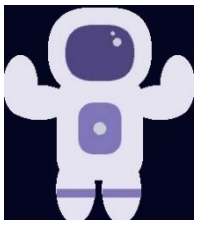
*Suus van Gogh, 2022*
*Challenge 2, creative programming*
*Industrial Design, TU/e*

# *Reflection creative programming*
## *Challenge 2*

For challenge 2 of creative programming we got the assignment to create a creative and interactive demo using Arduino/Teensy and processing. I decided to work with the Arduino, since I already had experience with Arduinos from high school. Until the assignment I didn't have any experience with creating an interactive demo. However, with the knowledge from the lectures I already felt quite secure with the topic.

I approached the challenge by brainstorming about different interactive designs. It seemed fun to me to create my own game, so I started brainstorming about different game ideas. Since I did challenge 1 in 2D, I wanted to create something in 3D for challenge 2. I did this so I could broaden my knowledge and I would have experience with processing in 2D and 3D after the course. I came up with the idea to create a 3D scene with an astronaut who needs to avoid planets.
I worked on challenge 2 in small steps as showing a planet, let a single planet move and connecting the Arduino. Working in 3D was a lot harder than I expected it to be so I had many struggles while working on my project. However working in small steps helped me to get to my final code.



In the beginning of the project I created an astronaut in 2D, which you can see in the image, but I hadn't thought about the fact that I should be able to detect intersection between the astronaut and the planets. This was hard and didn't work out in the end because the astronaut isn't a simple shape to work with. After this I tried to replace my cursor with the astronaut but apparently you can't connect a joystick to the cursor, so this wasn't an option either. This ended in replacing the astronaut for the earth.

It was a huge learning experience for me that I should do research in how to realize an idea before immediately starting off. If I had done my research on for hand, I would have known that it wasn't an option to use the astronaut. This would have saved me a lot of time.
So after this I started doing research about working with processing in 3D and other existing games in 3D. This helped me to understand games in 3D and how it works with moving camera positions. I also asked someone as a test player for my game, every time I added some new features I asked him to play the game, so I could get feedback. Getting feedback from an end user was a new learning experience for me.

I also had trouble with printing 2D text in a 3D sphere. It took me way more time to figure this out than expected because the text wasn't visible on the screen. I ended up in making the text 3D so I could make sure it was placed in front of the planets. To learn more about programming in 3D I asked some help from a fellow student and this really helped me. I also watched many YouTube videos about Processing in 3D. With the help of the YouTube videos and the help I got in the lectures I figured it all out.

I had already learned pretty much about processing in high school but classes were still new for me. At first, I didn't really understand it, so I asked for help in the lecture. With this help

and with YouTube videos it became clearer to me. I started to understand that classes can make your code cleaner and that it can be very useful in multiple situations. I ended up creating multiple classes for my game because it was useful to create the planets. I think learning about classes was important for me because this will be something I can use many times in future projects.

For me it was the first time working on an interactive design, so it was all very new to me. While working on this project I realized that I liked game design on multiple aspects. I have always liked creativity and aesthetics, but I never processed it in a game design before. I really like this because in an interactive design you have even more design options. You can play with, for example, movements and the speed of objects. I also really liked the 3D space with designing the planets because you can work with lighting and it looks more realistic. But I didn't only like the creative aspect while designing the game. I also think making sure the program was working and connecting my code with a joystick was interesting. I didn't know it was an option to connect an Arduino to a processing code before challenge 2. I think you can create nice interactive designs with the combination of these two very quickly. Therefore, I would like to create more of these designs in the future.

Some of the insights I had in the first half of the course also helped me in the second half. I found out sketching was a good way to visualize ideas. This helped me with programming in 3D even more because the x, y and z axes became clearer to me. Another important learning point was that it isn't a bad thing to take a step back. It helped me to take a small break and come back to it with a fresh view. It was sometimes frustrating if things didn't work out but eventually it was all necessary to get to the end results.

Overall, I look satisfied back at challenge 2 and at the course creative programming in general. I have learned many new things about working in 3D and about interactive design. Because of the course I defined myself more as a designer: I found out I like the combination of being creative and programming. I would like to develop myself further on this combination in the future.