

En introduksjon til kunstig intelligens

Og dets rolle i medisinsk forskning



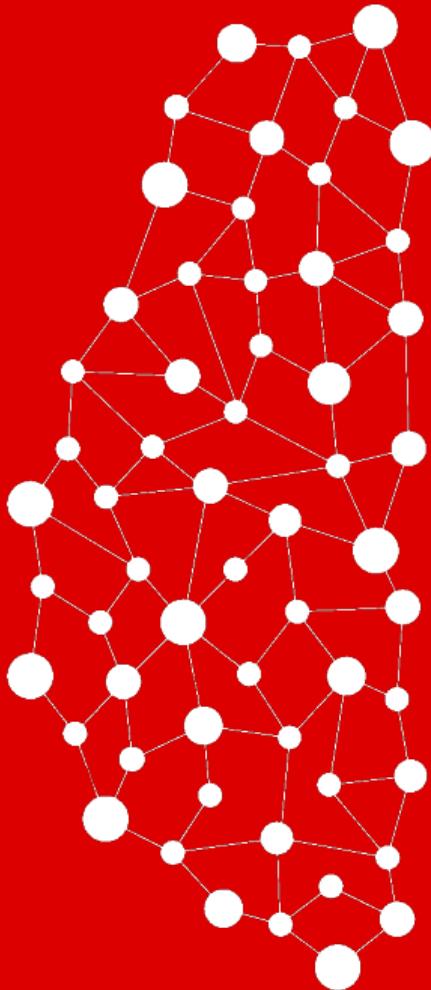
Esten H. Leonardsen

Post-doktor ved Psykologisk institutt,
Universitet i Oslo

Chief Scientific Officer, baba.vision



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Hva er kunstig intelligens?

What is AI?

Artificial Intelligence (AI) is the field of computer science devoted to creating systems that can perform tasks that typically require human intelligence. These tasks include perception (e.g., recognizing images or speech), reasoning (e.g., solving problems, making decisions), learning (e.g., adapting from data and experience), and interaction (e.g., understanding natural language, generating responses, collaborating with humans).

At a high level, AI can be divided into:

- Symbolic AI (knowledge-based, rule-based, expert systems): Uses explicit rules, logic, and symbolic representations to encode reasoning.
- Machine Learning (data-driven): Learns patterns from data, with subfields like deep learning, reinforcement learning, and probabilistic modeling.

AI is not a single method but a spectrum of approaches for replicating or augmenting cognitive functions in machines.

Would you like me to give you a concise working definition (one sentence) or a taxonomy of types of AI (narrow, general, superintelligence, etc.)?



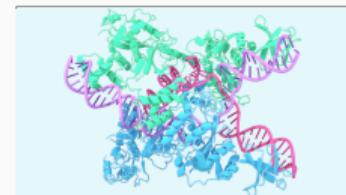
ChatGPT



Spot



Sophia

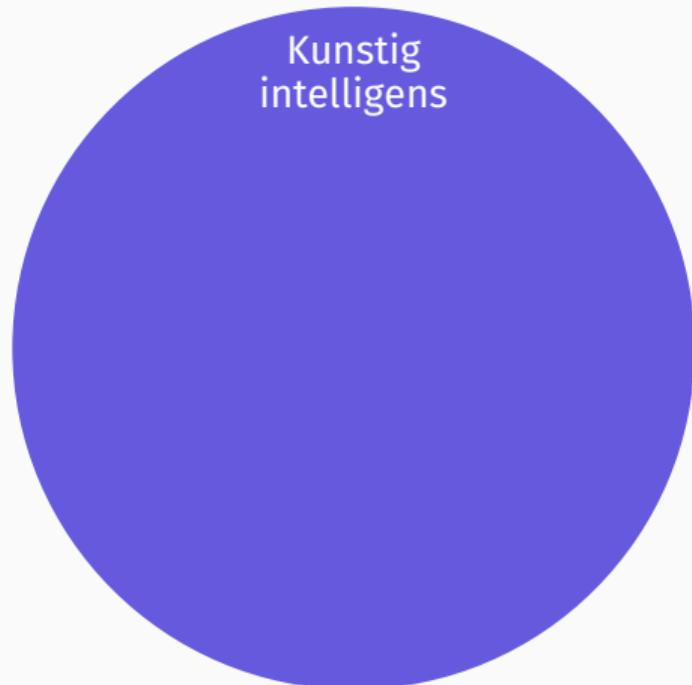


AlphaFold



AlphaZero

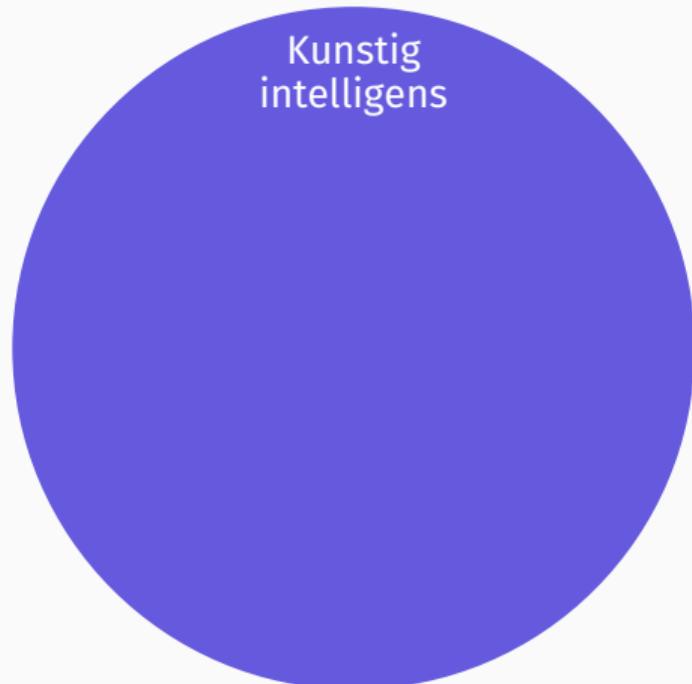
Hva er kunstig intelligens?



Kunstig intelligens

Teknologi som løser oppgaver som krever en eller annen form for intelligens

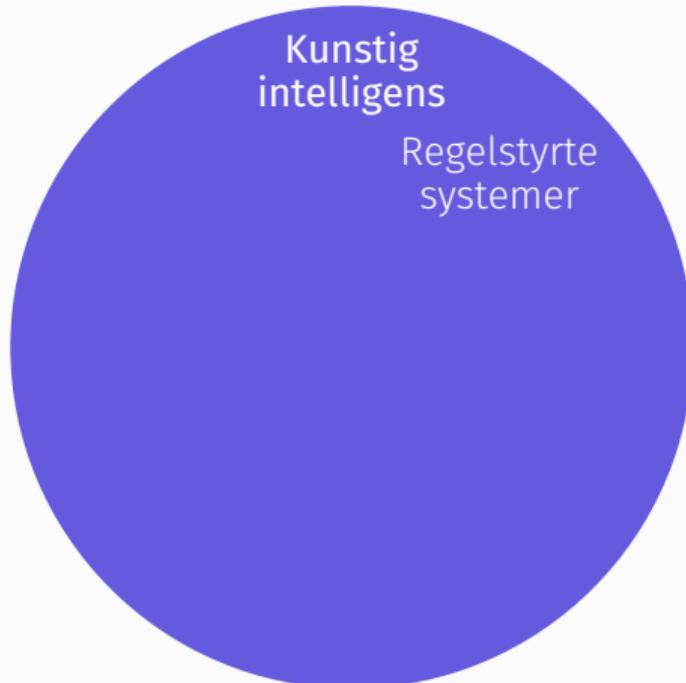
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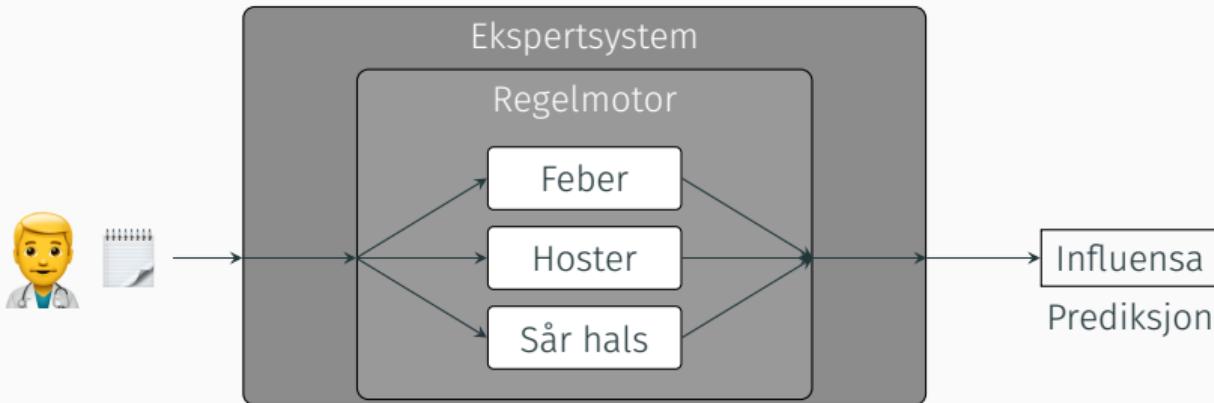
Ekspertsystem



