OVERVIEW OF AI AND THE CHALLENGES WITH IPR

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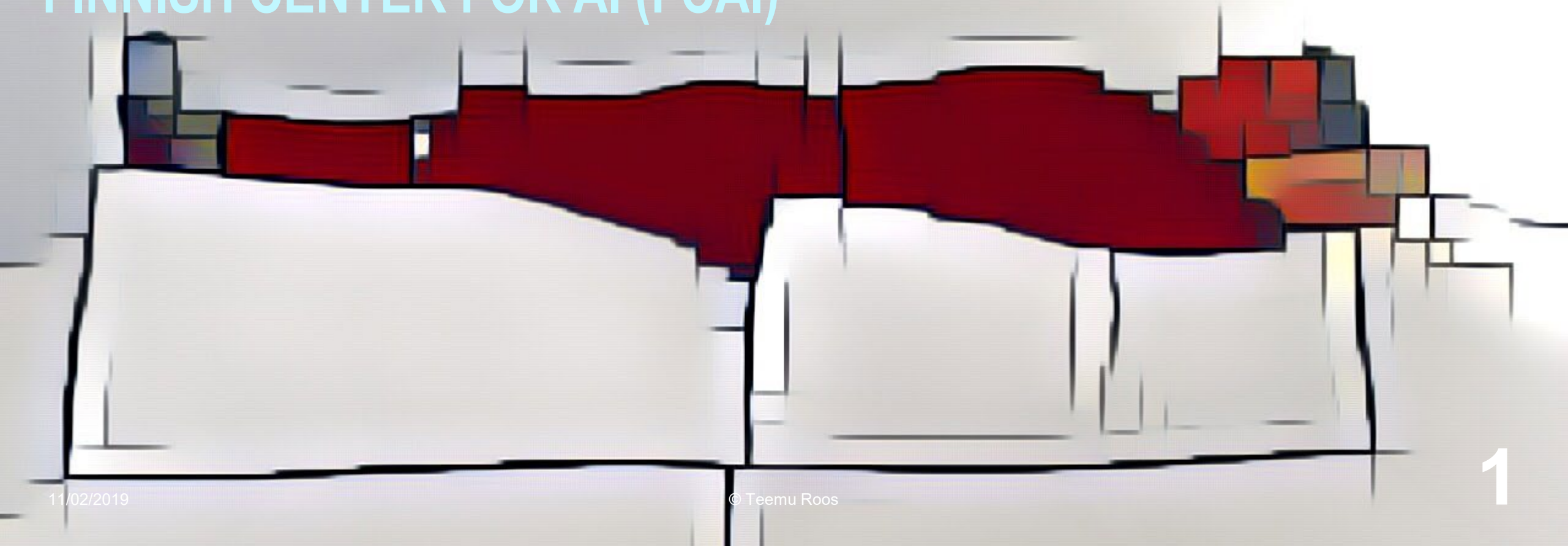
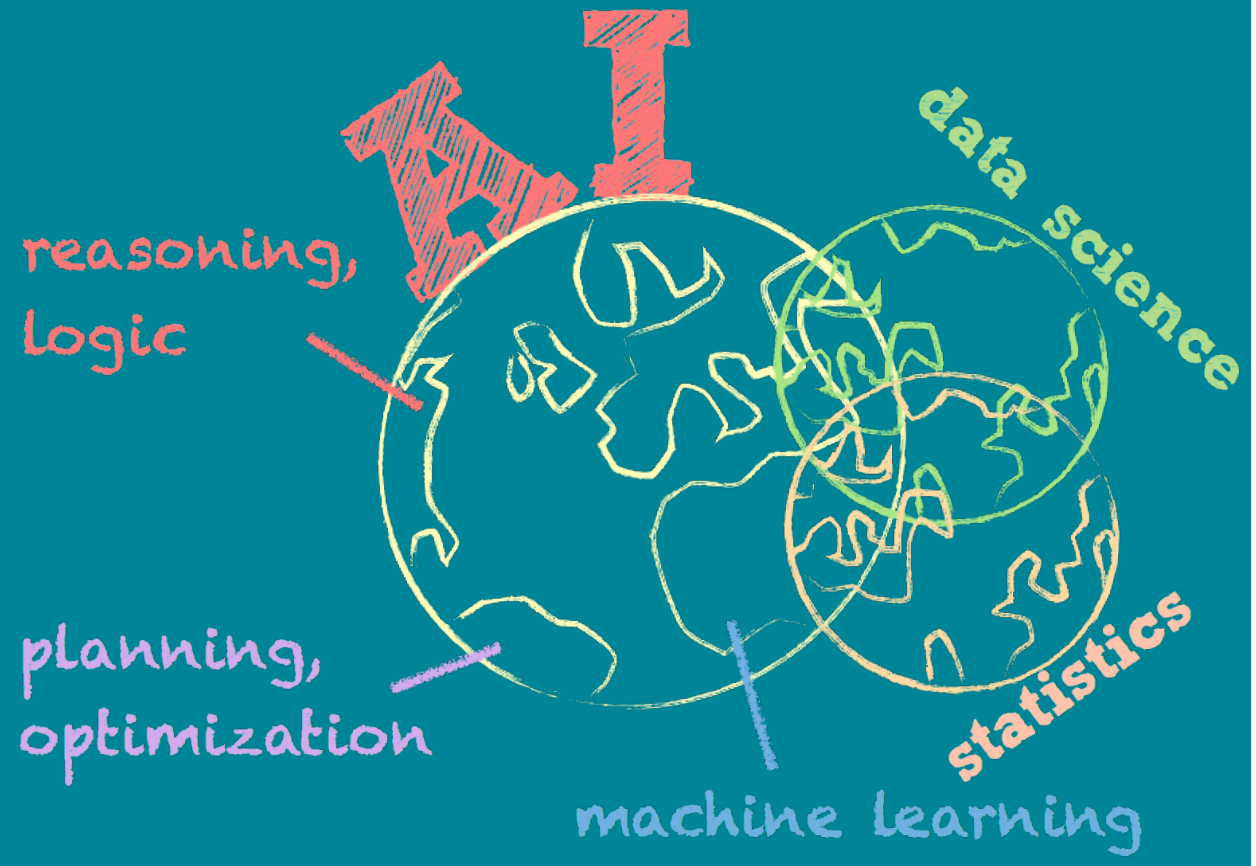




