Biomechanics

This is my current research project, where I mainly handle in stimulating a few running models for evaluating running biomechanics in terms of kinematics, kinetics, muscular activation, etc.

Eventually, those analyses will be presented via graphical diagrams.

Using those running models, I am also in charge to assess the effects of wearing hard and soft cushion pads of shoes respectively while running.

The effects will be assessed in the aspect of biomechanics as well, by analysing the changes in the runners’ kinematics and kinetics.

I have also been analyzing the differences in running patterns between Western and Asian people.

Since this is an ongoing project, it is unfortunate of being unable to publish any more detailed information online.

Medical Imaging

Although it is quite seldom to publish the assignment work as a part of his/her portfolio as student, the reason I want to present this is that this assignment is quite interesting and meaningful from my perspective.

It was the assignment of Medical Imaging subject at my university, where I have been instructed to generate perfusion maps according to the Pulse arterial spin labelling (ASL) kinetic model.

After generating the perfusion maps, a comparison was performed to diagnose the patient’s health.

The important Matlab code is shown as follows:

This can be done by inserting the subject’s perfusion map of each frame into the kinetic model algorithm.

On the perfusion map, according to the colour bar, the colour warmness shows a linear relationship with the amount of blood delivered to the tissue per unit of time and per unit of volume. This indicates that the redness area shows higher blood flow as compared to others which are relatively dull or bluey.

Discord Bot

During the last COVID-19 pandemic period, the lock-down situation caused my friends and I very often in chit-chatting on Discord. We talked everything. But in order to make our “talk room” more enjoyable and interesting, I decide to help my friends in creating a Discord bot that can plays Youtube’s and Bilibili’s music. Special thanks to the creators of “yt-dlp” Python library (<https://github.com/yt-dlp/yt-dlp>) and the “freeCodeCamp.org” Youtube tutorial (<https://youtu.be/SPTfmiYiuok>) for assisting and guiding me on how to make this Discord bot.

Some important code is shown as following (<https://replit.com/join/rorwmbavex-aniviaice>):

Do notice that there are some rude words when it comes to reply some error messages to users, but there is a special design upon requested by my chit-chatting friends. Although it may seem lack of some certain extends of unprofessionalism, but creating a product according to users’ preferences is also a core responsibility for me as an engineer as long as they do not conflict with any ethical issues.

FFmpeg

When I have a spare time, I would do some work on adding some subtitles on videos using ffmpeg. As an anime lover, I love to collect and keep the anime I watched. However, most of the time, the anime I downloaded are without subtitles. Thus, some work is required to embed subtitles into anime in the manner of soft-coded. The comment for embedding is shown as follows:

Using FFmpeg is a much faster and easier way to embed a subtitle into video, by just writing a particular code to terminal, instead of using a video editor software.

Hello everyone, my name is [Your Name], and I am a Biomedical Engineer with a passion for bionics, biocomputing, artificial intelligence, biomechanics, and video quality engineering. I am also interested in game development and have experience using Unreal Engine and Unity.

As a Biomedical Engineer, I have gained knowledge and skills in various areas, including medical imaging, biomechanics, and signal processing. I am particularly interested in the field of bionics, where technology is used to augment or replace human body parts. I believe that combining my expertise in biomedical engineering with my interest in bionics can lead to the development of life-changing technologies that can improve the quality of life of people with disabilities.

In addition to my academic background, I am also proficient in programming languages such as Python and C++, which I use in my work as a video quality engineer. I am skilled in analyzing video quality, bit rate, pixels, and image quality for every frame of a video, and I have a strong understanding of video compression algorithms.

I am excited to be part of this community, and I look forward to connecting with like-minded individuals and learning from others.

Welcome to my mini world! Here I would show what I’ve done and what I’m doing right now. I am an optimistic person, love to travel, adventuring and also taking challenges. I'm a biomedical engineering student, passionate and proficient on bionic, biocomputing, artificial intelligence, biomechanics, python, C++, and also making games at Unreal Engine and Unity, good in video quality engineering. In the aspect of biomedical engineer, compared to others, I deeply acknowledge that I am a week, rookie, useless and an inability person, but I strive and continue to learn and advancing myself in term of knowledge, so that I such a weekly person, has an opportunity to make an impact to the world.