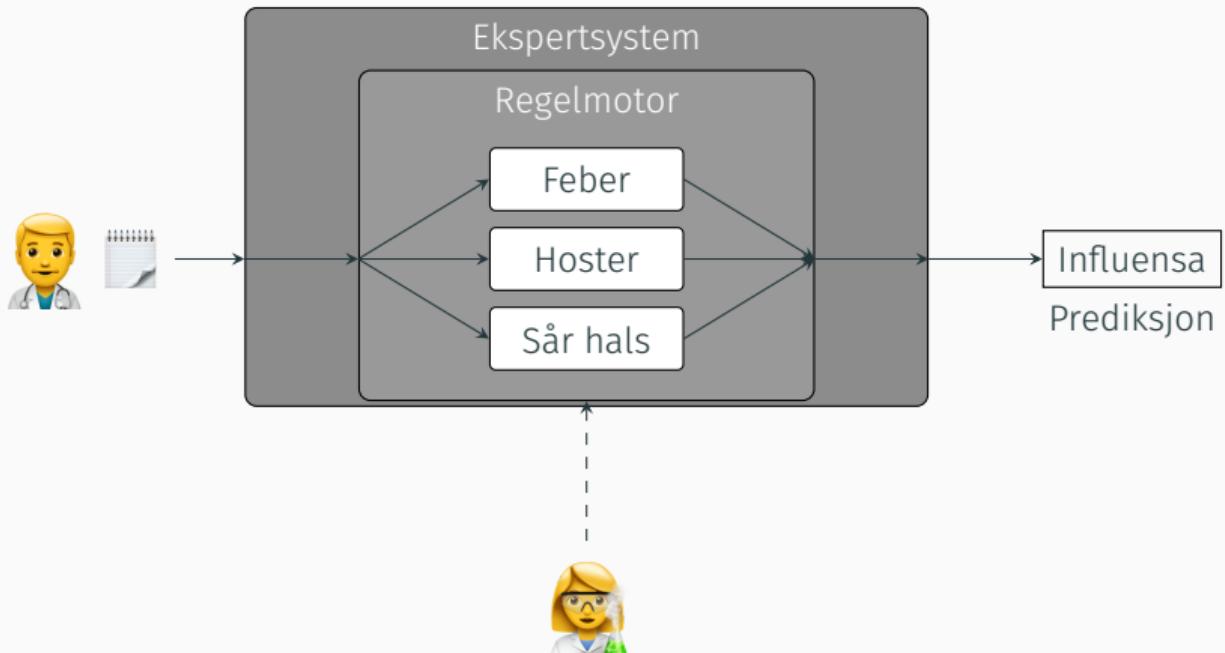
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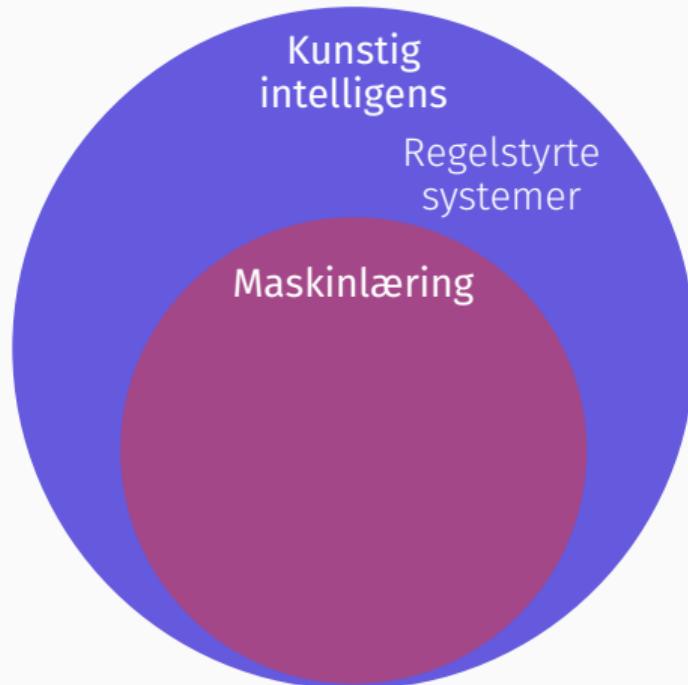
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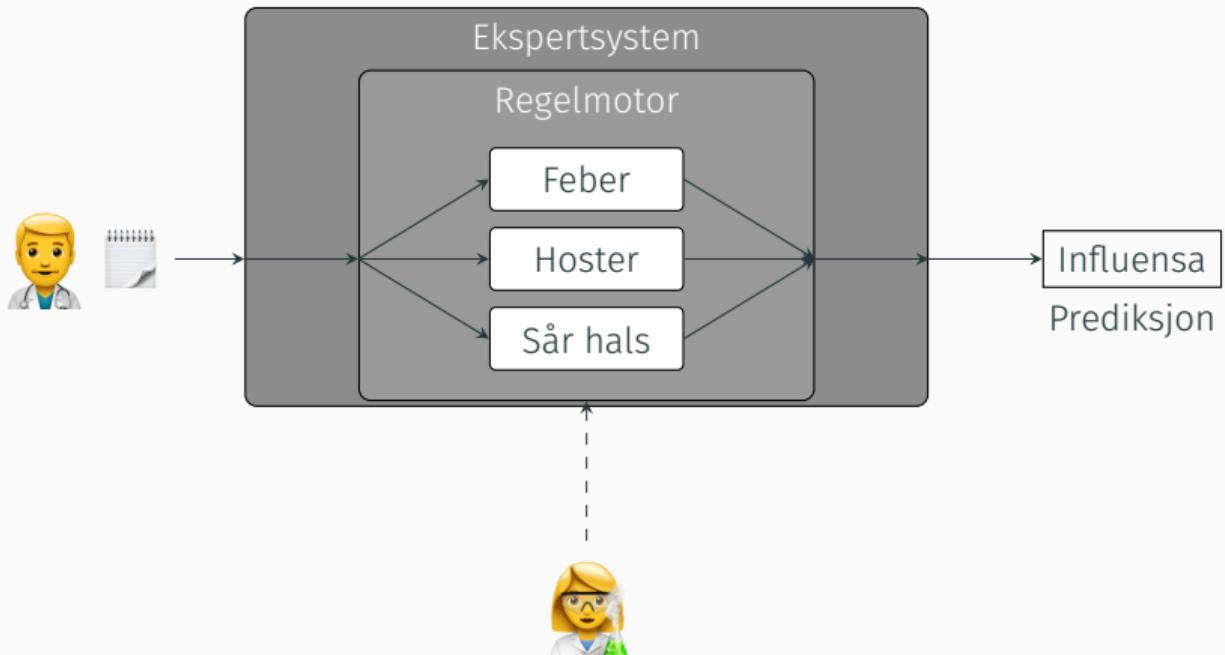
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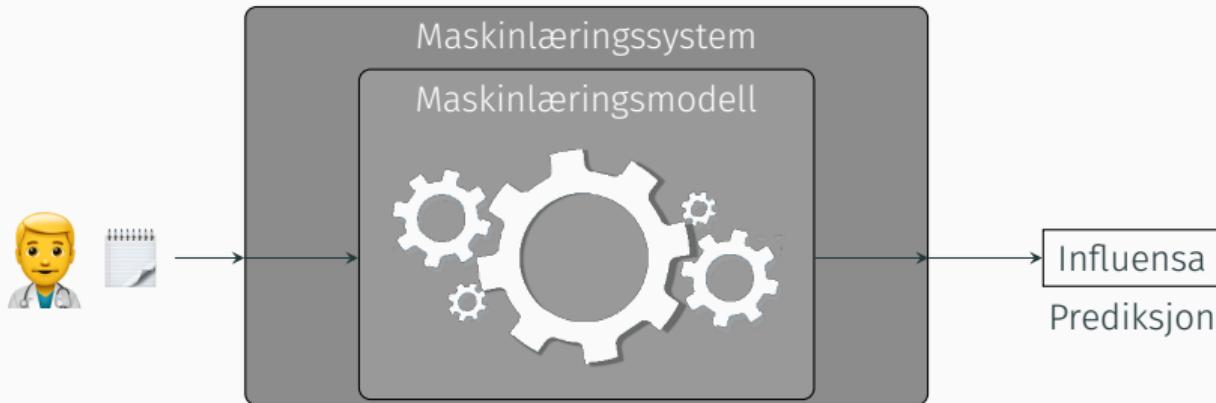
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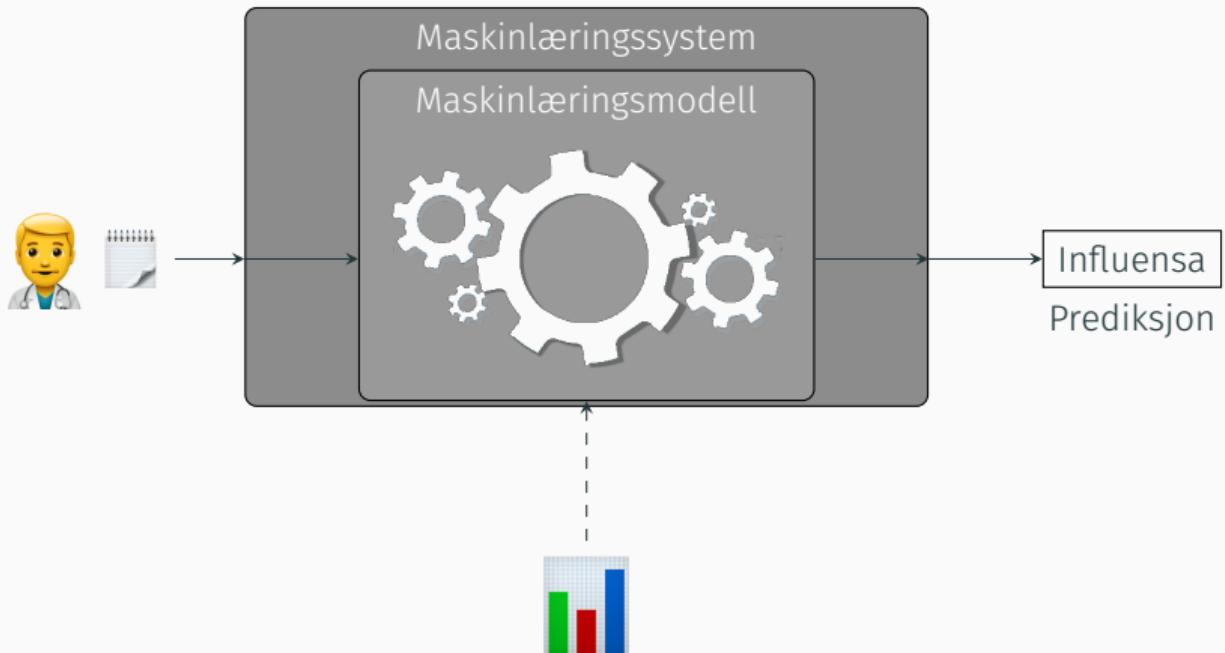
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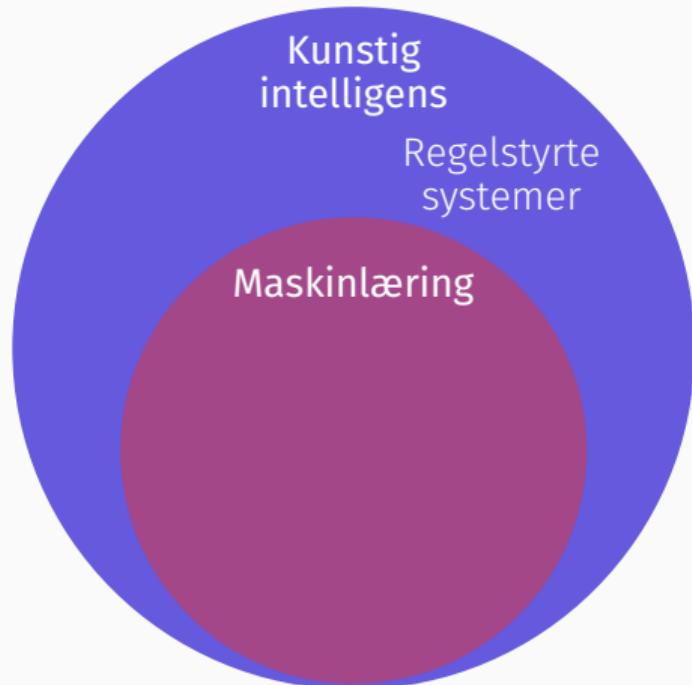
Hva er kunstig intelligens?



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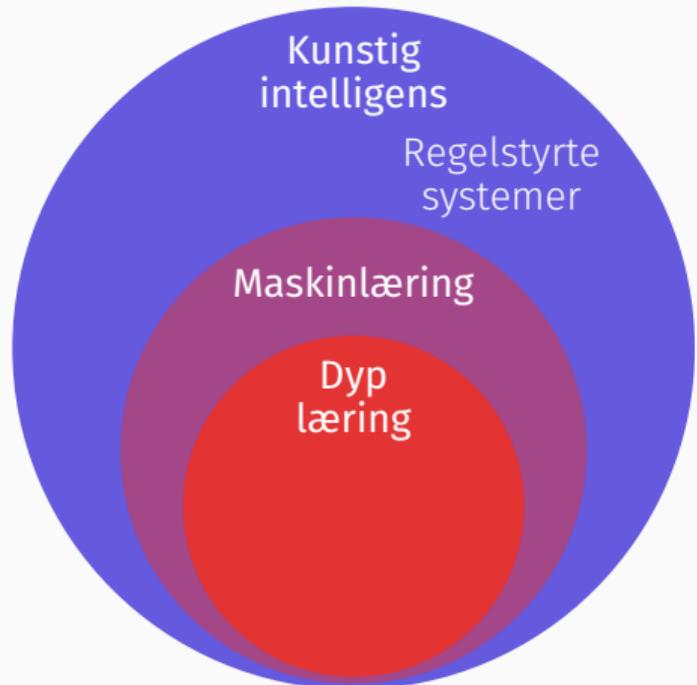
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Maskinlæring

Teknologi som lærer seg å løse problemer ved å finne nyttige mønstre i treningsdata

