

# En introduksjon til kunstig intelligens

## Og dets rolle i medisinsk forskning



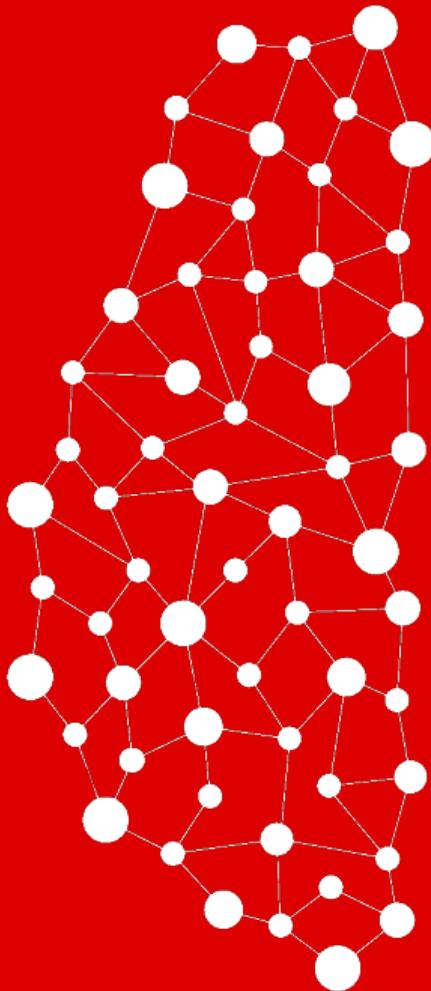
Esten H. Leonardsen

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.)?



+ Ask anything



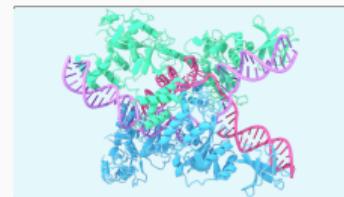
ChatGPT



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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## Kunstig intelligens

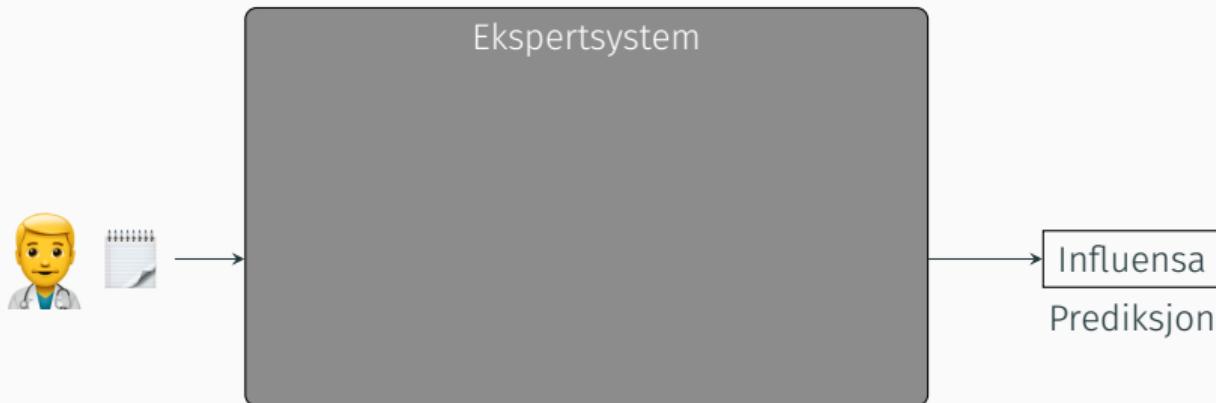
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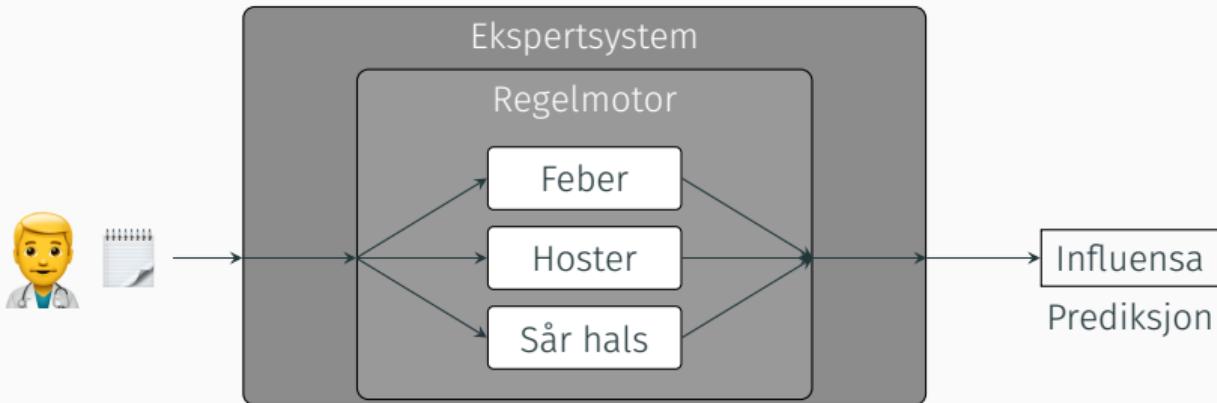
Ekspertsystem