AI, MACHINE LEARNING, DATA SCIENCE

- marketing: say “AI”
- rectruiting: say “machine learning”
- implemeneting: say “linear regression”

AI

- AI = cool things that cannot be done by a computer (yet)

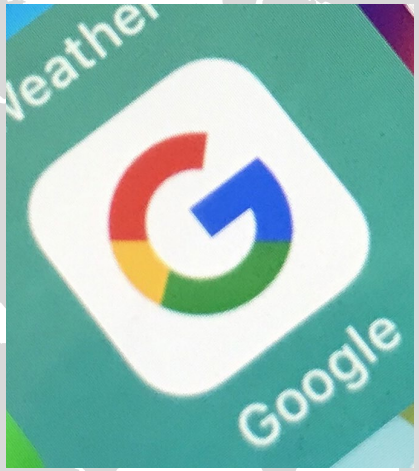
- ”Artificial Intelligence refers to systems that display intelligent behaviour by analysing their environment and taking action — with some degree of autonomy — to achieve specific goals.” (*European Commission Communication ”Coordinated Plan on AI”,* 7.12.2018)

- machine learning =
algorithms that improve their performance in a given task when more data becomes available

MACHINE LEARNING

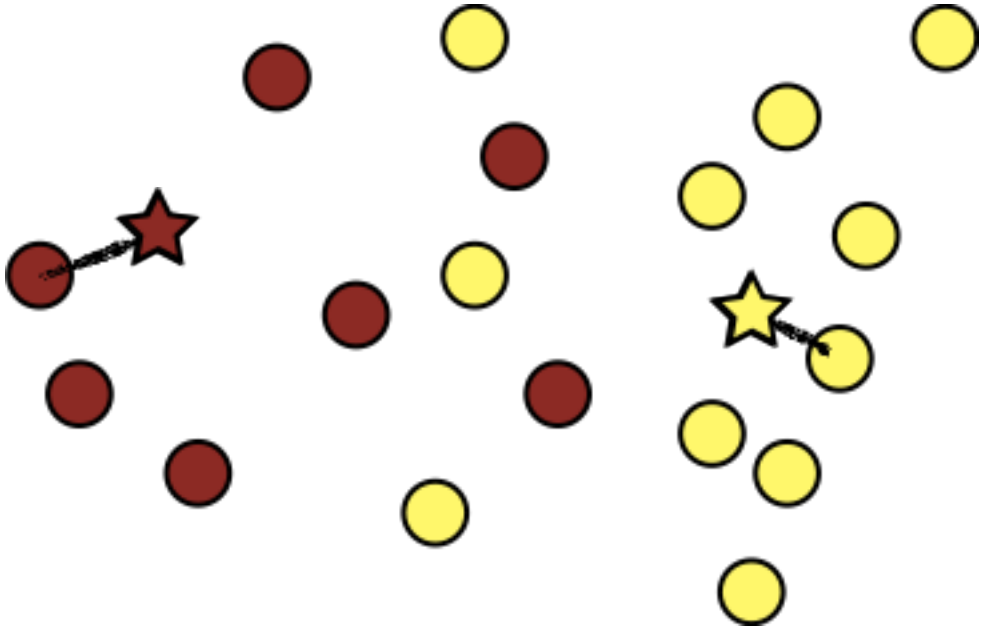
- What is machine learning such a hot topic right now?
  - implementing AI solutions by “hard-coding” rules manually turned out to be infeasible (especially “common sense”)
  - we have plenty of data available (“big data”)
  - we have plenty of computing power

