

Robotics and Artificial Intelligence in Agriculture

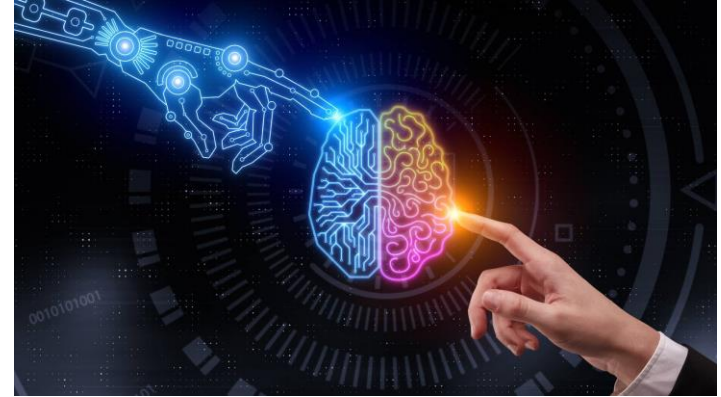
Research for robotics and AI in agriculture – biodiversity and agroecology

2021-06-17 Ard Nieuwenhuizen



AI in agriculture – state of art

- Current usage – state of art
- Artificial intelligence, deep learning
- Extending the eyes and feel of farmers
 - Disease, pest and weed detection
 - Crop growth monitoring
 - Yield and weather forecasting



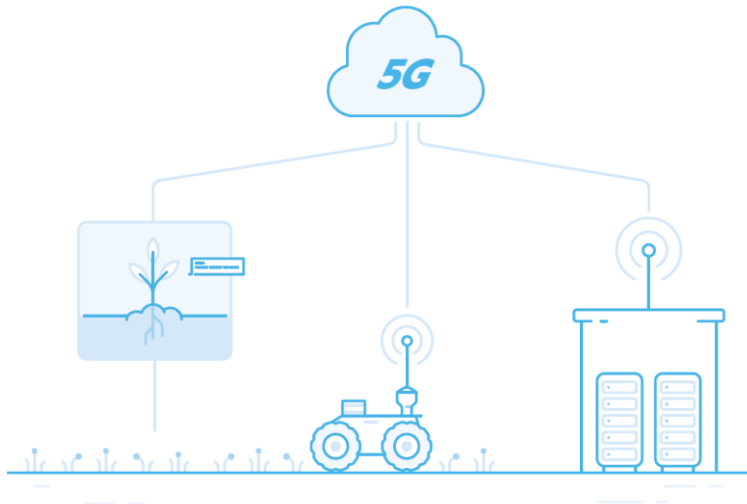
<https://www.documentarytube.com/articles/a-few-words-about-artificial-intelligence-what-is-it>

Data collection – no data no AI



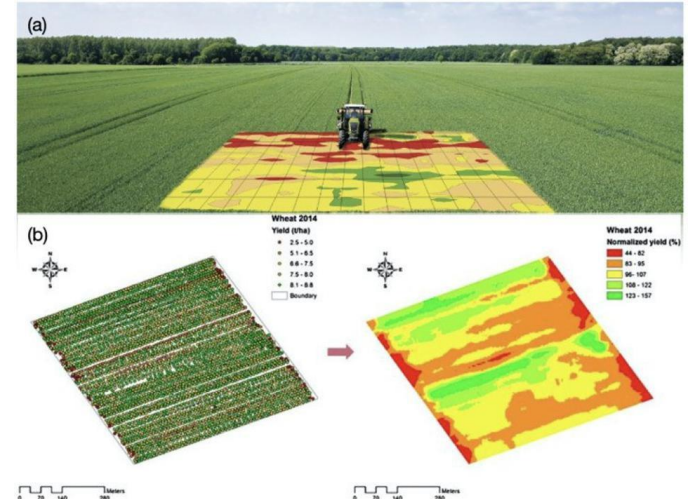
Deep learning – connectivity – AI in the edge

- Weed detection, disease detection
- Smart algorithms enable new applications.