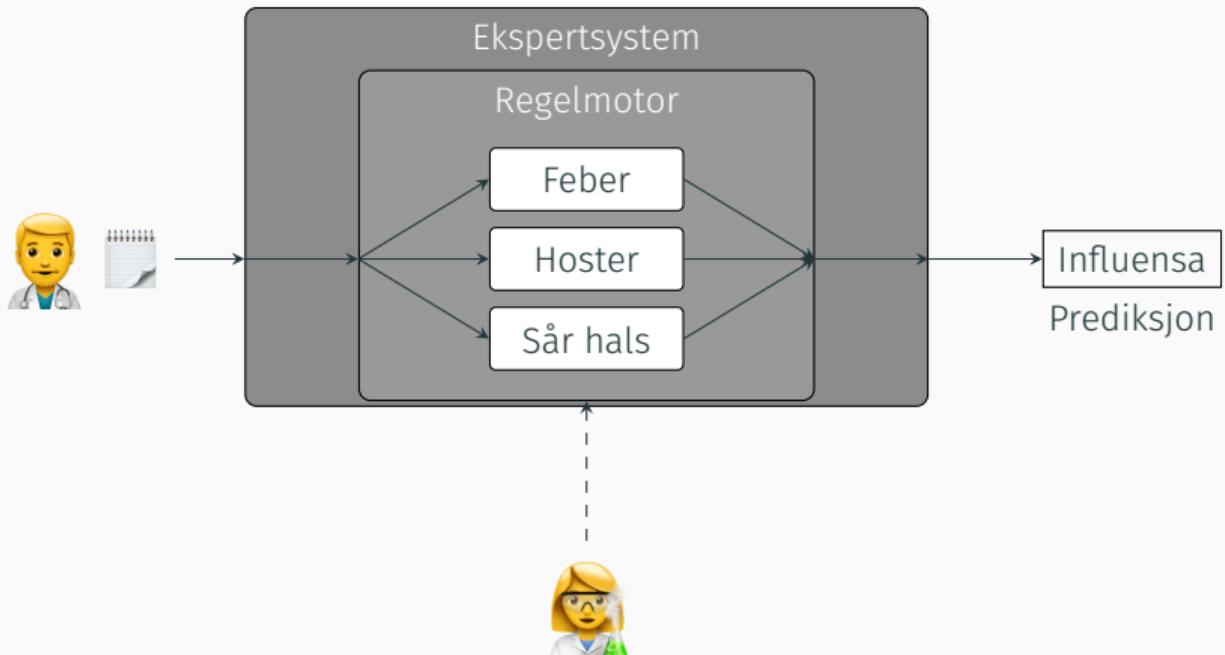
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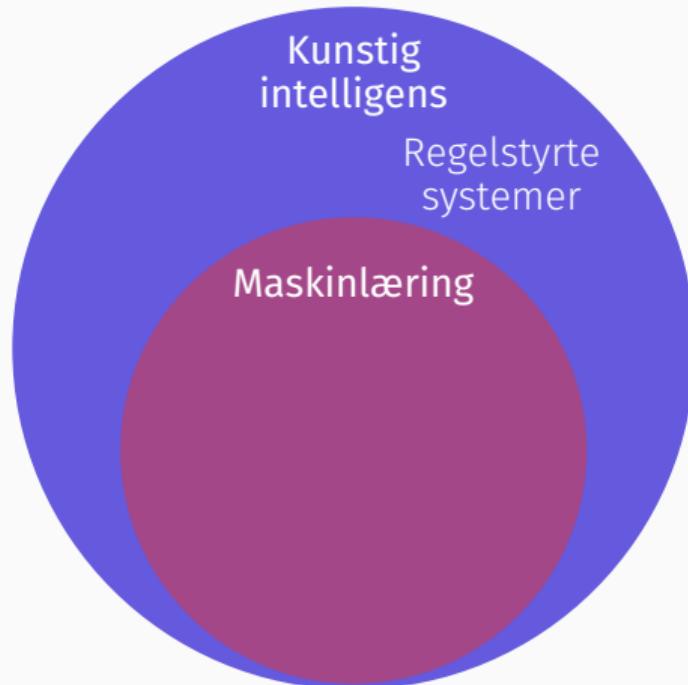
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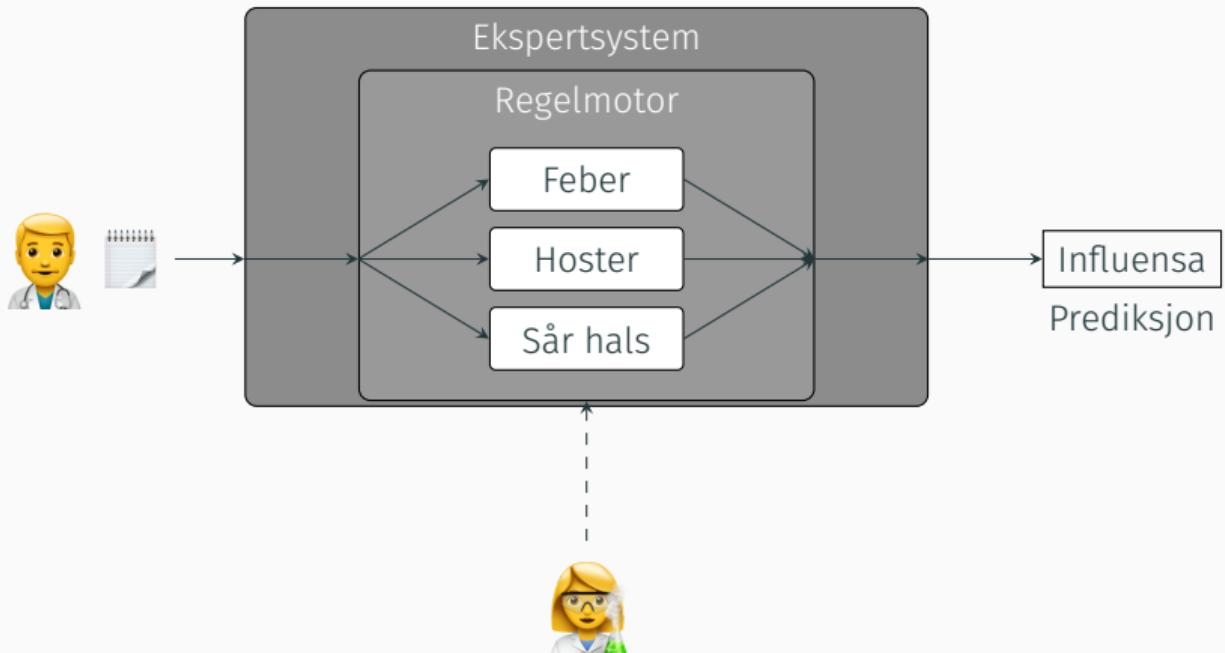