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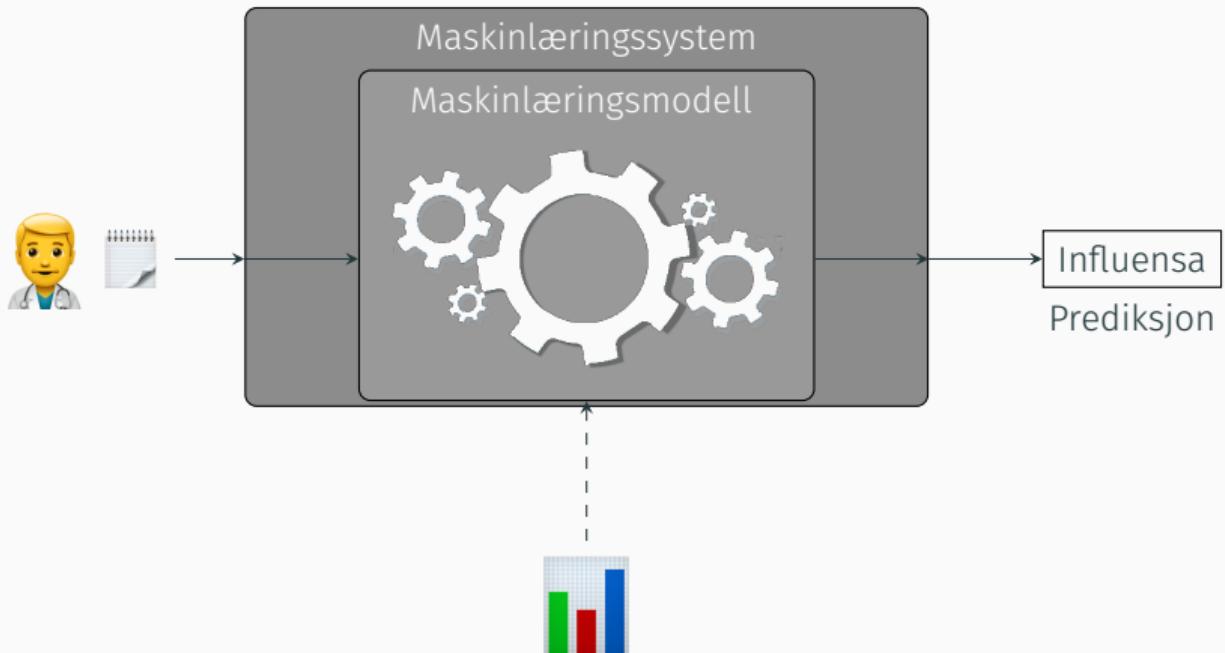
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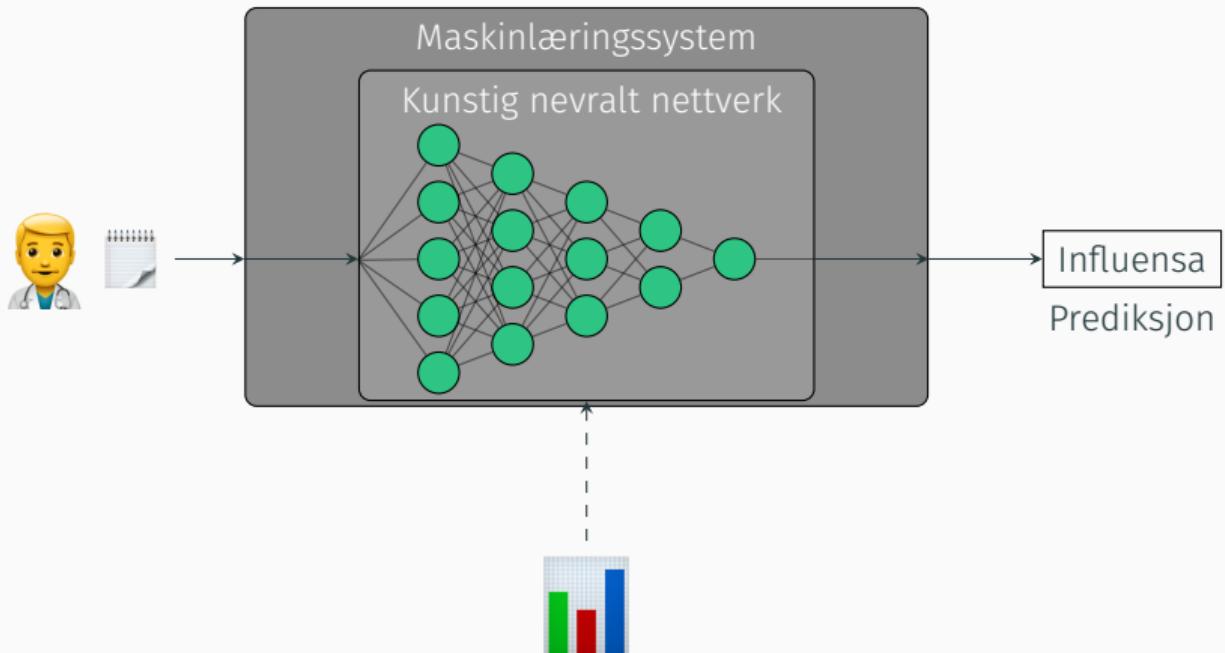
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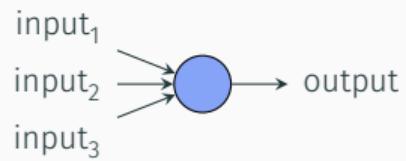
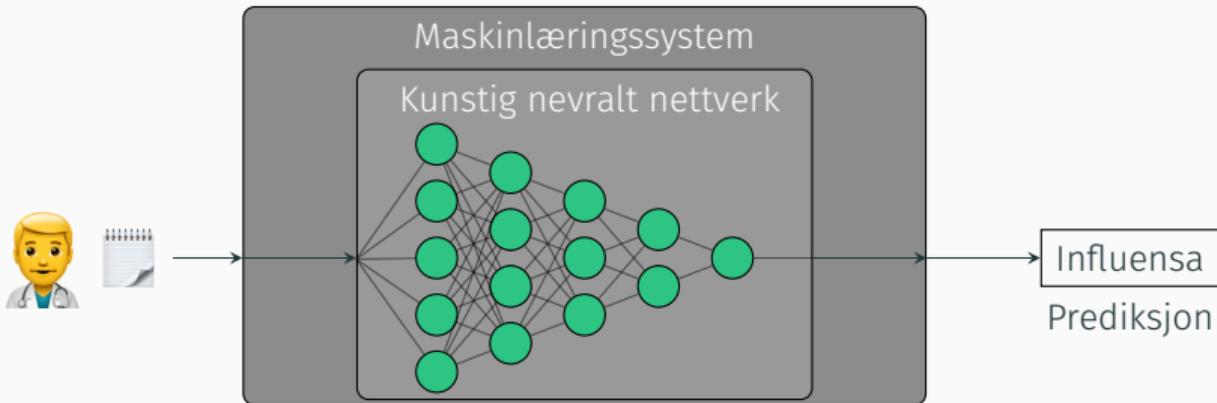
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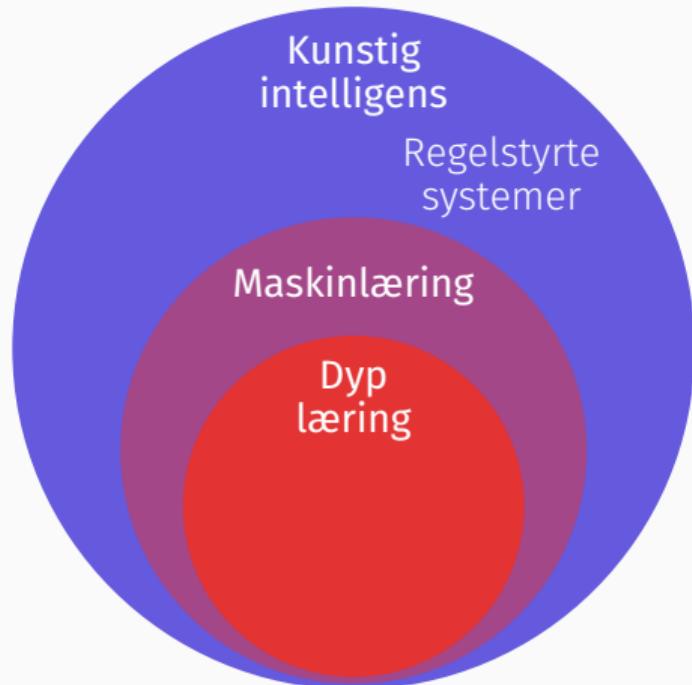
Hva er kunstig intelligens?



Kunstig nevron



Hva er kunstig intelligens?



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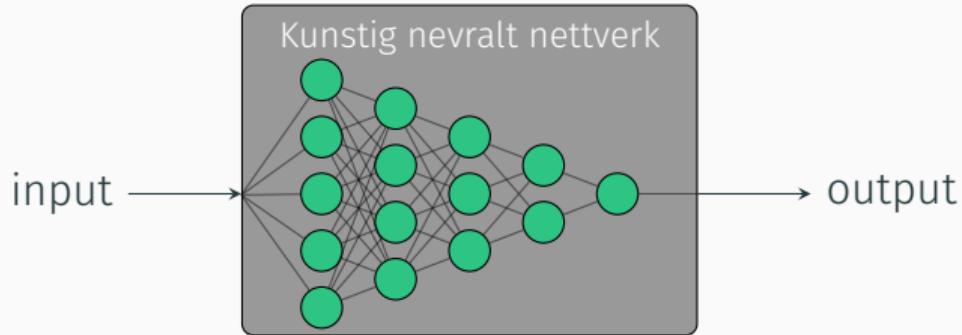
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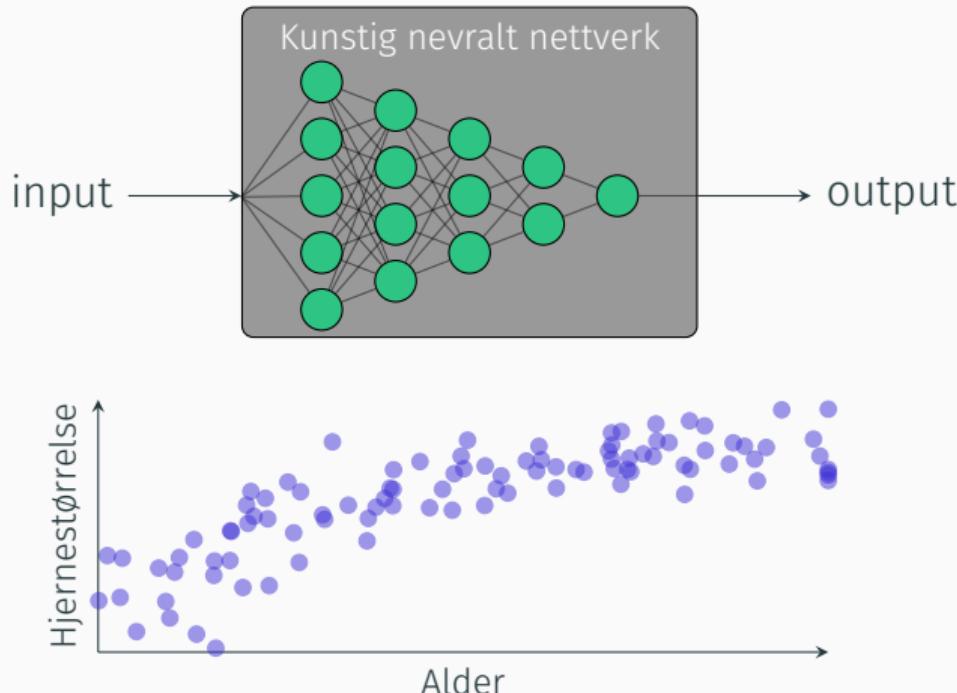
Dyp læring

Teknologi som bruker kunstige nevrale nettverk for å løse maskinlæringsproblemer

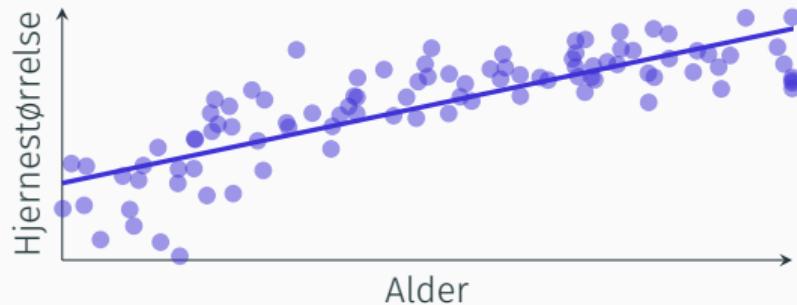
Hvorfor bruker vi kunstige nevrale nettverk?