MACHINE LEARNING



CLASSIFICATION

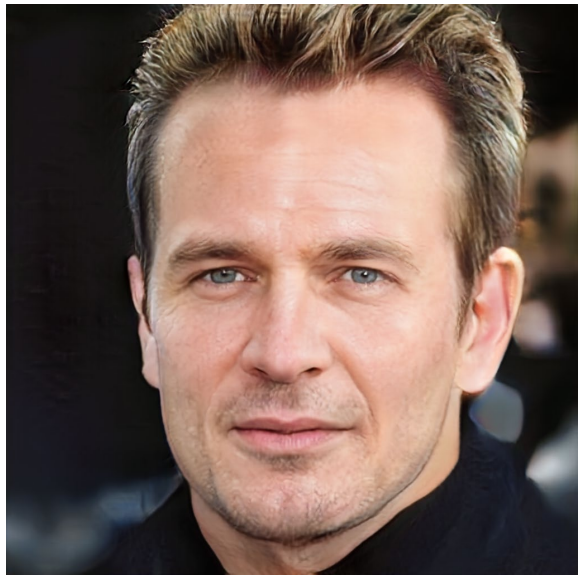
- Nearest neighbor classifier
  - the simplest possible classification method
  - hard to beat!
  - ...but needs lots of data
  - ...and then becomes very slow



EXAMPLE: GENERATIVE MODELS

- It is possible to ”train” a model to reproduce more similar objects (images, text, music, ...)
- Requires only **examples of objects**

  – examples courtesy of Jaakko Lehtinen (Aalto University & NVIDIA)

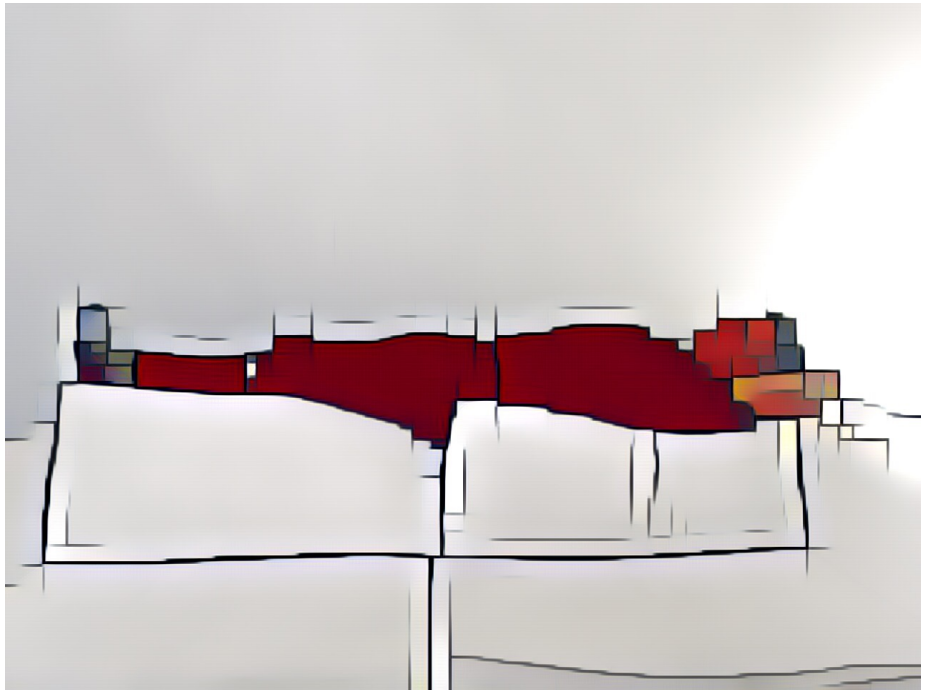


EXAMPLE: STYLE TRANSFER

- It is also possible to train a model to reproduce the ”style” (statistical properties that characterize the appearance) and to transfer a given image into the given style
- Requires **an example of the style** and **a source image** to be transferred