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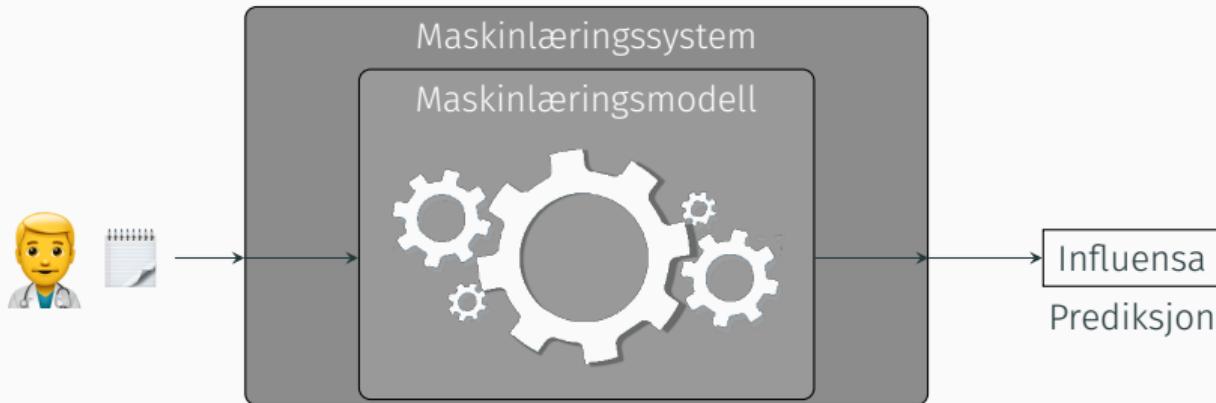
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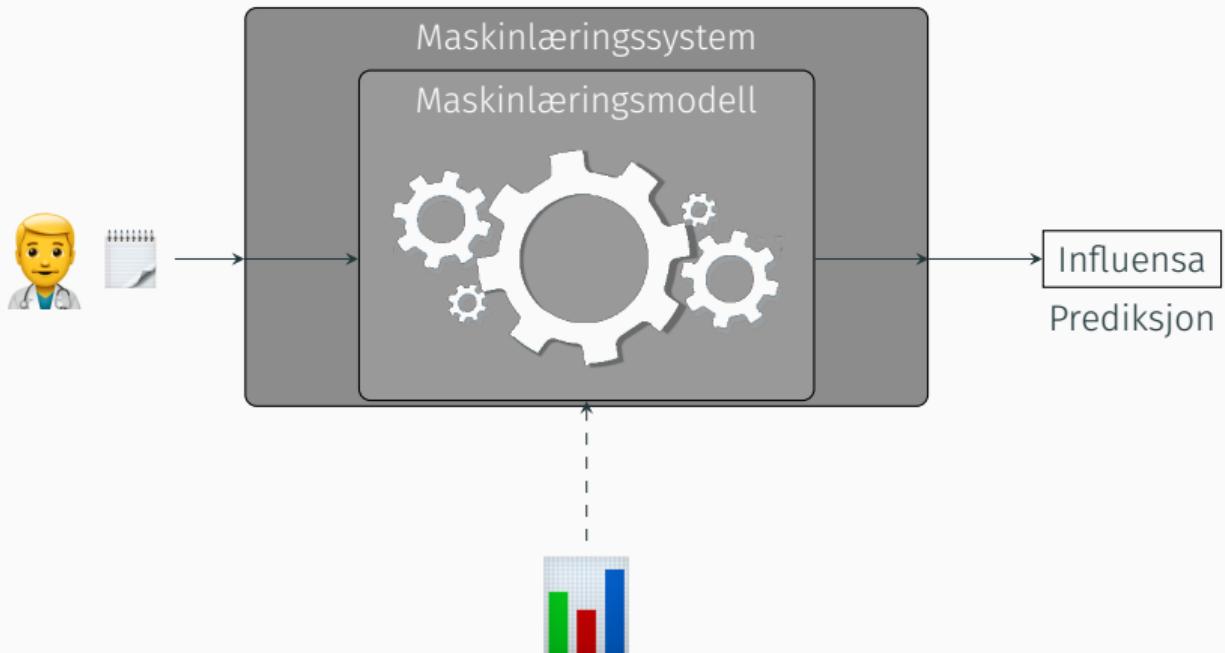