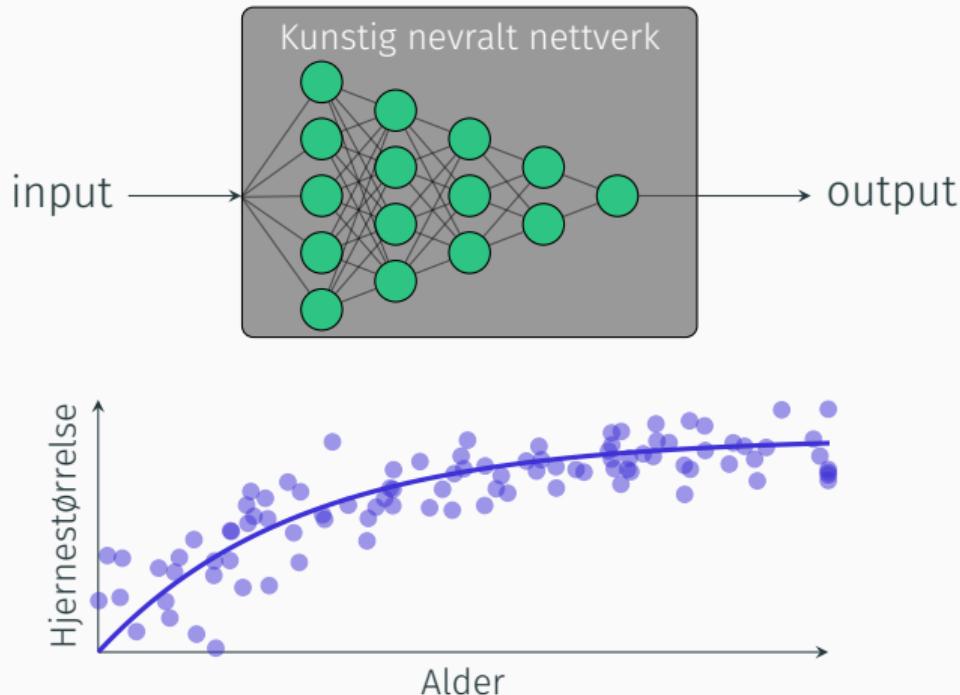
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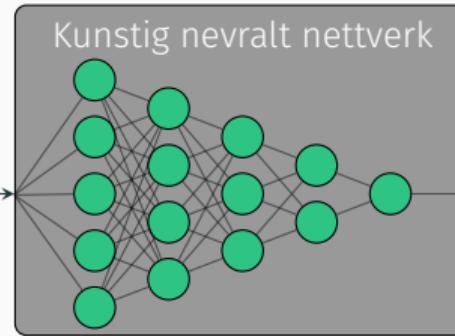
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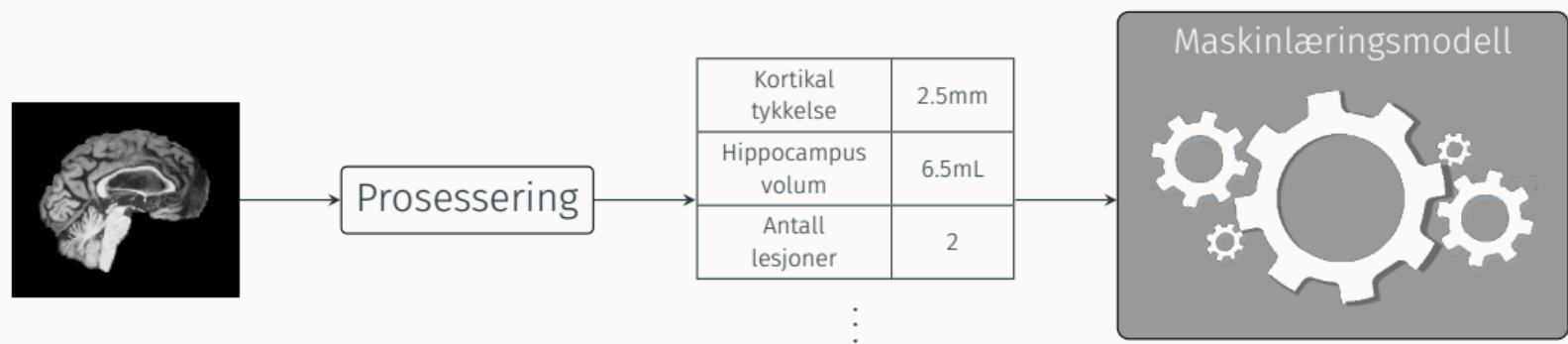
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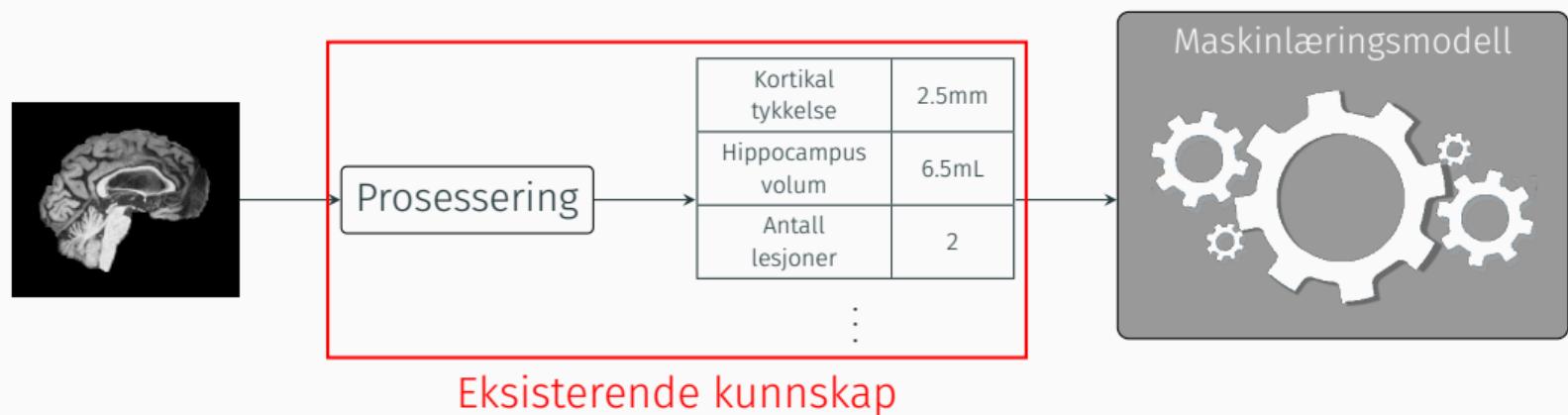
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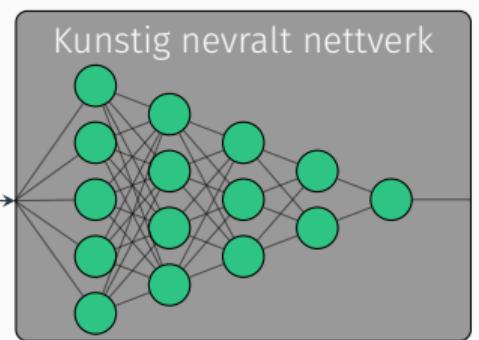
Hva er fordelen med å bruke ustrukturert data i (medisinsk) forskning



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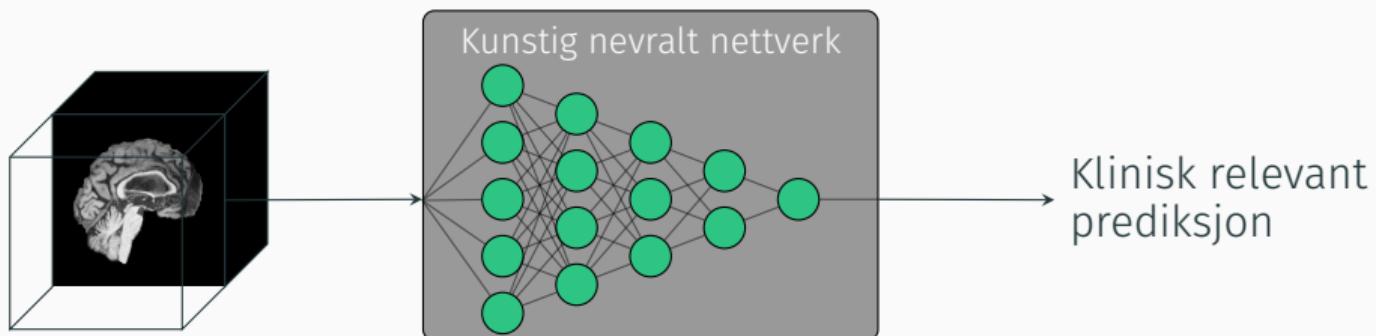


Kunstig intelligens i medisinsk forskning

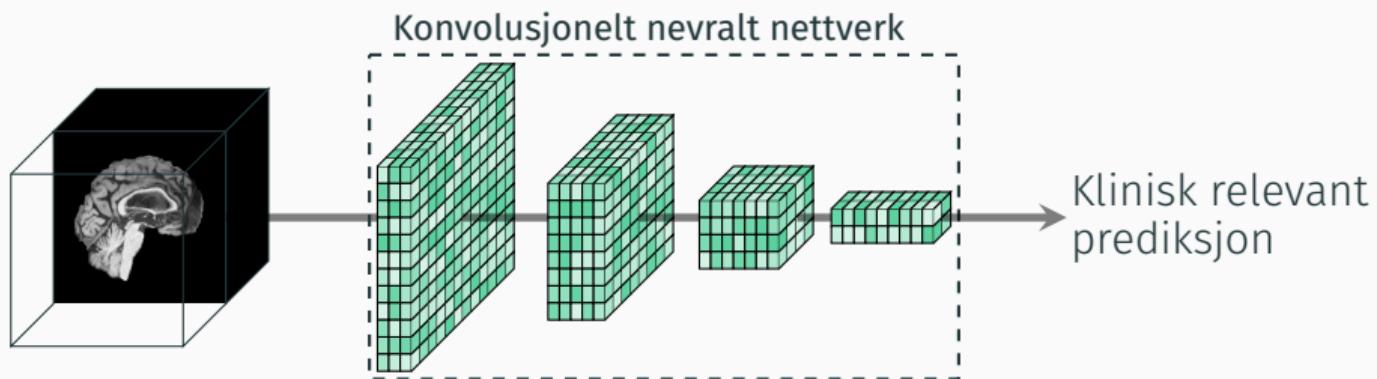


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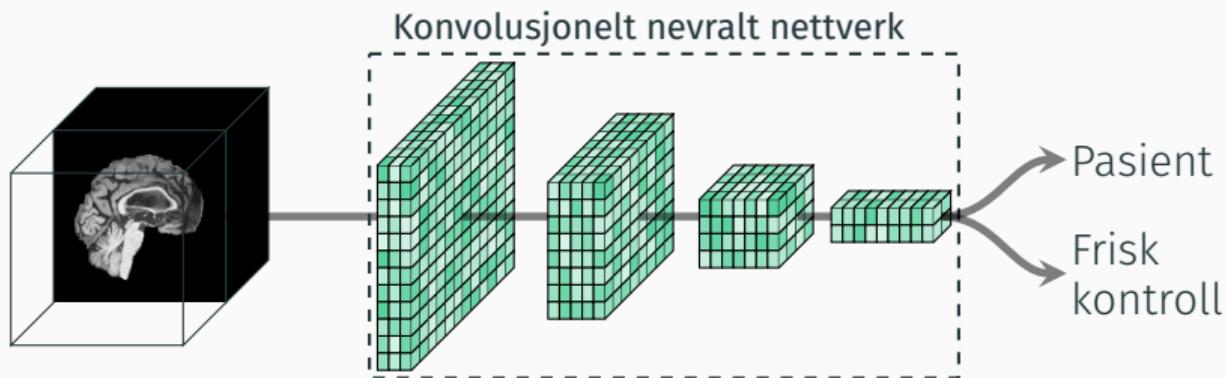
Kunstig intelligens og hjerneavbildningsdata



Kunstig intelligens og hjerneavbildningsdata



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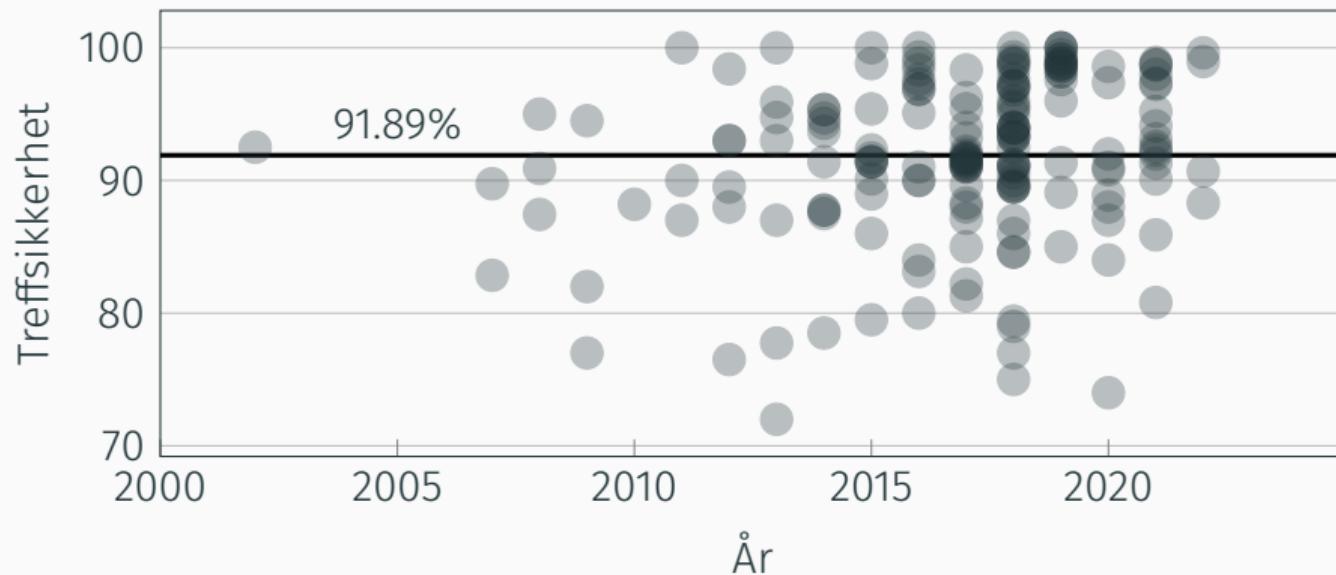
Klassifikasjonsstudier



