26.04.22

OPENCAMPUS.sh

Machine Learning With TensorFlow

INTRODUCTION TO TENSORFLOW PART I

- Quiz
- Assignments
- Breakout Discussions
- Questions
- Projects

QUIZ

https://forms.office.com/r/GYtygvr1kU

ASSIGNMENTS

ASSIGNMENTS: WHO WILL PRESENT NEXT?

BREAKOUT DISCUSSIONS

- The second exercise was a multi-class classification.
  - Where in the model creation and compilation process can we see this?
  - What could you change in the model architecture to improve

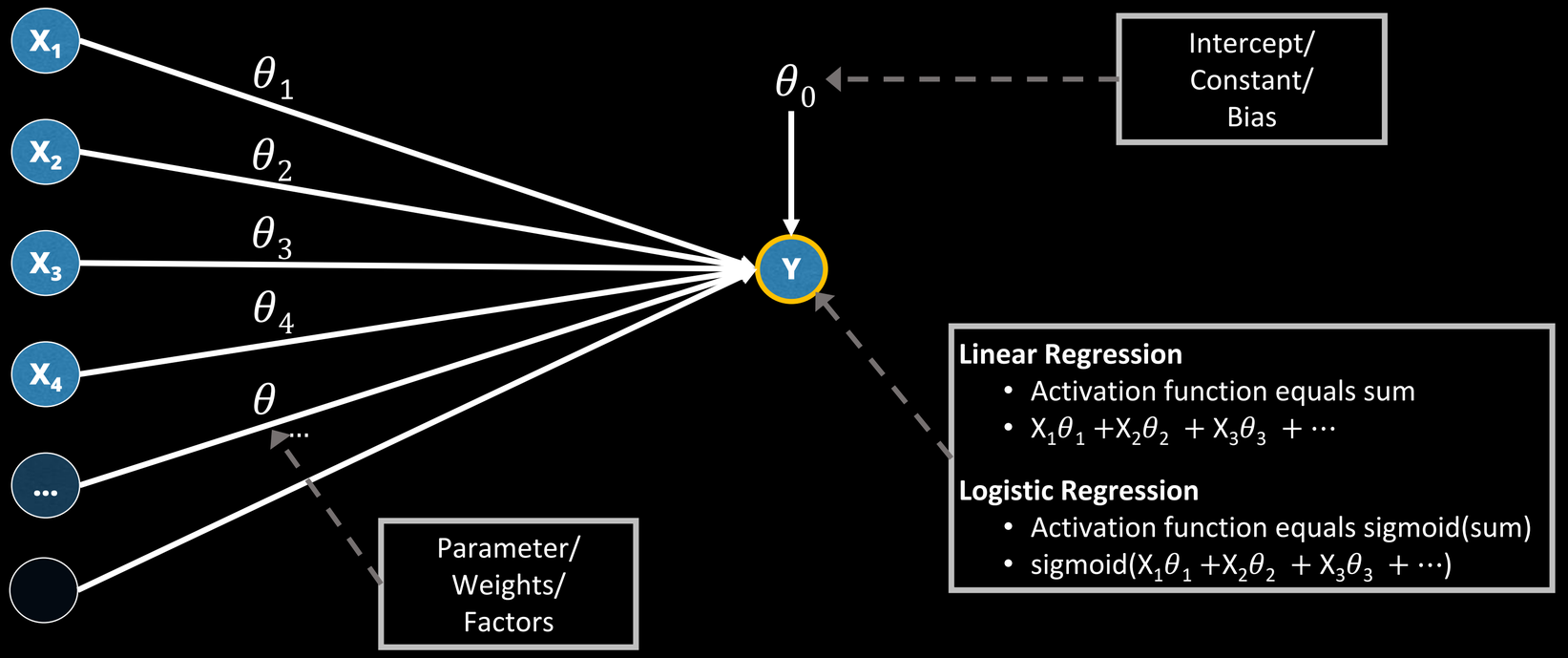
```
# Build the classification model
model = tf.keras.models.Sequential([tf.keras.layers.Flatten(),
                                    tf.keras.layers.Dense(128, activation=tf.nn.relu),
                                    tf.keras.layers.Dense(10, activation=tf.nn.softmax)])
```

- Why is it usually beneficial to adjust the features and labels of the network to values between 0 and 1 or at least relatively close to zero?
- What is the difference between the approach used in Exercise 1 and a linear regression?

