

# Understanding and motivation for machine learning in ADAS (Part 2)

This is a survey for the University of Applied Sciences Neu-Ulm course "ADAS (*Advanced Driver Assistance Systems*)".

This survey is part of the bachelor's thesis "Maschinelles Lernen - Förderung von Verständnis und Motivation durch anwendungsorientierte Jupyter Notebook Lernprogramme"

This survey is being carried out to identify changes in motivation and knowledge.  
There are 19 questions in this survey.

## Demographical Data

Please select your gender

Please choose **only one** of the following:

☐ Female

☐ Male

Please enter your age. \*

❗ Only an integer value may be entered in this field.

Please write your answer here:

I am

years old

I took part on all zoom sessions \*

Please choose **only one** of the following:

☐ Yes

☐ No

## Intrinsic Motivation Inventory

Please choose the appropriate response for each item:

## Interest and Ejoyment:

Please choose the appropriate response for each item:

\*

Please choose the appropriate response for each item:

	1 (very true)	2	3	4 (somewhat true)	5	6	7 (not at all true)
I enjoyed doing this activity very much	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I thought this was a boring activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This activity was fun to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would describe this activity as very interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This activity did not hold my attention at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how true the following statement is for you.

## Perceived Competence

Please choose the appropriate response for each item:

\*

Please choose the appropriate response for each item:

	1 (very true)	2	3	4 (somewhat true)	5	6	7 (not at all true)
I think I am pretty good at this activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with my performance at this task.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This was an activity that I couldn't do very well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think, I did pretty well at this activity compared to other students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how true the following statement is for you.

## Effort/Importance

Please choose the appropriate response for each item:

\*

Please choose the appropriate response for each item:

	1 (very true)	2	3	4 (somewhat true)	5	6	7 (not at all true)
I tried very hard on this activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I didn't put much energy into this activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how true the following statements are for you.

## Pressure/Tension

Please choose the appropriate response for each item:

\*

Please choose the appropriate response for each item:

	1 (very true)	2	3	4 (somewhat true)	5	6	7 (not at all true)
I felt pressured while doing this activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was very relaxed in solving this task.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt very tense while doing the activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how true the following statements are for you.

## Perceived Choice

Please choose the appropriate response for each item: \*

Please choose the appropriate response for each item:

	1 (very true)	2	3	4 (somewhat true)	5	6	7 (not at all true)
I did this activity because I wanted to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I didn't really have a choice how to solve the task.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did this activity because I had to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I could solve the task in my own way.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how true the following statements are for you.

## Value/Usefulness

Please choose the appropriate response for each item: \*

Please choose the appropriate response for each item:

	1 (very true)	2	3	4 (somewhat true)	5	6	7 (not at all true)
I think this is an important activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think doing this activity is useful for my further studies of Information Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe this task could be of some value to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doing this activity could help me to understand the principles of programming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how true the following statements are for you.



## Relatedness

Please choose the appropriate response for each item: \*

Please choose the appropriate response for each item:

	1 (very true)	2	3	4 (somewhat true)	5	6	7 (not at all true)
I would like a chance to interact with code in the Jupyter Notebook environment more often	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt close to the code in the Jupyter Notebook environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would prefer not to interact with code in the Jupyter Notebook environment in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt really distant to the code in the Jupyter Notebook environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how true the following statements are for you.

## Interactivity

Please choose the appropriate response for each item:

\*

Please choose the appropriate response for each item:

	1 (very true)	2	3	4 (somewhat true)	5	6	7 (not at all true)
I think the non-interactive prerecorded video lessons helped me to understand the content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think the interactive zoom lectures helped me to understand the content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think the Q&A/tutorial session helped me to understand the content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how true the following statements are for you.

## Computer Vision

## Computer Vision - Image Classification

Please put the stages of image classification in the right order.

\*

❗ All your answers must be different and you must rank in order.

❗ Please select at most 5 answers

Please number each box in order of preference from 1 to 5

Examine and understand data (images)

Prepare and preprocess the input

Create the model

Train the model

Test the model with new data (images)

## How does convolution help in machine learning (in particular: image classification)?

Please choose the correct statements.

\*

❗ Check all that apply

Please choose **all** that apply:

- ☐ Convolution is used for **edge detection**
- ☐ Convolution is used for **noise reduction**
- ☐ Convolution is a part of **perceptrons**
- ☐ Convolution is used for **training weights**
- ☐ Convolution is **not used for computer vision tasks**

## Name at least one filter kernel that is primary used for edge detection?

\*

Please write your answer here:

**Name at least one ADAS feature that is dependent on (or using) computer vision.**

\*

Please write your answer here:

ADAS = Advanced driver-assistance system

## Artificial neuronal networks

### Perceptrons

Name the main elements of a **single layer perceptron?**

\*

Depending on the grouping, there may be 4 or 5 possible answers.

If you want to leave a field blank, fill in a " - ".

## Keras layers.

What kind of Keras layer do you use for perceptrons?

\*

❗ Choose one of the following answers

Please choose **only one** of the following:

- ☐ Dense layer
- ☐ Conv2D layer
- ☐ MaxPooling layer
- ☐ Dropout layer

Which two major effects of filter kernels does a CNN use for image classification?

\*

❗ Check all that apply

Please choose **all** that apply:

- ☐ Feature extraction
- ☐ Construction of hierarchical features
- ☐ Assignment to classes
- ☐ Individual pixel recognition

Please provide a short answer.

## **Multilayer perceptrons (MLP) and Convolutional Neural Networks (CNN).**

What machine learning model would you choose for image classification? MLP or CNN?  
Explain briefly in your own words.

Please write your answer here:

Thank you for participation!

13.06.2020 – 10:11

Submit your survey.

Thank you for completing this survey.