

# Project Log

Sean

January 27, 2025

## Introduction

This document contains the log of activities and hours spent on the individual project for the course individualProject for Avans.

In this course the student needs to make a project that incorporates the graphical card to do some calculations. The student needs to use OpenGL or OpenCL to do this.

## Goal

The goal for this project is to use openCL to make a fluid simulation where water can be defined in a square space and the graphics card then calculates how the water flows. The focus first will be to make this in 2 dimensions. If this is done and there is time left the project will be expanded to 3 dimensions.

## Log of Activities

### 1. Read brightspace and init project

- **Activity** Read the brightspace course
- **Activity** Setup code environment
- **Activity** Setup git repository
- **Activity** Write template for this log

### 2. Google what is OpenCL

- **Activity** Read OpenCL landig page
- **Activity** Read What is OpenCL

### 3. Google openCL tutorial

- **Activity** Found getting started linux and followed part of tutorial with own knowledge to see if my envirement on new arch linux is working correctly.

- **Activity** Installed openCL headers
- **Activity** Followed Arch wiki to install openCL
- **Note** First program did not work. Had to google around and after rereading Arch wiki found I also had to install opencl-cover-mesa package instead of only openc-nvidia.
- **Note** Added user to the video group using "sudo usermod -aG video sean", not sure if this was necessary

#### 4. Trying to use c++

- **Activity** Found OpenCL-CLHPP and looked at the example
- **Founding** Saw I have to add extra find package to my cmakeLists (OpenCLHeaders, OpenCLICDLoader and OpenCLHeaderCpp)
- **Activity** After searching and trying things for about an hour and nothing working I remembered I can just add the raw hpp file to my project and use it that way.

#### 5. Search and follow basic tutorial of openCL

- **Activity** Found and followed Simple start with OpenCL and C++
- **Note** In the tutorial a device is selected. At first there was no known device. After searching and testing for about 45 minutes, the problem was that I did not restart my computer....

#### 6. Searching for fluids simulator c++ tutorials

- **Findings** Found two videos which might help me. But How DO Fluid Simulations Work? and Coding Adventure: Simulating Fluids
- **Findings** First thing in the second video is how to draw a circle. As I am programming in c++ first have to search how to actually show something on my screen.

#### 7. Searching for c++ graphics libraries

- 

## Hours Spent

#	Activity	Hours
1	Read brightspace and init project	1
2	Google what is OpenCL	0.5
3	Google openCL tutorial	1
4	Trying to use c++	1.0
5	Search and follow basic tutorial of openCL	1.0
<b>Total Hours</b>		4.5

## Results

- Learned the basics of OpenCL.
- Understood how to use OpenCL for parallel computing.