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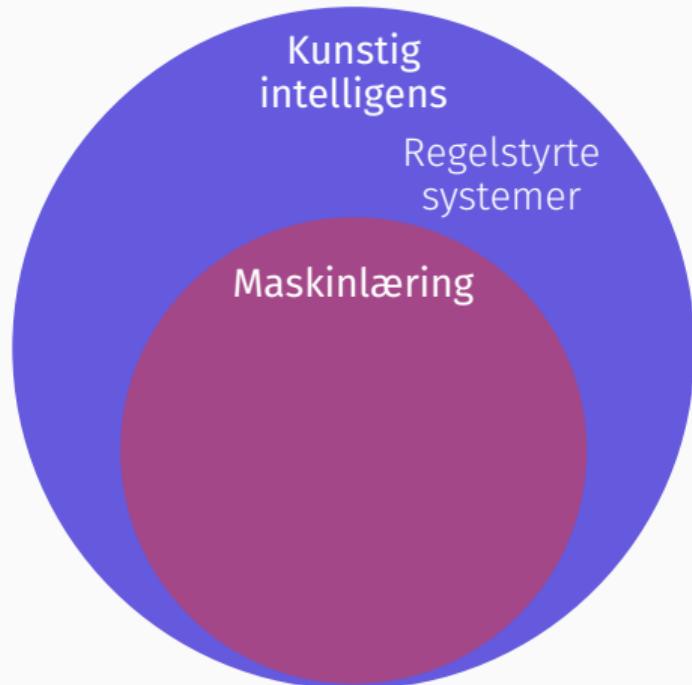
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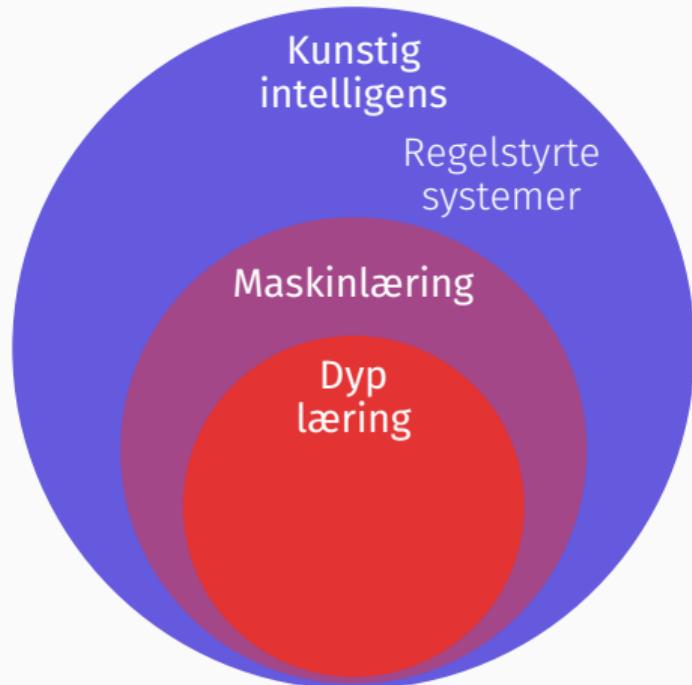
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## Maskinlæring