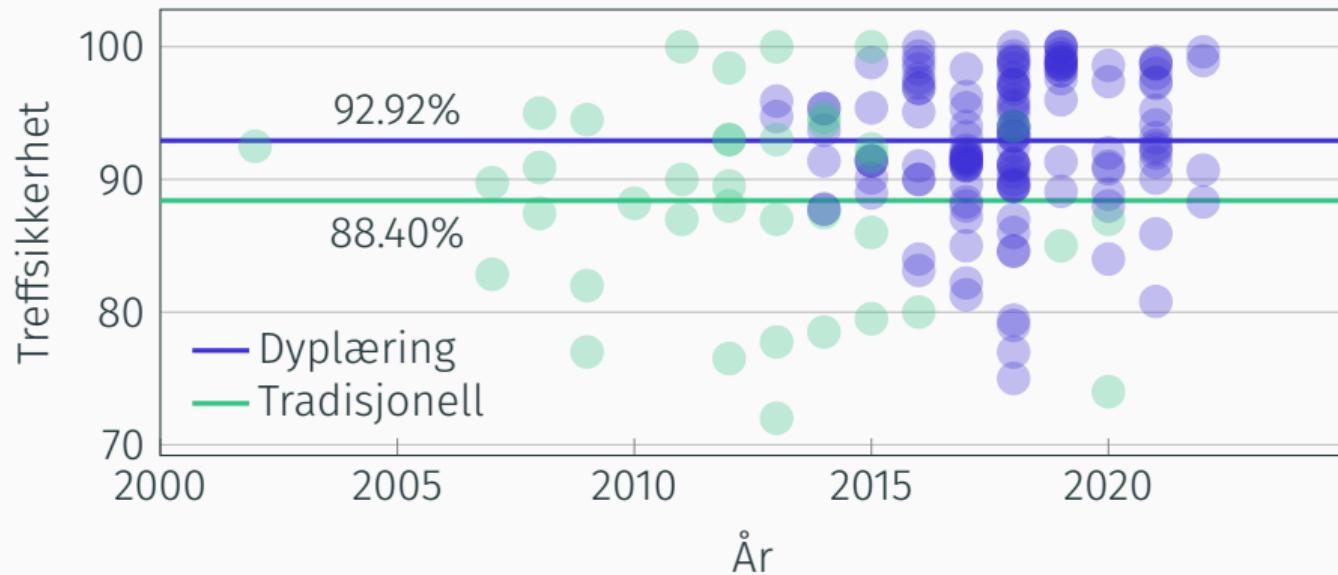
Artikler som inneholder "(dementia classification) AND (machine learning OR deep learning OR artificial intelligence)"
fra <https://pubmed.ncbi.nlm.nih.gov>



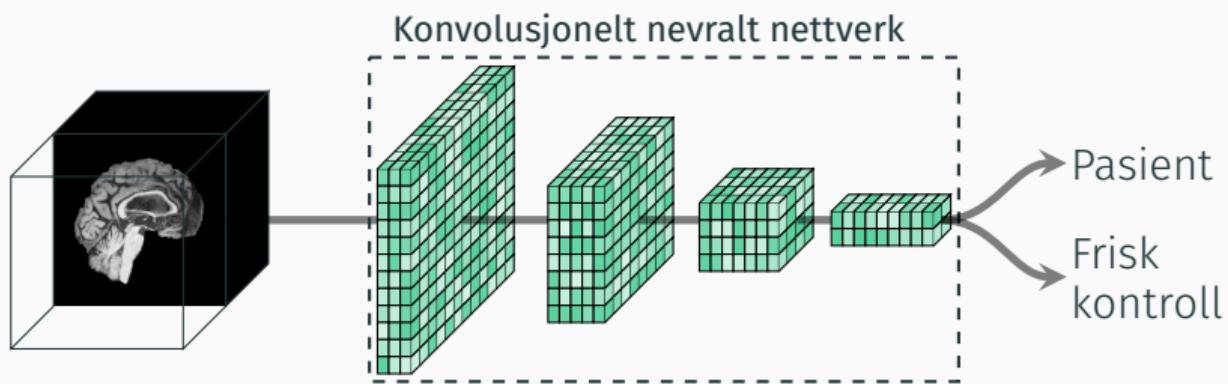
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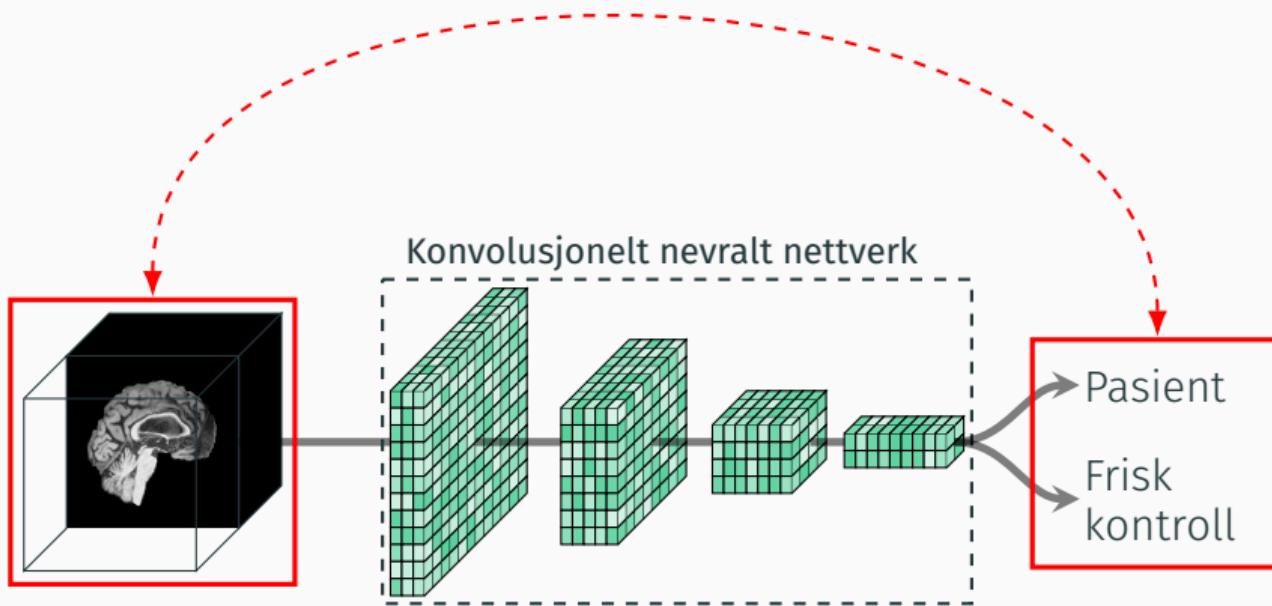
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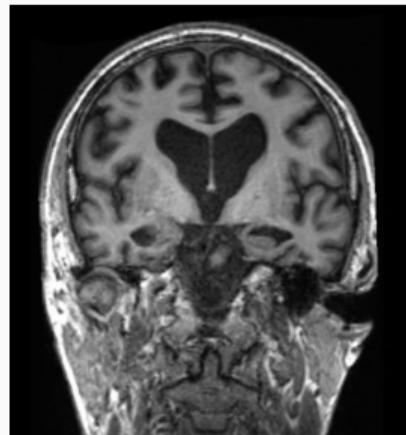
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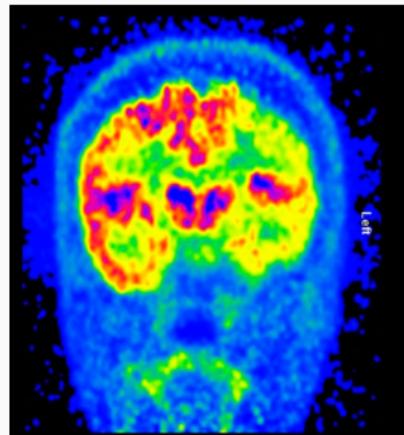
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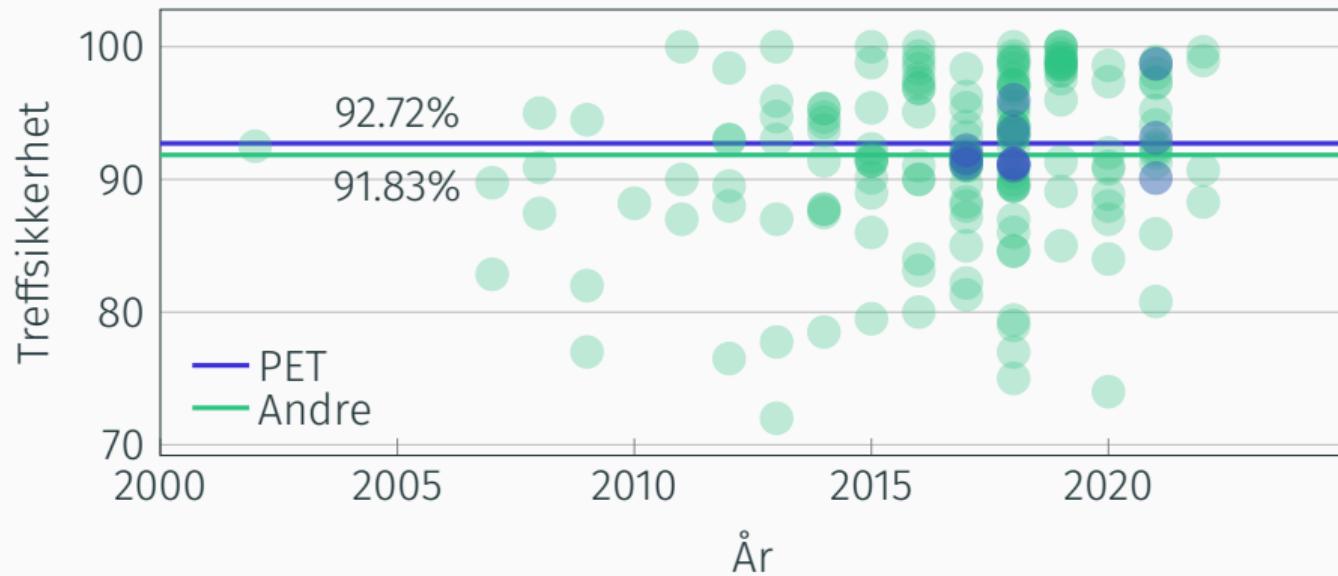
Strukturell MRI



PET



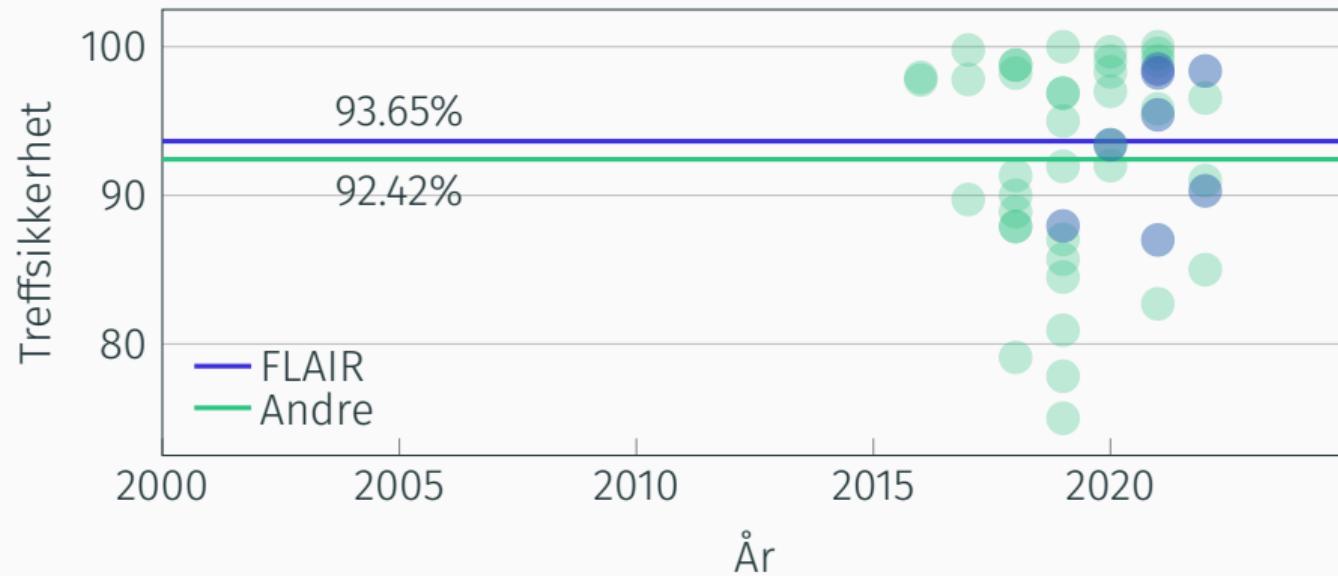
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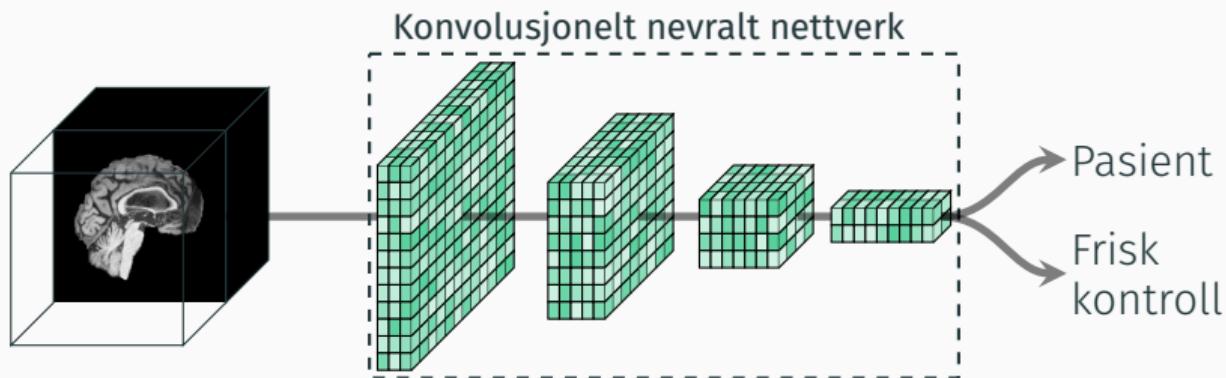
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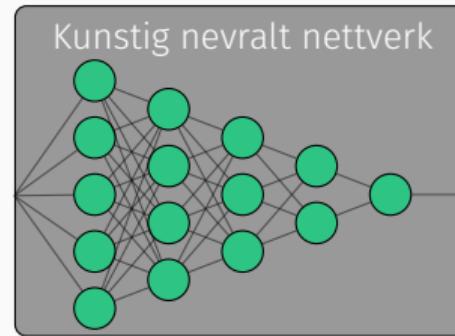
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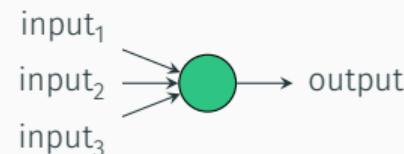
Forklarbarhetsproblemet med kunstig intelligens



