# State of AI Report (Benaich/Hogarth)

## EXERCISE DSI-01:

## Reserve at least 30 min and read the latest "State of AI Report!" (Benaich / Hogarth)

## Write me 3 paragraphs of 3 points you found interesting or got stuck in your mind.

1. Its interesting that AI is capable of beating world class players in videogames, concerning that a game can be played in almost unlimited sorts of ways. Especially the technical breakthrough of a ML system called AlphaStar caught my attention. I think its interesting that DeepMind’s developers followed an approach in which they iteratively improved and refined their agents. The first agent is trained by supervised learning on human games. The second iteration includes many agents which compete against each other. In the last iteration the best strategies out of individual agents are combined by “Nash Averaging” and result in a final agent.
2. I think its interesting that AI even found its uses in fundamental areas like farming. Especially the “Running Chicken” program by JD.com, shows how AI can contribute to our society. Aim of the program is to fight poverty in Chinese farming regions by offering jobs to local farmers and provide healthy food for consumers. AI in this program is used in various ways like automatic feeding, watering and waste removal. For example, the chicken’s health is monitored by the AI system to ensure the best quality and life standard of a single chicken.
3. Also, the potential of AI in the medical area is impressive. Especially the research concerning brain activity. Researchers at Columbia measured neural activity of 5 different patients. With these results and the help of a vocoder, their AI system achieved 75% accuracy in detecting single digits. Also, research in this area could be used to restore the communication of paralyzed patients.

## EXERCISE DSI-02:

## Make up your own example of a machine learning task with a binary classification with your own numbers. Like e.g. recognizing skin cancer. Calculate precision and recall.

A ML system which predicts the outcome of a coin flip.

Trained on 100-coin flips dataset, “T” =Tails, “H” =Head

Evaluated on 20-coin flips/predictions:

True positives (TP): 10 (heads, heads)

False positives (FP): 2 (tails, heads)

True negatives (TN): 5 (tails, tails)

False negatives (FN): 3 (heads, tails)

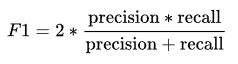


Precision = 10 / (10 + 2) = 0.833

Recall = 10 / (10 + 3) = 0.769

## EXERCISE DSI-03

## What is the F1 measure of your example? (real calculation needed here).



F1 = 2 \* ((0.833 \* 0.769) / (0.833 + 0.769)) = 0.7992