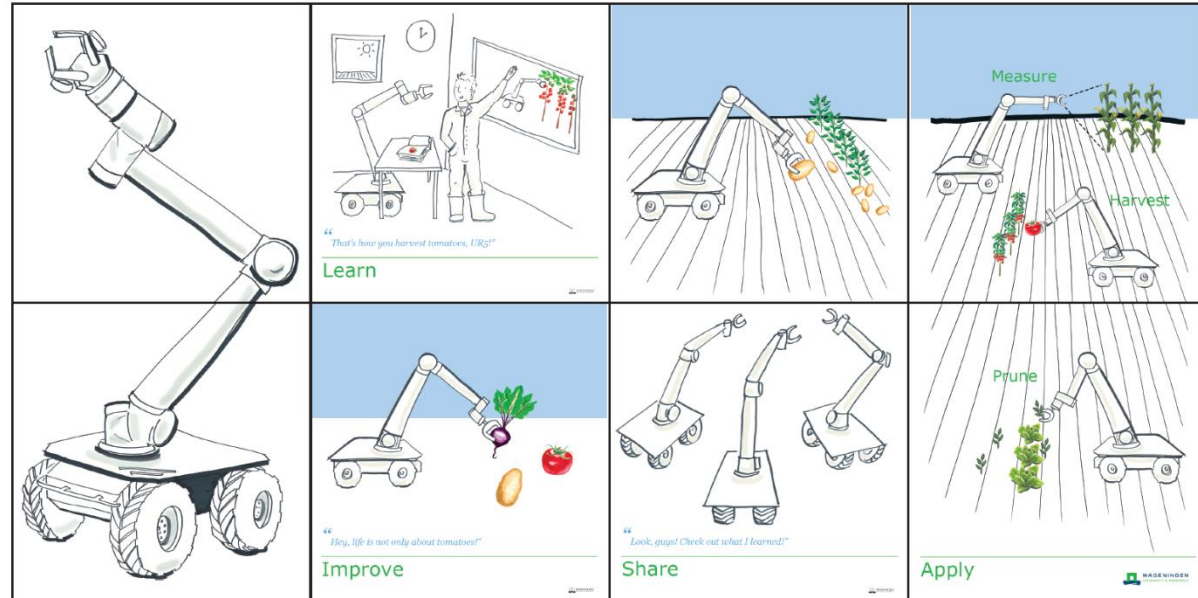
New farming systems for increased agroecology

- Arable farming is largely soil condition and weather dependent
- Steering in the process is possible to a limited extent
- Agroecology and biodiversity challenges



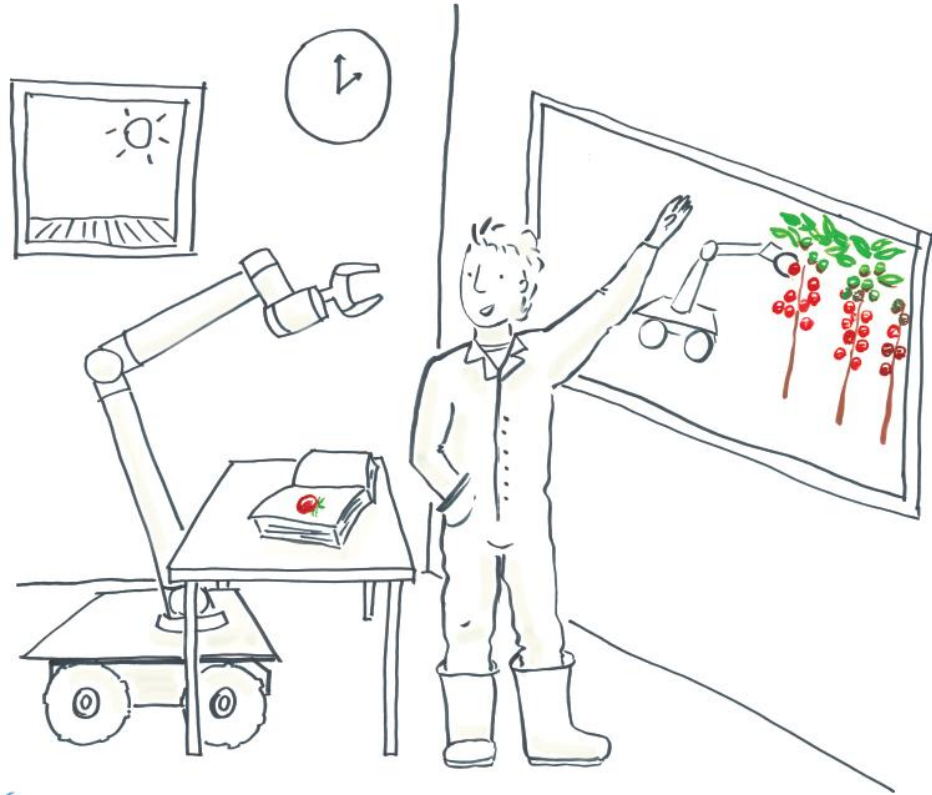
Roadmap for cooperating robots and AI

- Sense, learn, think, act
- Learn, improve, share, apply
- Data driven learning
- Digital twins



Approach

- Learning from Demonstration



“
That's how you harvest tomatoes, UR5!”

Courtesy Robert van de Ven

Questions or feedback?

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<https://www.wur.nl/en/Research-Results/Projects-and-programmes/Agro-Food-Robotics.htm>

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