OboDigI 4.0

Ostrobothnia Digitalization Industry 4.0
AI (Artificial Intelligence)

Johan Westö

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Goals for today

1. Get an overview of what is generally meant by AI.

2. High-level understanding of the opportunities and challenges in implementing AI.

3. See what we can offer as well as the roadmap ahead.

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Defining the I in AI

"The greatest victory is that which requires no battle"
- Sun Tzu, The art of War

Neuroscience
Still Today, it is generally believed that the brain is a prediction machine. An idea that was first put forward by von Helmholtz in the 1860s and that today has been refined and renamed as "surprise minimization" by Friston et al. (2006).

Computer science
"It is the ability to make predictions about the future that is the crux of intelligence."
-   Jeff Hawkins

"Intelligence is the ability to process information to inform future decisions"
MIT: Introduction to Deep Learning

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Where do you find AI in your daily life?

- Image recognition (finger print and face detection)
- Recommendations (friends, movies, food, ads,…)
- Sales prices (e.g. used cars and apartments)
- Google (search, translate, …)
- Speech recognition (Siri, Cortana, …)
- Navigation apps (predicting travel times)
- Fraud detection (suspicious transactions)
- Household items (e.g. robot vacuum cleaner)
- Spam filters (e-mail)

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Present opportunities

- AI has experienced quite a boom lately.
- Partly due to new methods and hardware, and partly just due to access to data at an unprecedented scale.

- The bar for trying out AI technologies has been lowered substantially, and there now exist plenty of freely available software packages for getting started.

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Challenges in implementing AI

- Recognizing suitable existing or new tasks that can be automated or augmented.
    - Not that trivial to understand what is difficult and what is easy!

- Data availability and quality.
    - Is enough metadata is stored to keep the data useful?
    - Have someone ever ensured the quality of what is being stored?
    - Is all needed data actually stored?

- At its core, AI is math and computer science!

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Intelligent Systems Institute @ Novia

- Novia aims to be one of the country's leading universities of applied sciences within the field on applied intelligent systems by 2030, with a special emphasis on AI, IoT, robotics and welfare technology.

- The intelligent system institute was founded to facilitate a research group that can fulfill this aim.

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Our goal!

We want to bridge the gap between companies and universities by providing hands on assistance on real world problems onsite.

- We **want** to come and visit you onsite to get a proper understanding of the possibilities and challenges you face for implementing AI.

- We **want** to get to know the needs and wants of local companies.

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Project roadmap

Project goal: We are looking for a couple of demo cases.

- Evaluate task feasibility.
- Look over data requirements, availability and collection.
- Present potential AI solutions.

Getting started:

- General introduction webinar to AI (5.10.2021, 09:00-11:00).
- Continuation program is based on demo cases and your wishes.
- LET US KNOW WHAT YOU WANT AND NEED!!!

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For you to think about

1. Do you at your company or organization have a process that you think could be automated or made more efficient?

2. Does the process you have in mind have clear and measurable inputs and outputs?

3. Do you think it is possible to collect reliable data of the inputs and outputs?

4. Is there a measure of the added value that a successful automation/optimization would bring?

Thank you

Feel free to contact us!:

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Industry 4.0

The Fourth Industrial Revolution
"It began at the turn of this century and builds upon the digital revolution. It is characterized by a much more ubiquitous and mobile internet, by smaller and more powerful sensors that have become cheaper, and by artificial intelligence and machine learning."
- Klaus Schwab

Data-Enhanced Products
"Not only are new materials making assets more durable and resilient but data and analytics are also transforming the role of maintenance. Analysis provided by sensors placed on assets enables their constant monitoring and proactive maintenance and, in doing so, maximizes their utilization"
- Klaus Schwab

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