Graphics programming – home exam 2

You will in this home exam implement a particle system using three.js.

Description of exercise

You will in this exercise implement a particle system using three.js. You choose the specific type of effect that is to be achieved yourself.

You can read about general particle systems from Wikipedia (link below) and look at demo videos from YouTube for inspiration. Example effects include dust, snow, fire, and water.

https://en.wikipedia.org/wiki/Particle_system

You can achieve particle effects using various operations on point primitives. Look at the examples for points from three.js.org for how to work with points in three.js:

https://threejs.org/examples/

The effect should look as realistic as possible.

Evaluation

The purpose of this exercise is to use a high-level library to achieve a complicated, realistically-looking, effect. You can in this exercise use all features from the three.js library, but you are not allowed to use three.js-related code (like shaders) from other sources. It should be clear that you alone implemented the effect. Relevant code examples from https://threejs.org/examples should be referred to in the report.

Evaluation is based on the visual quality of the effect, the description of the solution, and the level of realism that is achieved. It is expected that the solution is grounded by physical laws.

Requirements

The program must run successfully on modern Internet browsers with default settings. The local files security policy of the browser will be switched off, so that local files can be loaded. Please test your solution on either Google Chrome or Safari. The effect must be implemented with three.js and all external code related to the 3D graphical parts of the program must come from the official version of the three.js library.

Delivery

You answer must be a ZIP document with two folders:

- REPORT. This folder must include a PDF document containing your report. The word limit of this report is 3 000 (meaning 10 % more than this is OK, but not more). It is expected that you include relevant code snippets, since the examiner will not typically read the source code in detail.
- SOLUTION. The source code of the solution. The examiner will run this web application locally on a Windows or macOS computer.