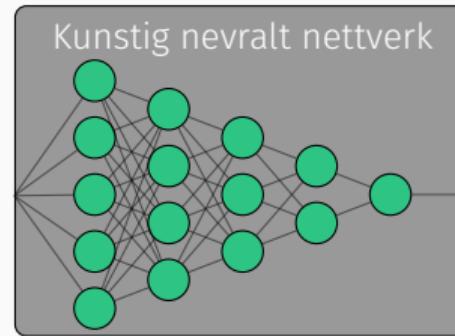
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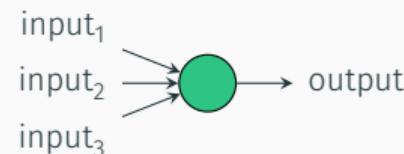
Kunstig nevron



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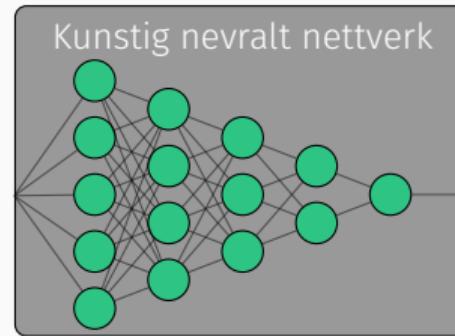
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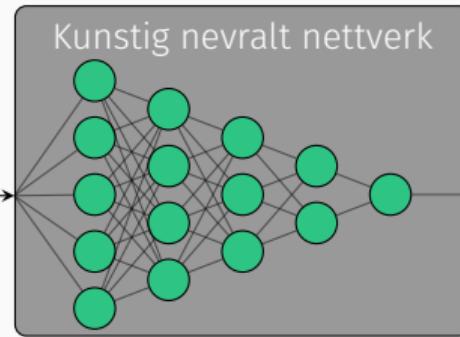
$$\text{output} = \max(0, \text{input}_1 * w_1 + \text{input}_2 * w_2 + \text{input}_3 * w_3)$$



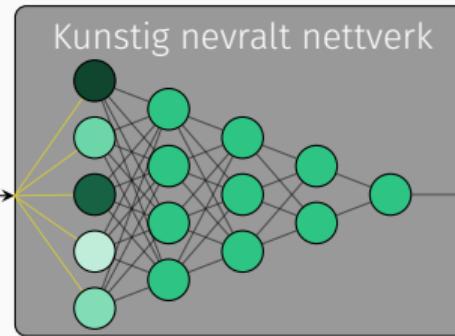
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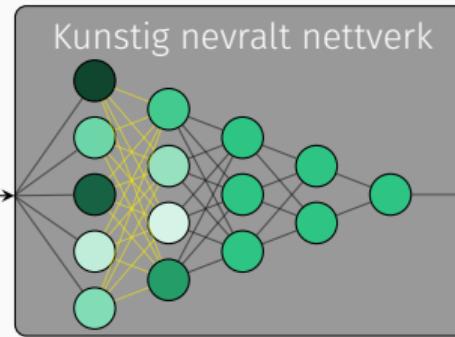
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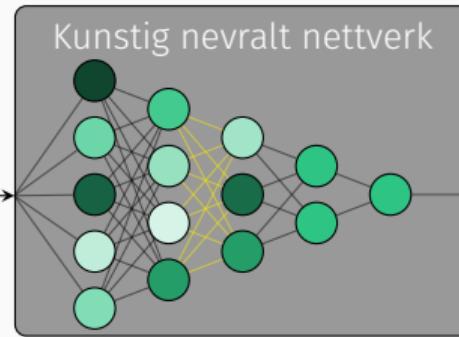
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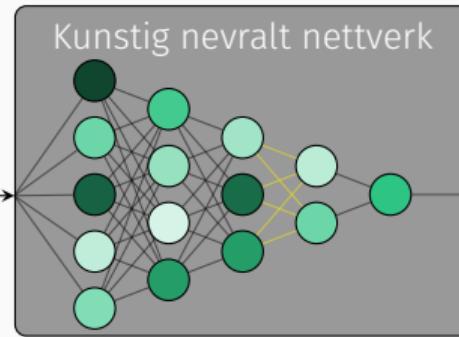
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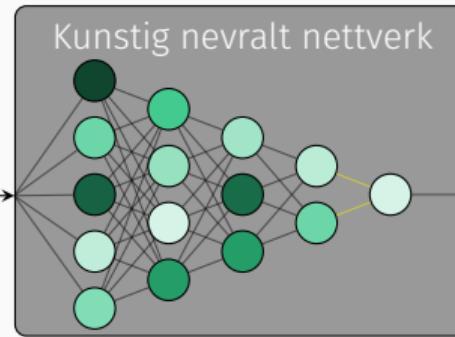
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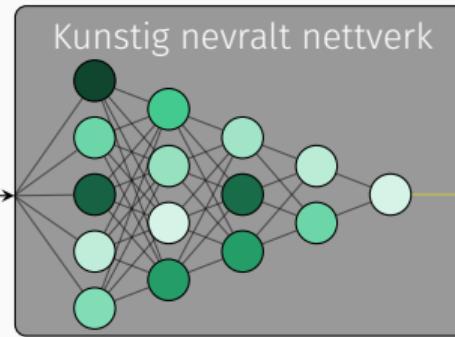
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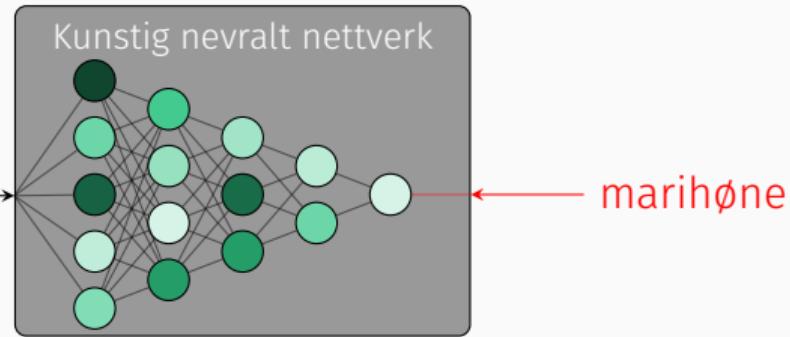


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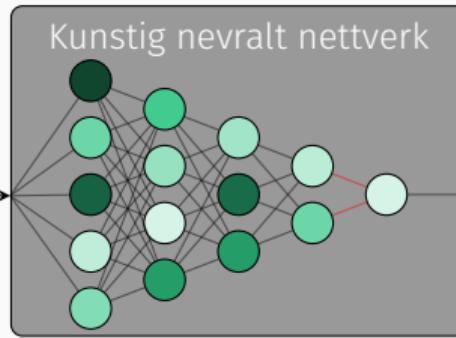


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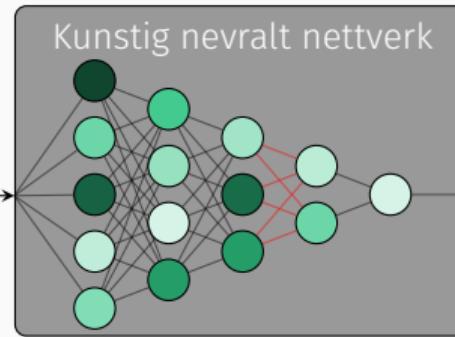


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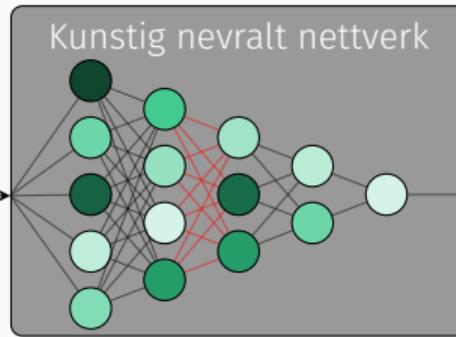
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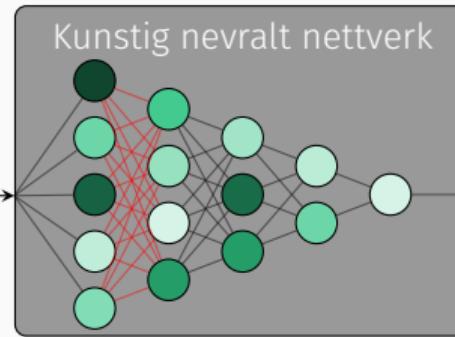
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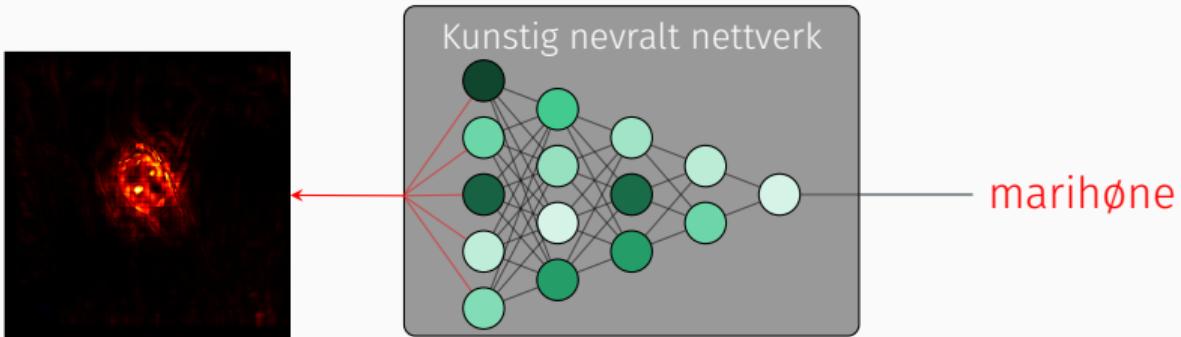
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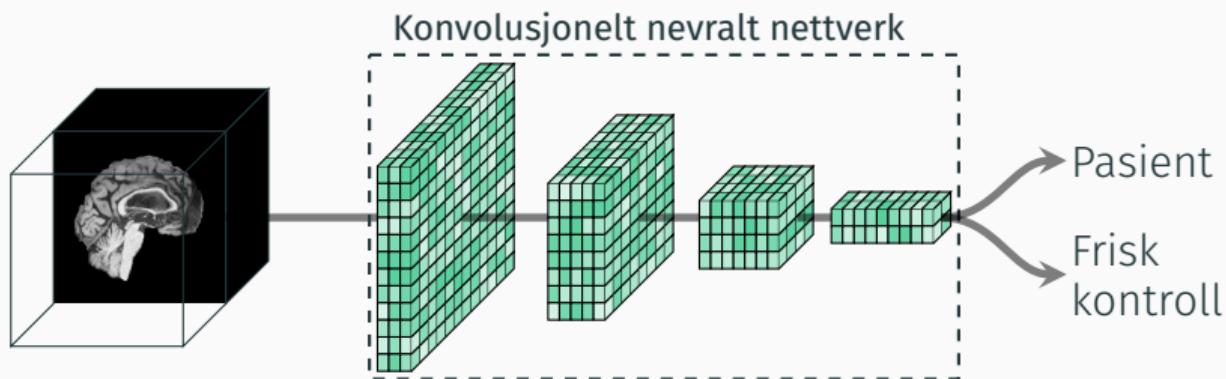


