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# Why Software Engineering

## *In Terms of the opportunities and flexibility:*

- To work in many different industries and fields, as nearly all businesses use software. Whether you enjoy:
  - finances,
  - entertainment,
  - sports,
  - real estate, or some other industry,
- There's a good chance there are jobs for software engineers.
- Almost all companies are tech companies right now, they need highly skilled software engineers.

## *In terms of real life skill:*

- Problem solving and teamwork:
  - Approach
    - Understanding and defining the problem entirely.
    - Break the large problems into smaller problems for the ease of solving.
    - Then starting with planing and solving the problem at an abstract level.

## *In terms of knowledge:*

- Understanding programing, softwares, security and much more is also a huge gain.

## *In terms of future path:*

- The future looks promising, ie softwares will be the main foundation of a well functioning society:
  - E-Government - programmed government and encrypted election systems
  - Robotics - handling supply chains and manufacturing and automation.
  - Financial Industry - Blockchain or some other tech we have not discord yet. More trustworthy.

## *And much more.*

# Aspects of Computer Science

We can say - All aspects of computer science are really crucial and important for the next big technology, next outbreak, or the next discovery:

But Personally and at this moment:

- AI seems really encouraging. Because it is insanely helpful in automation which the world desperately needs right now.
- Big Data - data processing machines
- Biology \* AI - DNA manipulation
- Agriculture \* AI - Simulation and automation of farmlands. #Microsoft

And much more ...



## Aspects of Computer Science

#995785580

“

**Machine intelligence** is the last invention that **humanity** will **ever** need to make.

*Nick Bostrom*



Isabella



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## How can one create an *impact* as a software engineer

- So we have discussed, Softwares are everywhere so if one would like to create an impact, there is huge variety of fields to get involved into.
- Currently we have many problems that needs to be solved in society right now.
- Or we can say things to improve

So I would say that question is wide and If I could consider it personally

- As a software engineer you have to understand your role in the company/field and how the software your team builds benefits the consumer in the end. Another way to make an impact is by improving the efficiency of your team.

## Thesis Project Plan Topic



***... is about “Machine learning for plant disease diagnostics”***



# Agriculture in Sweden

- Yearly production value 60 000 000 000 SEK
- Low economic productivity < 100 SEK (10 €) / hour  
Production value is diminishing  
Costs for inputs (machinery, fertilizers etc.) are growing
- Investments except in machinery quite negligible  
Limited financial support compared eg. with forestry and transports
- Climate impacts - emissions from inputs & animals, resilience
- Precision farming since many years