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



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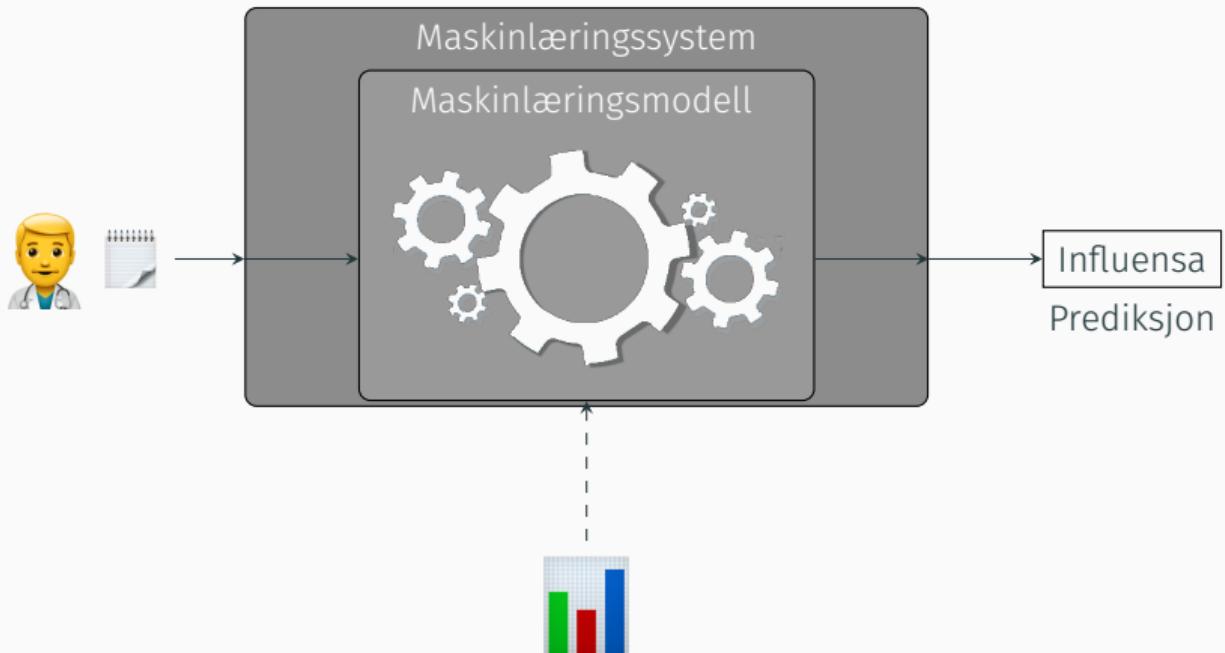
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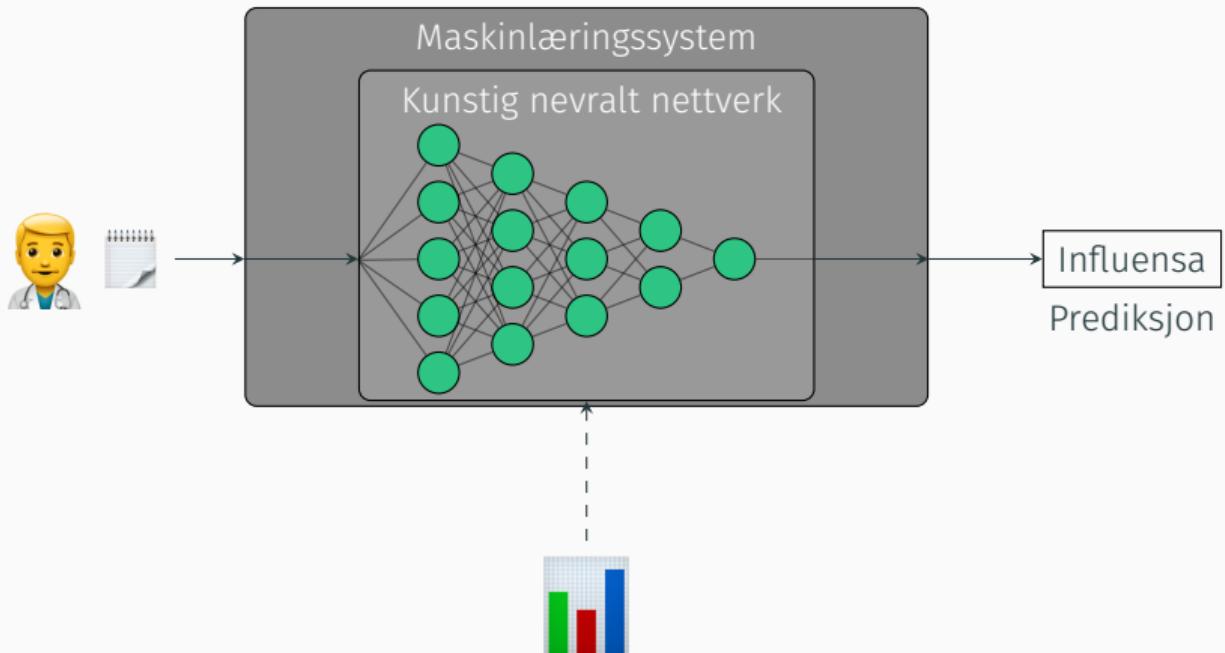