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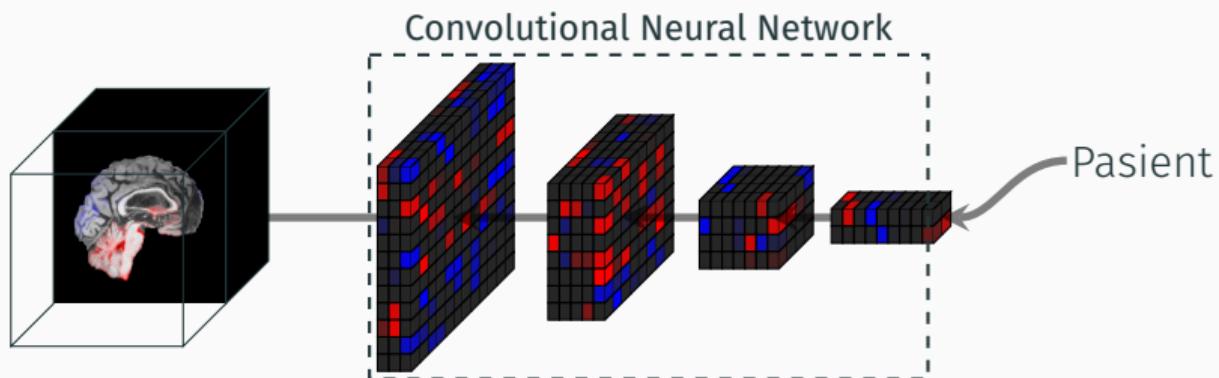
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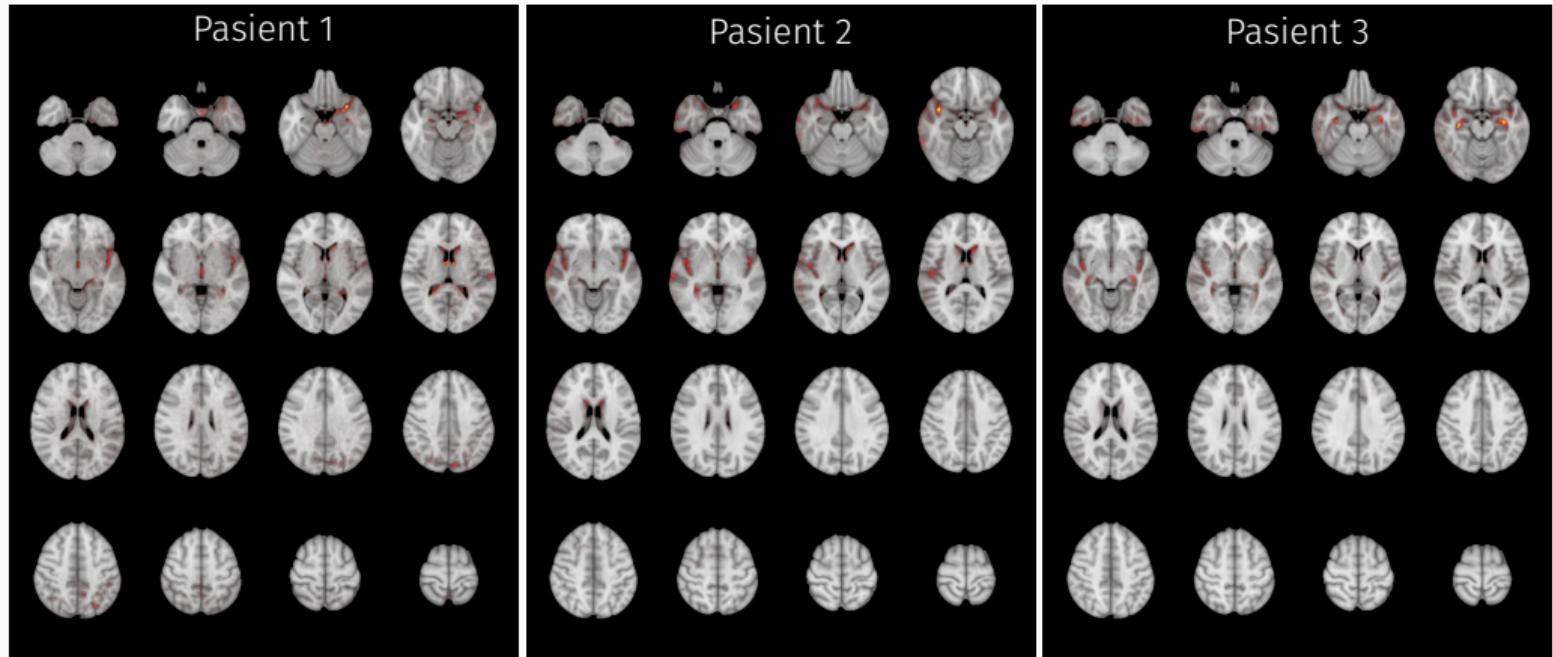
Forklarbarhetsproblem med kunstig intelligens



Forklarbarhetsproblem med kunstig intelligens

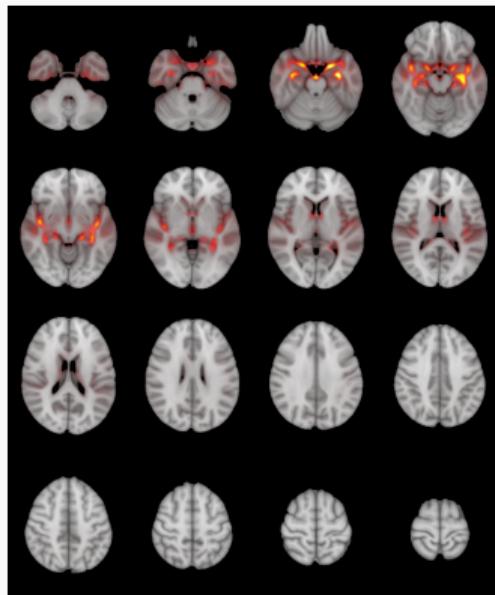


Forklarbar kunstig intelligens og demens



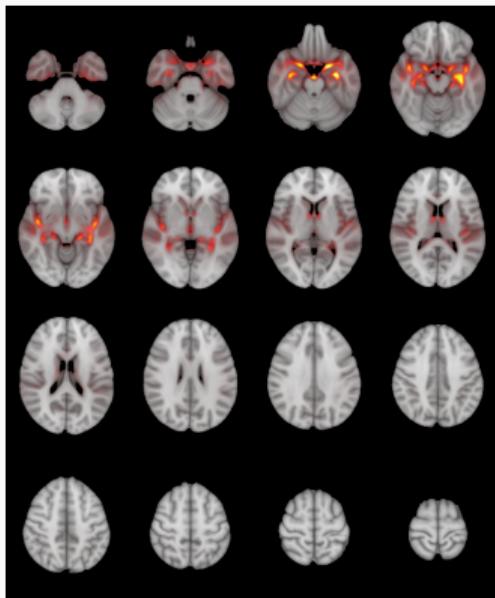
Forklarbar kunstig intelligens og demens

