# **REFLECTION.**

The animation system used in the assignment is a hierarchical one, which is very useful to learn how the most complicated animation systems as skeletal works. It is just the first step to know more and to practice with timers, interpolations, transformations and blendings between steps.

It is true that if you want to make a complex game like an “AAA” it is going to be impossible to have success using this system, as it is very artificial, but for practicing and even for simple games or without physics, can be very useful, as it’s not very hard to be programmed and the results are not bad.

In one hand, the assignment and the engine that I am using is completely oriented to 3D, where the skeletal animations are the best in my opinion, as they look natural, because of the simulated physics, the constraints and the bone weights, but in the other hand, I am thinking about including a 2D simple system, to be able to make simple games, or even to use this frameworks to make menus and GUI, that’s why I have liked a lot this job, because it has allowed me to practice many separate things such as transformations, rendering, tweenings, hierarchy, etc.

The approximation of the animations that I have made is not bad for being the first time that I make anything similar, but for the next time I will try to improve some aspects, such as making them more generic, as they can only be used with the robots and their concretes bone structures.

The main objective that I have for this year is to have an engine able to render 3D models parsed from “fbx” files, as these format is very complete to render PBR and animations (which I will try to make skeletal for the 3D framework and hierarchical or by different sprites for the 2D).

The worst point I find in this animation system, is about the physics and collisions, as I don’t know how this hierarchy can be managed to make for example that if you crash with a collider, any of the bones can enter inside so they move separately and ignoring temporarily the animation associated.

The hierarchical system of these animations is not only used by the bones, as if we open our mind, can be used too for the node system of an engine, or for many other aspects where the recursion and the heritage can be useful.

In conclusion I am very happy with what I have learned with this assignment, and definitely will use these concepts in the future for improving my knowledge in graphic programming, trying to base my 2D animation system on a hierarchical one and the 3D on a skeletal one with weights and constraints.