柳宇轩

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学习经历

上海交通大学 生物医学工程学院

- 核心学积分：**93.01/100** 核心GPA：**4.05 /4.3**
- 专业排名：**1/72**
- 英语水平：CET4-617 CET6-589
- 辅修：数学与应用数学 辅修学积分：94.43/100 辅修GPA：4.24/4.3

科研经历

《基于深度学习方法的冠状动脉血流自动评估》（2019.06-2020.06）

- 利用深度学习方法，采用U-net网络对冠脉造影进行血管骨架分割提取
- 通过图像后处理计算血管长度，通过长度变化计算血流速度
- 实现了分割、提取、计算三个不同的任务，实现了自动量化冠脉血流速度

《基于深度学习方法的心动周期分类和定量评估》（2020.04-2020.10）

- 利用深度学习方法，采用U-net、Resnet、Conv3d等不同网络对收缩期和舒张期的冠脉造影进行分类
- 通过收缩期和舒张期之间的时间序列关系自动计算心动周期以及收缩期和舒张期持续时间，并进行定量评估
- 实现了心动周期分类和定量计算两个不同的任务，并加入了时间序列性的考虑，为冠心病早期诊断提供了自动检测的方法

《基于第一人称视角的人体三维姿态估计及步态分析》（2021.03-至今）

- 相比于第三人称视角，第一人称视角可通过可穿戴相机灵活采集，帮助实时对患者的康复过程进行监测与干预
- 通过深度学习的方法，实现对单一第一人称视角下的RGB图像的人体关节点直接提取，重建三维人体姿态
- 通过对提取到的关节点进行分析评估来指导患者康复过程的诊疗，尤其对于下肢的关节点和患者步态进行分析，对肌骨系统损伤和神经系统退化等疾病的早期诊断、日常辅助以及康复评估有重要意义

获奖情况

- 奖学金：两次国家奖学金（前1%） 唐立新奖学金（前2‰） 两次上海交通大学A等优秀奖学金（前1%）
- 学科竞赛：全国大学生数学竞赛（非数学组）全国一等奖 大学生建模竞赛上海市二等奖
- 其他：上海交通大学优秀学生干部 上海交通大学优秀团干部 社会实践先进个人 社会实践优秀项目奖

学生工作/兴趣爱好

- 上海交通大学学生联合会主席团成员（2020.11-至今）
- 上海交通大学生物医学工程学院团委学生联合会执行主席（2019.11-2020.11）
- 钢琴八级、手风琴十级，校钢琴协会核心成员

Yuxuan Liu

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EDUCATION BACKGROUND

School of Biomedical Engineering Shanghai Jiaotong University

- Major grade：**93.01/100** Major GPA：**4.05/4.3**
- Major ranking: **1/72**
- English proficiency：CET4-617 CET6-589
- Minoring：Mathematics and Applied Mathematics Minor grade：94.43/100 MinorGPA：4.24/4.3

RESEARCH EXPERIENCE

"Automatic Evaluation of Coronary Blood Flow Based on Deep Learning Method"
(2019.06-2020.06)

- Based on the deep learning method, U-net is used to segment the vessels and extract the skeleton
- Calculate the blood vessel length, and get the blood flow velocity based on the change of length
- Realize segmentation, extraction and calculation three different tasks to estimate the coronary blood flow velocity

"Classification and Assessment of Cardiac Cycle Based on Deep Learning Method"
(2020.04-2020.10)

- Based on the deep learning method, U-net&Resnet&Conv3d are used to classify the systole and diastole
- Automatic calculation of the cardiac cycle using the relationship between the systole and diastole
- Realize the classification and assessment of the cardiac cycle and provide diagnostic methods for heart diseases

"3D pose estimation and gait analysis based on egocentric camera" (2021.03-now)

- Compared to the third person view, egocentric view is more flexible to collect human information and more helpful to monitor and intervene in real-time rehab process.
- Based on deep learning method, we predict the joints position and human pose from the egocentric RGB images.
- Use the information we get for early detection and rehabilitation evaluation for patients with musculoskeletal or neurological disorders

AWARDS

- Scholarship：National Scholarship(1% twice) Tanglixin Scholarship(2‰) Rank A Scholarship(1% twice)
- Competition：First prize of the Mathematics Competition Second prize of modeling competition in Shanghai
- Others：Outstanding Student Leader Outstanding League Cadres Advanced individual in social practice

STUDENT WORK/HOBBY

- Member of presidents of student union of SJTU (2020.11-now)
- Executive president of student union of School of Biomedical Engineering (2019.11-2020.11)
- Piano eight-level, accordion ten-level, core member of school piano association