Forklarbar KI

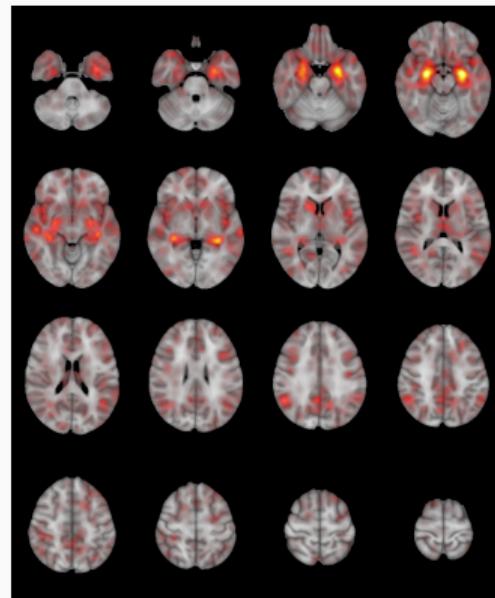


Forklarbar kunstig intelligens og demens

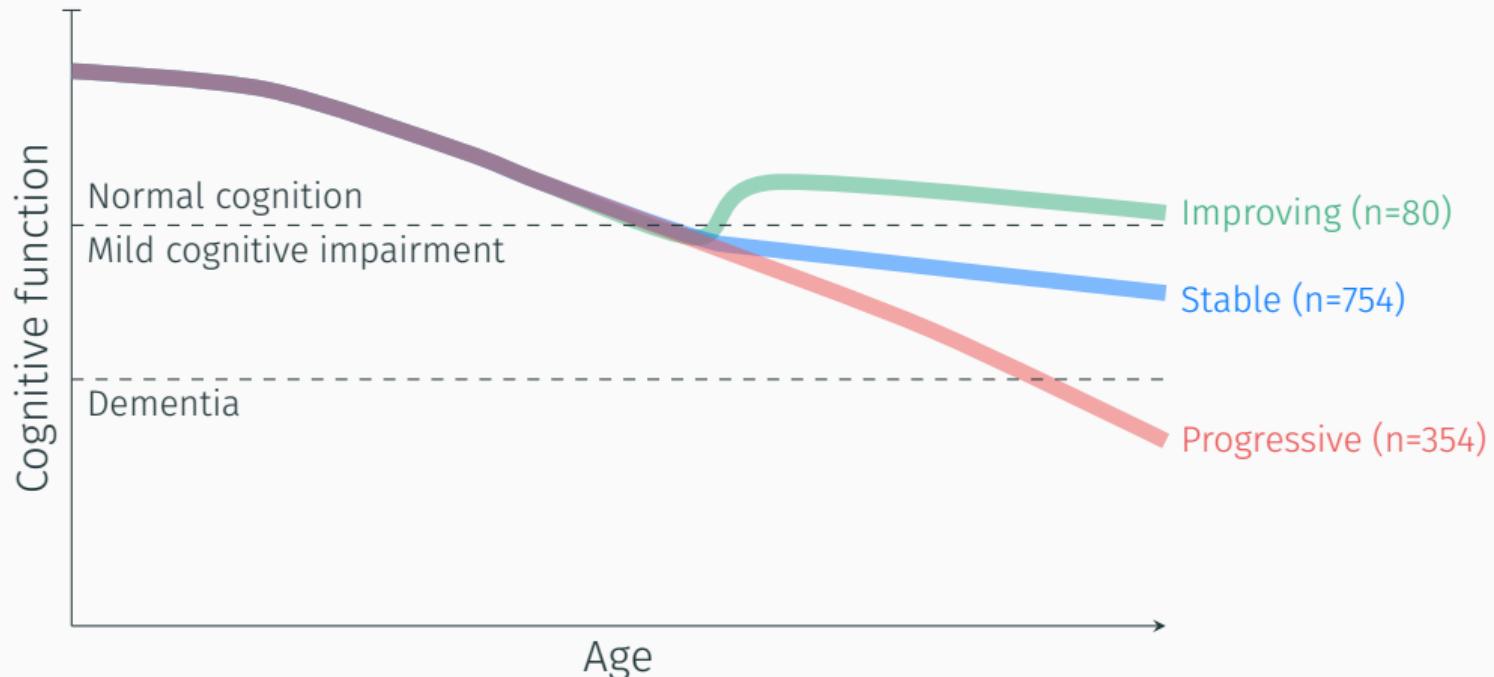
Forklarbar KI



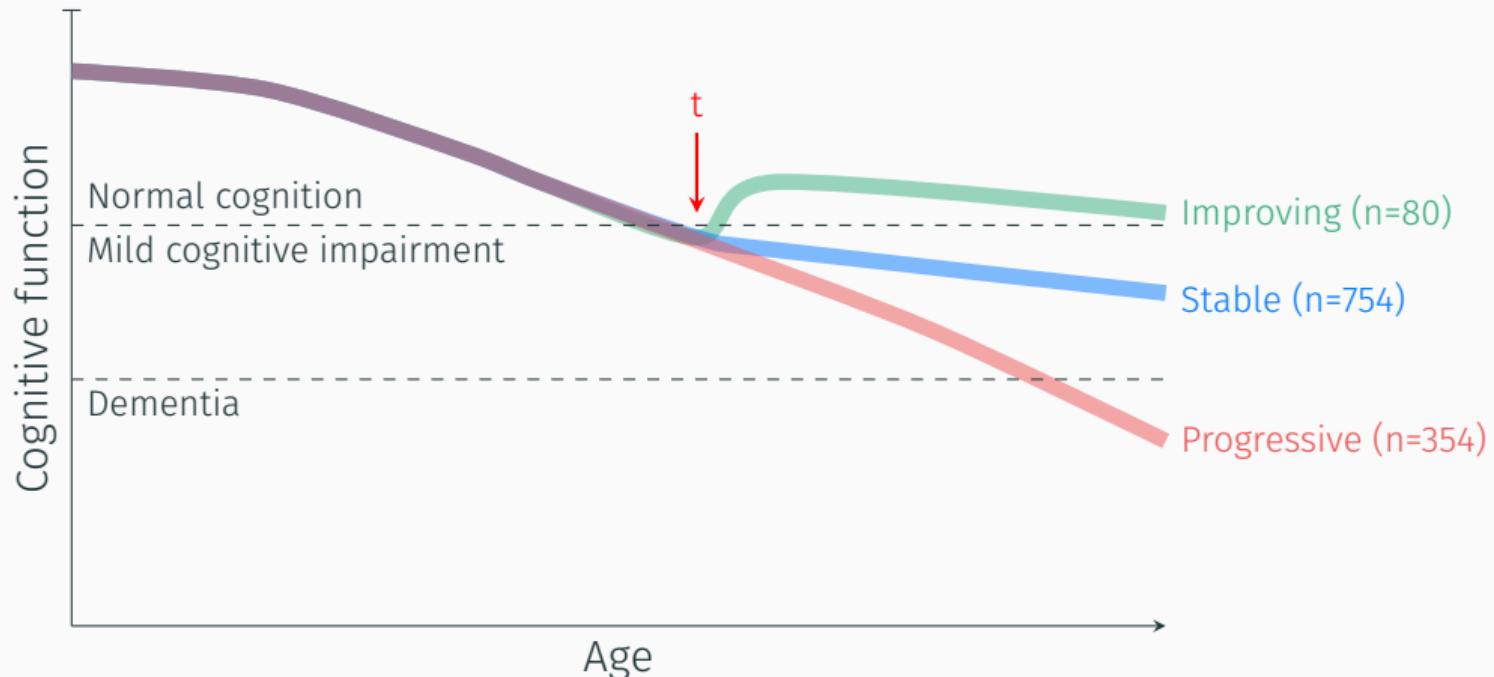
Mennesker



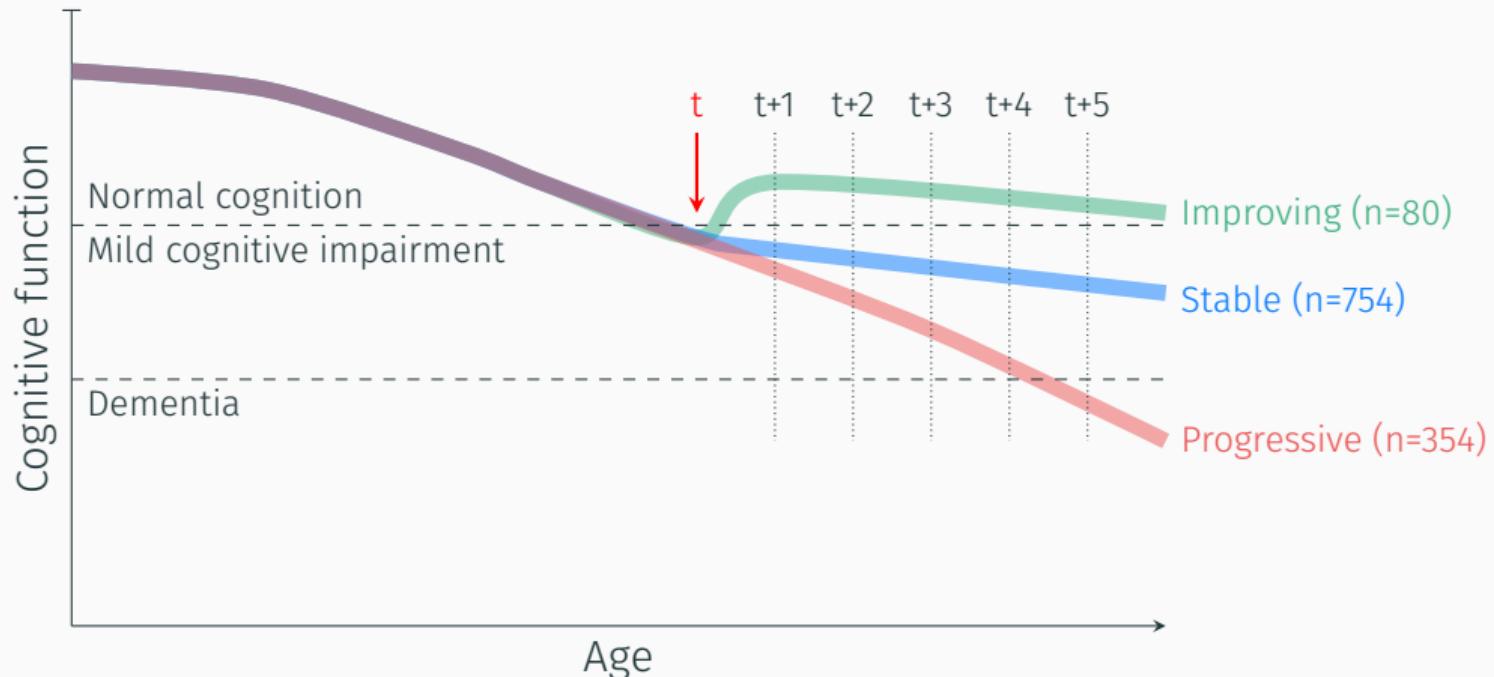
Forklarbar kunstig intelligens og demens



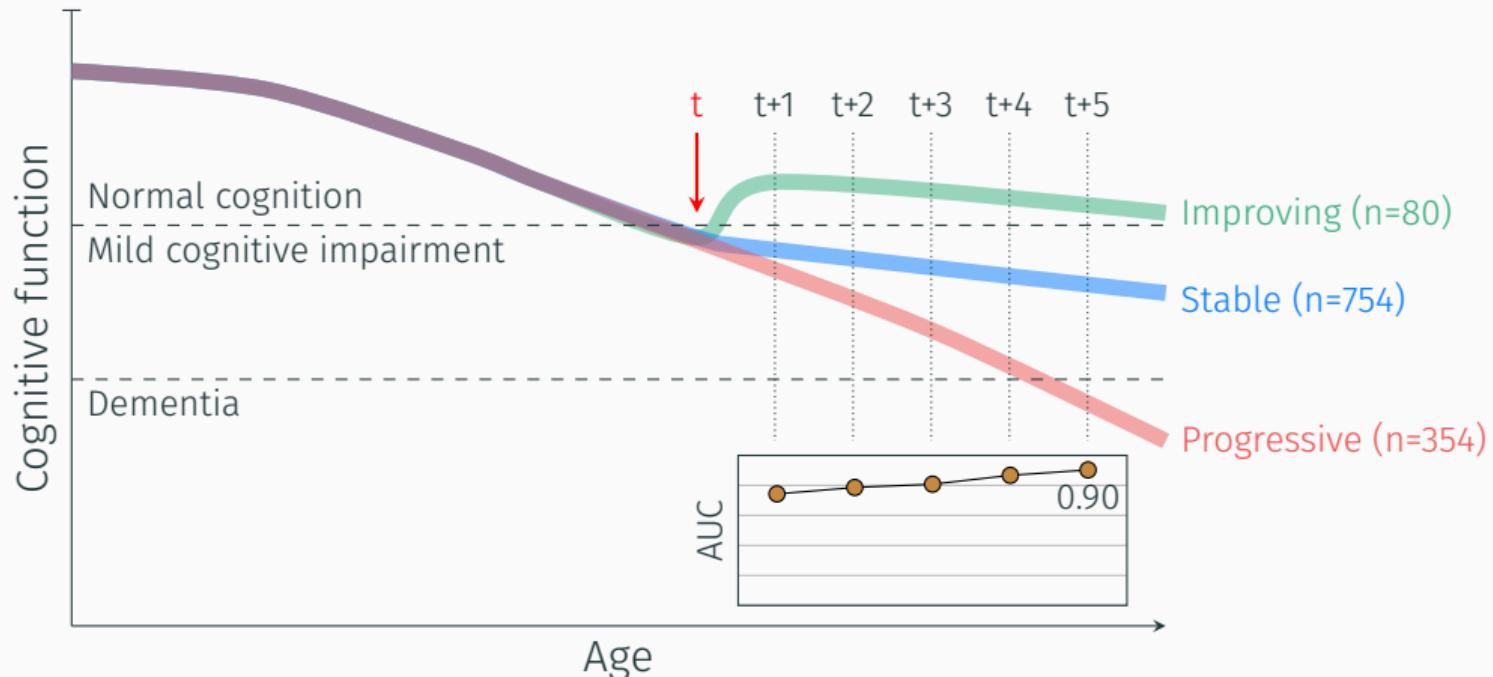
Forklarbar kunstig intelligens og demens



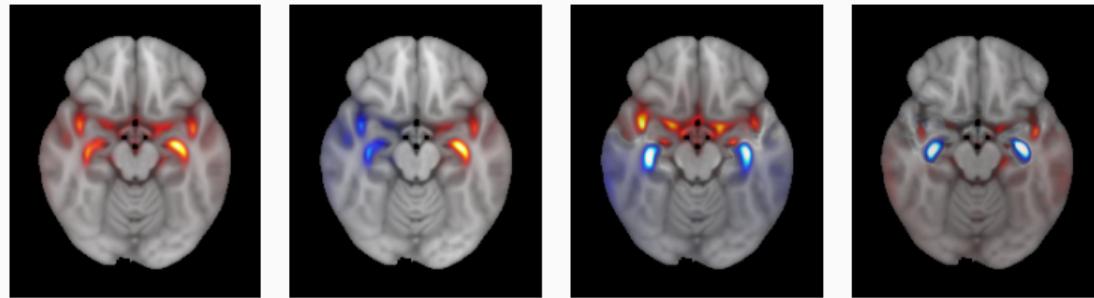
Forklarbar kunstig intelligens og demens



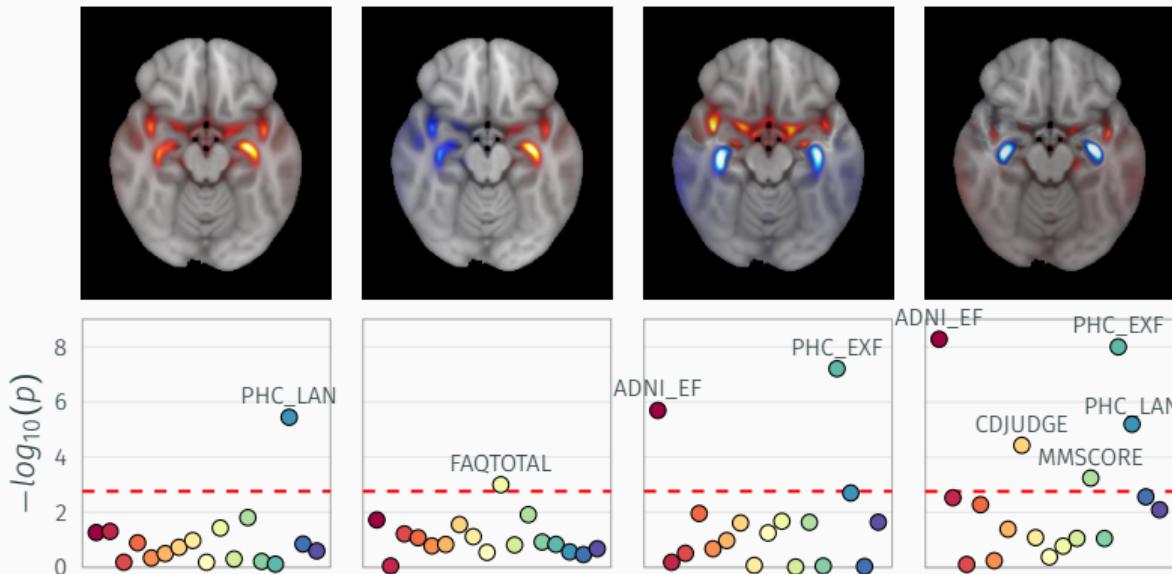
Forklarbar kunstig intelligens og demens



Forklarbar kunstig intelligens og demens



Forklarbar kunstig intelligens og demens



Takk for oppmerksomheten!
estenhl@uios.no



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