original: E. Roos, 2018

Prisma.app



style: ”Mondrian”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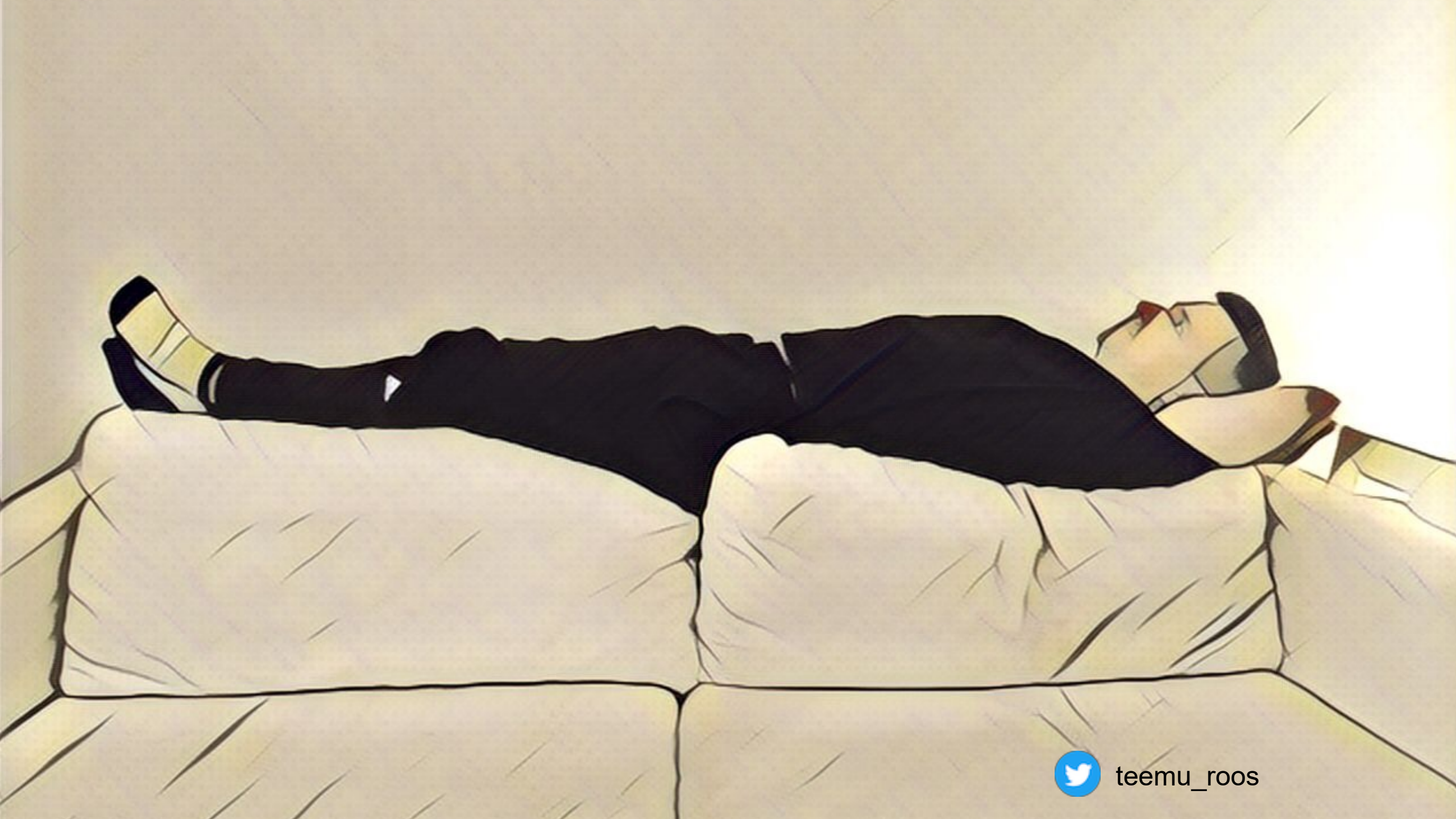
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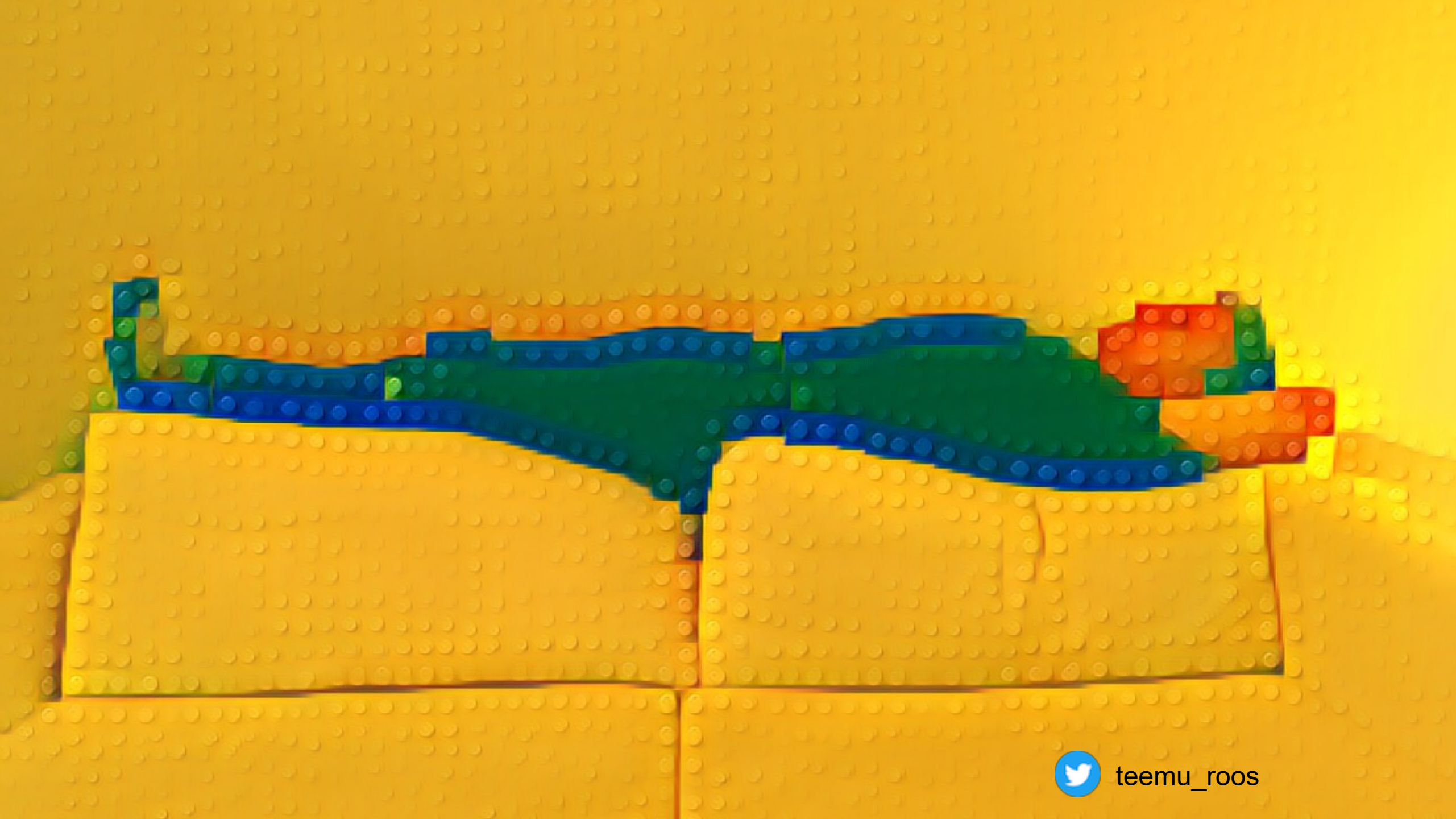
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A MODEL FOR SHARING IPR

- Who owns the IPR in the case of AI-generated content?

- AI? **No!** AI is a set of tools, not an entity that can be creative or have any rights or responsibilities

- Individuals and organizations that significantly contribute to the creation of a work have rights:
  - the designers and programmers of the system
  - the data providers
  - the user

- Incentives must exist to ensure that each party obtains the rights, in proportion to the extent of their contributions

CONCLUSION

My (bold?) conclusion is that AI will NOT disrupt IPR law.

further reading:

- R.M. Ballardini, K. He, and T. Roos (2019), Digital distribution of AI-generated content: Authorship and inventorship in the age of artificial intelligence, in T. Pihlajarinne, J. Vesala, and O. Honkkila (editors), *Online Distribution of Content in the EU*, Edward Elgar Publishing Ltd.