

Stephanie Mullins Senior Design Self-Assessment

During these past two semesters, I was working on an audio and video based Just Dance/karaoke game. My individual contribution to this project was doing the video component. I implemented a pose estimation library to successfully have the camera pick up on a human and then draw their body using dots for the joints and then lines connecting the dots to create a stick figure of the person. Based off of the initial assessment last fall, I have gained more knowledge and built upon my skills of computer vision and how to process images that are being brought in. In order to complete what I have done with our project, I used MediaPipe and OpenCV to get the video feed from the laptop and then process the images from the video to identify a person using a pre-trained human detection model then using image processing to detect the joints and limbs of a person.

I learned a lot upon my computer vision skills doing this project. Before this project, my only computer vision skills were from my first co-op almost 4 years ago. I liked coming back to this skill and enhancing it before I end my college career. I learned more image processing and machine learning skills through MediaPipe's library and also gained more experience with website building doing frontend and backend. My successes during the whole project was staying on top of my workload and not procrastinating too much and also getting the libraries to work flawlessly with each other. From there, everything was smooth as it could be with development. I also successfully created a pose method that works for our project and use case. Some obstacles I overcame were getting the video feed with the pose estimation as close to real-time as I could. I had to employ some different coding methods and really look through the documentation for the libraries I was using to optimize the workflow and get a real-time video output with all the processing necessary.