✓ **Main courses:** Computation in Neural Systems, Models of Computation, Comparative Behavioral Neuroscience, Clinical Neuroscience.
- 2020.9 ~ now **Southern University of Science and Technology**
- ✓ **Great progress in GPA:** 3.46 (first year), **3.89** (second year), **3.95** (third year).
 - ✓ Won a **first-class scholarship** (overall score ranking **top 2%**) in 2022.
 - ✓ Won a "**scientific climbing star**" nomination award in 2021.
 - ✓ **Main courses:** Machine Learning and its medical application, Artificial Intelligence, Neurobiology, Probability Theory and Statistics, Linear Algebra, Signals and Systems, Medical Image Processing, Principles of Biomedical Imaging.

»»» Certificates

2022	China College Student Entrepreneurship and Innovation Program	National - Project leader
2022	Collegiate Biomedical Engineering Innovation Design Competition	Provincial - First Prize
2021	"Challenge Cup" Entrepreneurship and Innovation Competition	Provincial - Gold medal
2021	ACM-ICPC (International Collegiate Programming Contest) Regionals	National - Gold medal
2021	CCPC (China Collegiate Programming Contest) Guangdong Province	Provincial - Gold medal
2021	ACM-ICPC Asia East Continent Finals	National - Silver medal
2021	CCPC (China Collegiate Programming Contest) National Final	National - Bronze medal
2021	Undergraduate Mathematical Contest in Modeling	Provincial - Winning prize
2020	CCPC (China Collegiate Programming Contest) for girls	National - 2nd, Gold medal
2020	CCPC (China Collegiate Programming Contest) Regionals	National - Silver medal
2020	CCPC (China Collegiate Programming Contest) Regionals	National - Bronze medal

»»» Research Experiences

- 2023.7 ~ 2023.12 **Massachusetts Institute of Technology** Supervisor: Guangyu Robert Yang
- 2023.7 ~ 2023.12
- ✓ The research is about investigating on spontaneous emergence of electromyographic (EMG) signals similarity phenomenon during the execution of motor cognition task optimization using Spiking Recurrent Neural Networks(SRNN) research models.
- 2021.7 ~ now **Southern University of Science and Technology** Supervisor: Quanying Liu
- 2022.11 ~ now
- ✓ **Assessing Generalization of Cognitive Tasks using Multi-regional Modular Recurrent Neural Networks with Transfer Learning**
 - ✓ **Methods:** we proposed a multi-regional modular recurrent neural network to simulate the cognitive processes. Here a transfer learning approach is adopted to investigate generalizability across tasks. I did the whole programming and training work.

- ✓ **Results:** Better transferability is demonstrated between cognitive tasks in the same category.
- 2022.3 ~ 2022.6 ✓ **Transfer learning to decode brain states reflecting the relationship between cognitive tasks**
- ✓ **Methods:** We propose a transfer learning framework to reflect the relationship between cognitive tasks, and compare the task relations reflected by transfer learning and by the overlaps of brain regions (e.g., neurosynth).

2022.6 ~ 2022.9
2022.6 ~ 2022.11

New York University (Shanghai)

Supervisor: Xing Tian

- ✓ **Analysis of non-suicidal self-injury patients based on resting-state EEG signals**
- ✓ **Methods:** I completed the whole process of data analysis based on resting EEG signals on NSSI (non-suicidal self-injury) patients. Signal analysis methods include source estimation analysis, frequency analysis, functional connectivity analysis on weighted-PLI, and the linear regression of the functional connectivity in certain brain regions and medical diagnosis scores.
- ✓ **Results:** Some brain regions with higher activation values in NSSI patients than those of healthy people have been found.

Publications and posters

- ✓ Che W[†], Qu Y[†], Du P, Jian X, Liu Q. *Assessing Generalization of Cognitive Tasks using Multi-regional Modular Recurrent Neural Networks with Transfer Learning*. Chinese Computational and Cognitive Neuroscience Conference, Beijing, poster: June 2023.
- ✓ Che W[†], Du P[†], Huang R[†]. *Image segmentation of key organs for nasopharyngeal cancer radiation therapy*. Annual Project Demonstration of Southern University of Science and Technology, Guangdong, poster: June 2023
- ✓ Qu Y, Jian X, Che W, Du P, Fu K, Liu Q. *Transfer learning to decode brain states reflecting the relationship between cognitive tasks*. International Workshop on Human Brain and Artificial Intelligence, Singapore, conference paper: July 2022.

Under Review:

- ✓ Infusing cognitive science into artificial general intelligence test facilitates evolution and safety of large models

Skills & Interests

- ✓ Excellent programming ability based on languages, including Python, MATLAB, C++, and Java.
- ✓ Machine learning
 - ✓ Knowledge about machine learning models, deep learning models, especially the recurrent neural networks (RNNs), spiking neural networks (SNNs) and transfer learning models.
- ✓ Neural imaging principles and programming analysis:
 - ✓ EEG (Electroencephalogram) signal analysis based on software MNE, including source estimation, frequency analysis and functional connectivity.
 - ✓ Basic MRI (Magnetic Resonance Imaging) signal analysis based on software Freesurfer.
- ✓ Other interests:
 - ✓ Cooking, travelling, and try new things!
 - ✓ Playing the piano and ocarina.

Social work and extracurricular activities

- 2020.9 ~ now **Student reporter of News Department of SUSTech**
 - ✓ Up to now, three articles have been read by more than **ten thousand** people, and some other articles are also popular.
- 2020.9 ~ now **The monitor of the Intelligent Biomedical Engineering class**
- 2022.7 ~ 2023.4 **Participate in the enrollment of new students' work of the school recruitment team**
 - ✓ Up to now, I have introduced our school to over **1,500** new students and helped the admissions team with Q&A's.