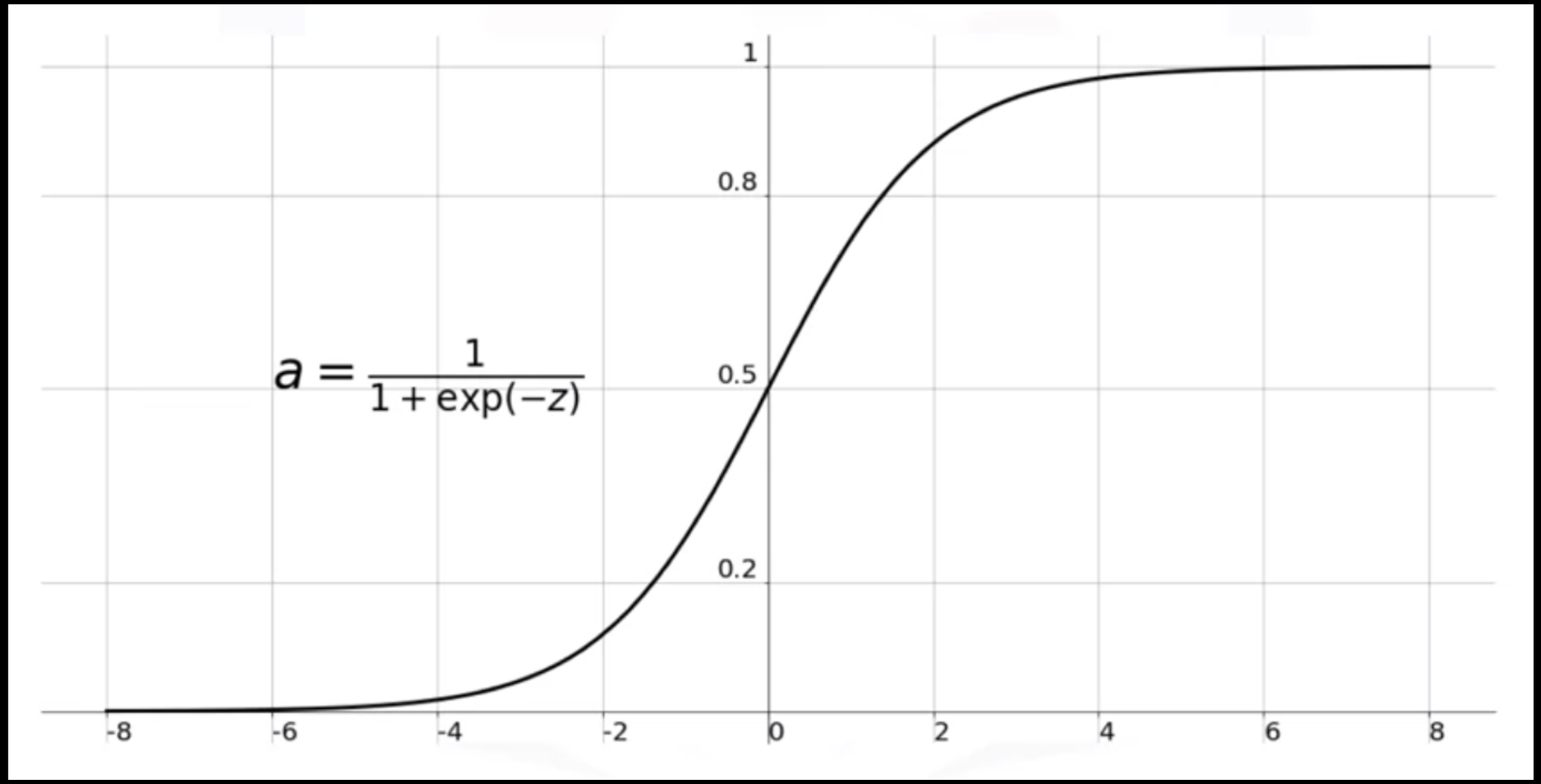
NEURAL NET VS. REGRESSION

Input Layer
with input variables/ input features/ input dimensions

Output Layer
summarizing the thetas by applying an *„activation function“*



SIGMOID FUNCTION



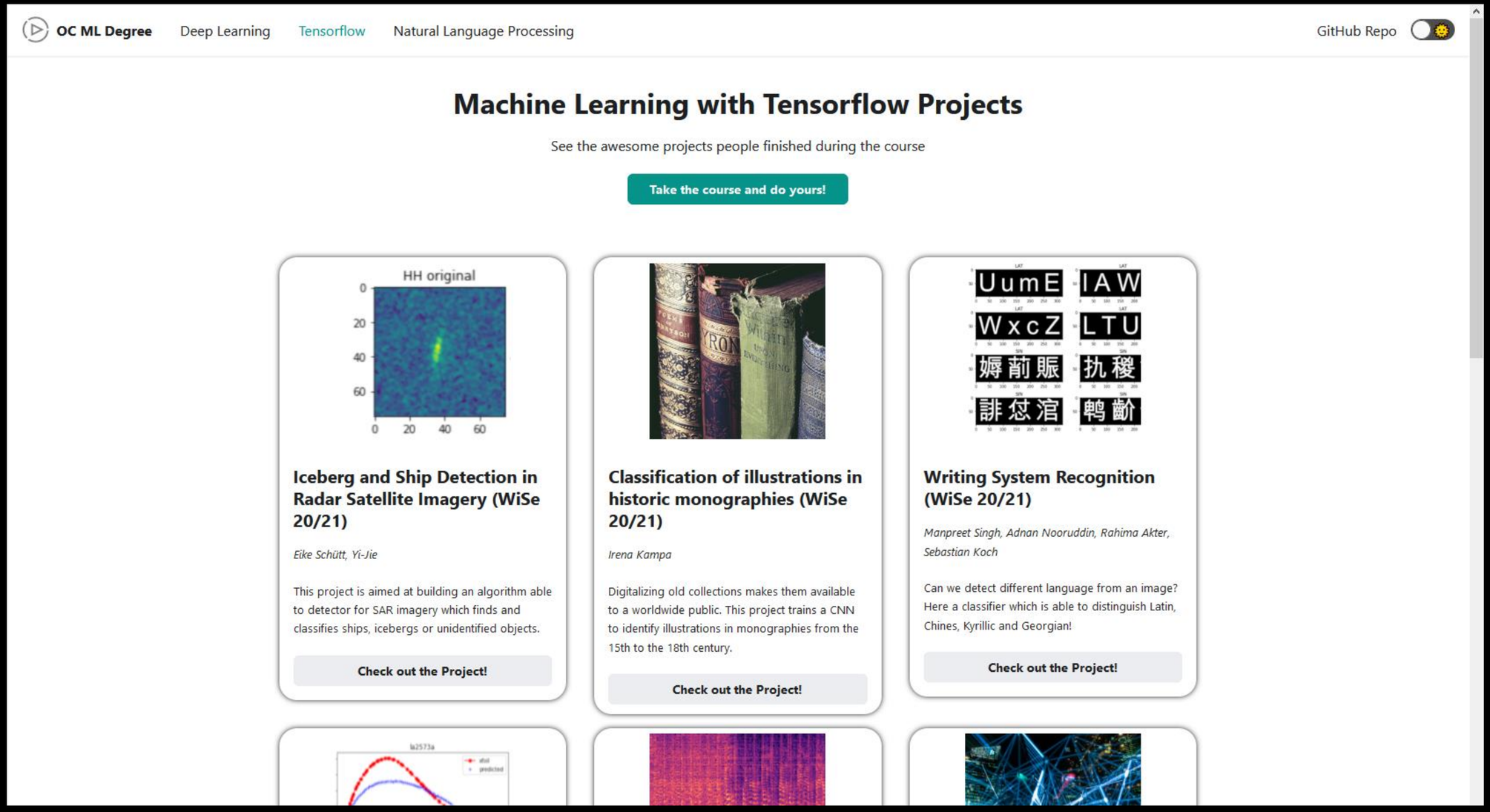
BREAKOUT DISCUSSIONS

- Assume you have the labels 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 describing the age of a product in years and features like color, noise, and speed of the product (which change with the age).
  How would you define the output layer of your model?

PROJECTS

- If you have a project idea, please create a chat channel with Steffen and Jan to pitch your idea so that we know about it and can discuss feasibility/issues
- Next week: All project ideas are pitched

PROJECT EXAMPLES



https://opencampus-sh.github.io/oc-ml-projects/

PROJECTS: MILESTONES

- 10.05. Form groups
- 17.05. Literature review
- 24.05. Dataset characteristics
- 07.06. Baseline model
- 14.06. TensorBoard
- 21.06. Model & model evaluation
- 28.06. Project presentations

TASKS UNTIL NEXT WEEK

- If you have a project idea: Let Steffen and Jan know
- Completion of the learning material of week 3 and 4 of the course "introduction to TensorFlow“
- Complete Exercises 3 and 4 of the above course