

## Report 1: Algorithmic obstacle avoidance

*Please note: When writing, think of your audience not as one of the tutors of the lab course but as a scientifically trained researcher who is not familiar with the details of the lab course.*

### Introduction

Explains the problem that is being solved and the context in which it arises.

Explains the approach you used to solve the problem. This is a description on an abstract, conceptual level, without going into technical details.

### Methods

Explains how the solution was technically implemented. Here, this should include all parts of the system (i.e., sensors, odometry, your own algorithmic choices) that are not been explained in the other report. How does it work? Be precise and concise. Use this section to show us that you understand what your program does. Employ illustrations in figures, and mathematical equations to help your writing. Including equations is easy in  $\text{\LaTeX}$ :

$$E = mc^2. \quad (1)$$

Make sure to explain variables and terms in equations; for example, in Equation 1,  $E$  is energy,  $m$  is the mass of an object, and  $c$  is the speed of light.

If you would like to use a code snippet to explain something, do so like this

---

```
n = 10
f = n
while n > 1:
    n = n-1
    f = f*n
```

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But reduce this to the minimum—if possible, go for equations rather than code.

Choosing which parts to explain is a delicate balancing act and requires that you understand which parts of the code are trivial and which are vital in solving the given problem. Not describing vital parts of your solution here will lead to a deduction of points.

Make sure to cite external sources, for example citing Einstein (1905) for his work on general relativity.

### Results

Use this section to show us that your code works and solves the problem. Make sure to include plots whenever it is helpful and describe what the plots show. Describe your observations of experiments and explain them.

Use figures like Figure 1 to bring across your point.

## Discussion

Use this section to answer theoretical questions that are not covered in other sections and ask for more conceptual thinking.

### References

Einstein, A. (1905). Ist die Trägheit eines Körpers von seinem Energieinhalt abhängig? *Annalen der Physik*, 323(13), 639-641. doi: 10.1002/andp.19053231314

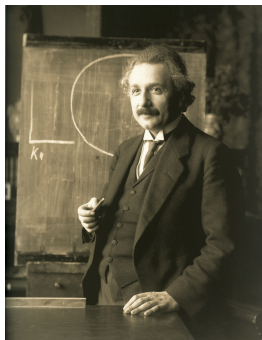


Figure 1. Albert Einstein (1879–1955)

## Figures

Figures *do not* count into your page limit. Please place all of them at the end. Whenever you use a figure, refer to

it in the text. In most cases it is fine to let  $\LaTeX$  handle the placement of figures. By default, they will be placed at the top or bottom of a page so that it fits best with the rest of the document.

## Feedback

Feedback *does not* count into your page limit. How much of a challenge was the problem for you? What was the most challenging part? How challenging was the writing?

(This section is not required but helpful for us. It will not be graded, but much appreciated!)