Chenyu GAO

Website: chenyugoal.github.io
E-mail: cgao17@jhu.edu

Education

Johns Hopkins University, Baltimore, MD, USA
M.S.E. in Biomedical Engineering Sept. 2020- Present

- Track: Imaging & Medical Devices
- Courses:
  - Medical Image Analysis (A)
  - Neuro Data Design I/II (both A^+)
  - Neural Implants and Interfaces (A^-)
  - Advanced Data Science for Biomedical Engineering (A)
  - Structure and Function of the Auditory and Vestibular Systems (B)
  - Introduction to Computational Medicine: Imaging/The Physiome (both A)

Sun Yat-sen University, Guangzhou, GD, China
B.Eng. in Biomedical Engineering Sept. 2016- Jun. 2020

- Track: Translational Cell & Tissue Engineering
- Courses (selected):
  - Biomaterials and Drug Delivery (91/100)
  - Tissue Engineering and Regenerative Medicine (91/100)
  - Biosensors (91/100)
  - Mechanics for Medical Engineering (95/100)
  - Numerical Analysis and Biomedical Computing (92/100)
  - Cell Biology (90/100)
  - Programming Language (90/100)

Research & Projects

Course Projects of Advanced Data Science for Biomedical Engineering
Supervisor: Dr. Brian Caffo Mar. 2021- May 2021

- Build a Shiny App for bird recognition using ResNet-50 pretrained on ImageNet.
- Create an online dashboard to visualize COVID-19 data of selected countries.

Multimodal Brain Tumor Segmentation and Survival Prediction
Supervisor: Dr. Jerry L. Prince Apr. 2021- May 2021

This is the final project (II) of *Medical Image Analysis*. We implemented a 3D Multimodal U-Net with sparse annotation, and a Cascaded Anisotropic Convolutional Neural Networks for brain tumor segmentation, respectively. Based on the segmentation result, we extract Radiomics

features and predict on the survival time of patient using regression tree ensembles. Please find more details in my website.

Neural Decoding for Patient with Upper Limb Paralysis
Supervisor: Dr. Gene Y. Fridman Apr. 2021- May 2021
Inspired by the experiment of Elon Musk's Neuralink, where the monkey could play video games with its brain, we implemented two algorithms, the Long Short-Term Memory Networks, and the Kalman Filter for decoding the neural activities of the primary motor cortex of monkey.

Progressive Learning: A Potential Algorithm for Lifelong Learning Machines
Neuro Data Design in Biomedical Engineering at Johns Hopkins
Supervisor: Dr. Joshua T. Vogelstein Aug. 2020- present

- Compare the performances of random-forest-based/deep-network-based lifelong learning algorithms on audio and fine-grained image classification tasks. (notebook)
- Examine the backward and forward transfer efficiency of Progressive Learning across datasets, i.e., from Birdsnap to Aircraft. (notebook)

Publication

[1] arXiv:2004.12908 [cs.AI]

Coding Skills

- Proficient: Python
- Intermediate: R
- Beginner: C++