Shu Gong

School of Biological Sciences
Georgia Institute of Technology
Email: shu.gong@gatech.edu

Phone: (404) 203-9305
URL: https://shu-gong.github.io/
Last Update: Mar. 2024

EDUCATION

Georgia Institute of Technology 08/2022 – Present
- **Ph.D. Student** in the Interdisciplinary Graduate Program in Quantitative Biosciences
- **M.S.** in Electrical and Computer Engineering

Sichuan University, China 09/2017 – 06/2021
- **B.S.** in Software Engineering (Computational Biology Track)

University of Essex, UK 07/2019 – 09/2019
- **Summer Fellow** in Deep Learning

PUBLICATIONS

S. Gong, K. Xing, A. Cichocki and J. Li, "Deep Learning in EEG: Advance of the Last Ten -Year Critical Period," in **IEEE Transactions on Cognitive and Developmental Systems**, DOI: 10.1109/TCDS.2021.3079712.

RESEARCH EXPERIENCE

Deep Learning / Neuromechanics 11/2023 – Present
Advisor: Gregory Sawicki gregory.sawicki@me.gatech.edu Georgia Institute of Technology, USA
- Building data-driven muscle models using deep learning

Medical Robotics 01/2022 – 08/2022
Advisor: Hesheng Wang wanghesheng@sjtu.edu.cn Shanghai Jiao Tong University, China
- Built image-guided surgery software for a bronchoscope robot and uploaded all code in GitHub.
- Integrated algorithms of robot motion planning, VSLAM, 3D reconstruction, control, and kinematics.
- Coded in C++, modified thousands of lines of code in an Open-Source software.
- Worked closely with experts in various robot subdomains such as planning, VSLAM etc.

Deep Learning / Neuroscience / Robotics 02/2021 – 10/2021
Advisor: Zhengtuo Zhao zhaozt@ion.ac.cn Institute of Neuroscience, China
- Performed electrode-implantation neurosurgery on mice, built a signal acquisition system to collect their neural signals and motions, and analysed the data from mice using deep learning models.
- Wrote a Unity3D program, developed a 3D simulated mouse, and used C# to reconstruct the activities of the electrode-implanted mouse to 3D simulated mouse in realtime.
- Coded an iOS program using Swift to help transmit neural signals of patients to their mobile phones.
- Designed (SolidWorks), manufactured (3D Print & CNC), and assembled (cameras with light modules+ step motors + Arduino) a precise automated neurosurgery robot.

Deep Learning / EEG 04/2020 – 02/2021
Advisor: Wei-Long Zheng wzheng8@mgh.harvard.edu Harvard University, USA
- Conducted research on the multitask learning and EEG based emotion recognition & person identification.
- Extracted spatial, temporal and frequency features of EEG signals from public datasets.
- Trained multitask learning models on cross-session and cross-subject EEG data.
- Compared the performance of multitask learning methods and traditional machine learning methods.

Deep Learning / EEG 07/2019 – 09/2019

Advisor: Junhua Li junhua.li@essex.ac.uk University of Essex, UK

- Read and summarized scientific papers that were published in the past 10 years on the topic of deep learning in EEG signal processing.
- Composed a review paper as the first author.

PROFESSIONAL SERVICES

Regular Journal Reviewer

- IEEE Transactions on Neural Networks and Learning Systems

KEY SKILLS

Programming

- Excellent: Python/Pytorch (data analysis and deep learning) and C/C++ (Linux)
- Good: Matlab (data analysis)
- Fluent: C# (3D animation) and HTML/CSS/JavaScript (web)

Software

- SolidWorks (3D modeling), Adobe Illustrator (scientific drawing), Unity3D (3D design)

Language

- Native in Chinese
- Fluent in English: TOEFL 101 (L 20, R 29, W 28, S 24)

RESEARCH INTEREST

Neuromechanics, Deep Learning, and Machine Learning