## About the research topic

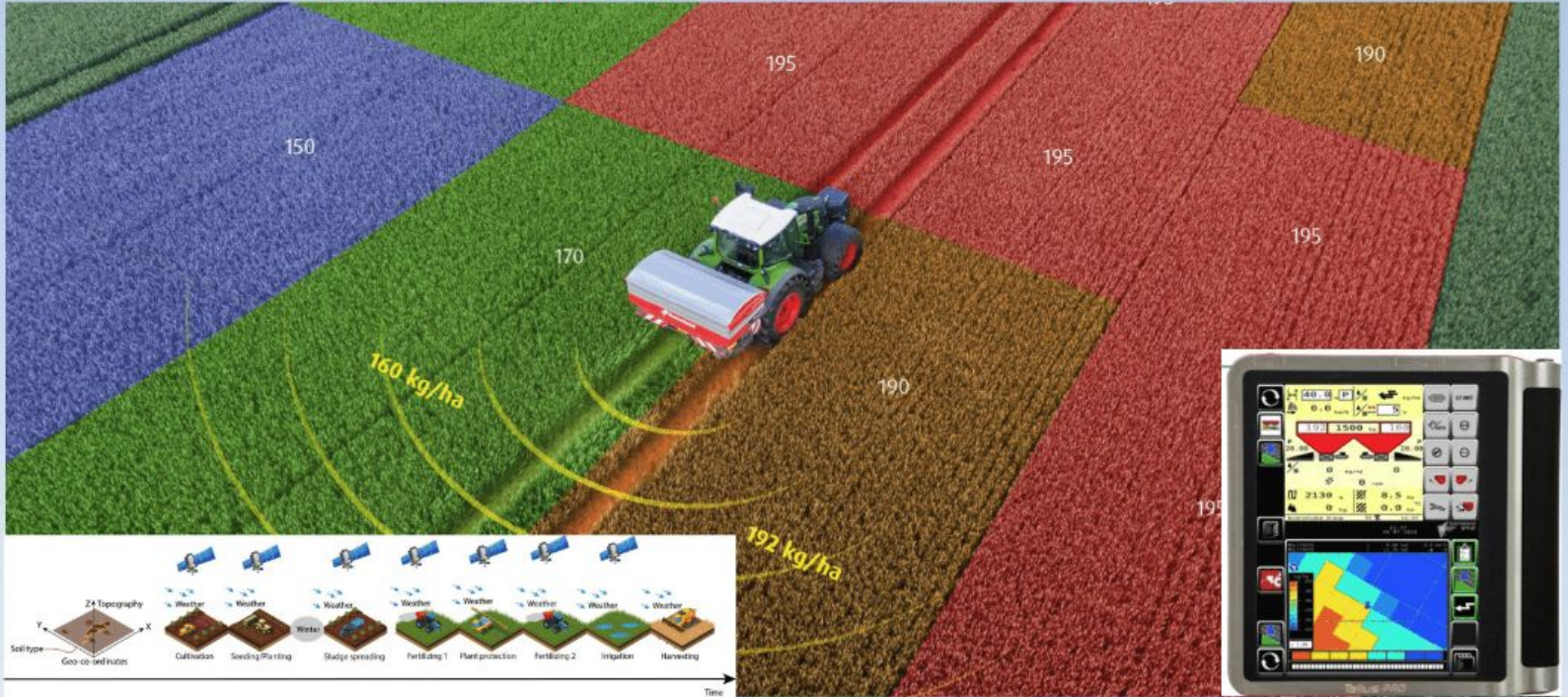
- My plan of research is to go into one of the major applications of Machine Learning in the sphere of Agriculture, ie, *plant disease diagnostics*

### Motives

- I was always interested in solving/improving current problems
- Stumbled in the field of Agri-AI, a term being quite popular right now
- So I read these statistical article and that enhanced my interest.
  - In accordance with the Food and Agriculture organization of the United Nations, the world population is projected to reach over nine billion by 2050.
  - This issue plus diminishing farmlands, dwindling natural resources, erratic climate changes, and changing market demands are pushing the agricultural production system into a new form
  - Machine Learning offers the hope in addressing the challenges of this new rising problem.



**Machinery hardware and sensor data exists  
but analysing software is lacking**



**Fertilizer GEOSPREAD (Kverneland) - needs detailed relevant input**

# Machine Learning for plant disease diagnostics

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# **Machine Learning for plant disease diagnostics**

## **1.2 Research Aim**

This research tries to identify the use and implementation of Machine Learning algorithms for plant diseases diagnostic purposes. It tries to go into Deep Learning and review the overall process on how to implement the algorithm relating computer science to the agriculture industry. The main idea is to reflect the benefits of AI in agricultural crop management to meet the growing demand of current marketplace.

## **1.4 Research Question**

How can Machine Learning help us identify plant diseases, and which algorithm is the most preferable?



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## About the research topic

### *Doing it with T-Kartor*

- There is a project going on, So my thesis plan is going to get more narrowed and specialized in the field as I get more involved with the company.
- But generally I will most likely be involved with the AGRI-AI team.

### *Acknowledgment*

- *Special thanks to Charlotte, for this amazing journey of a real world course, who helped us to get in contact with companies and mentoring to be ready for the next move after school! So thankful!*

**The end, Thank you!**