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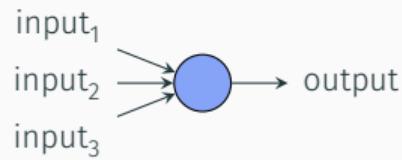
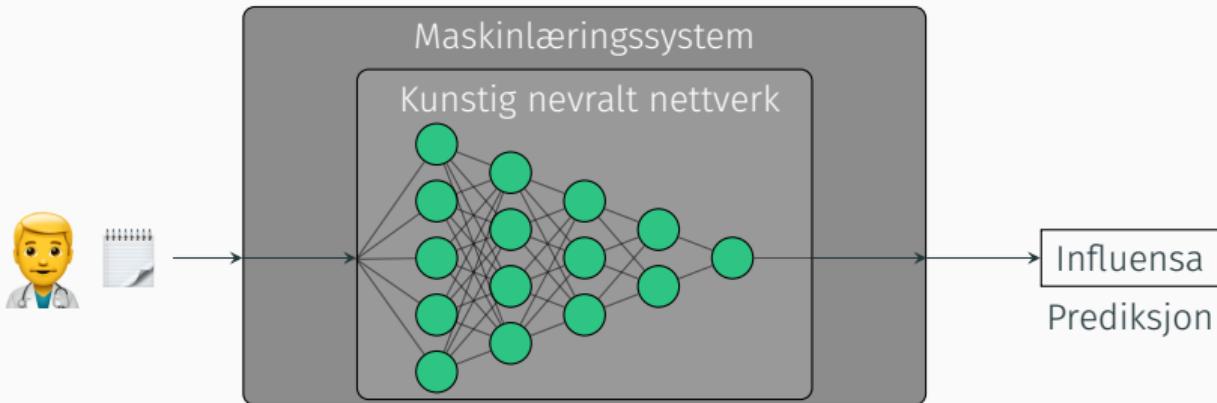
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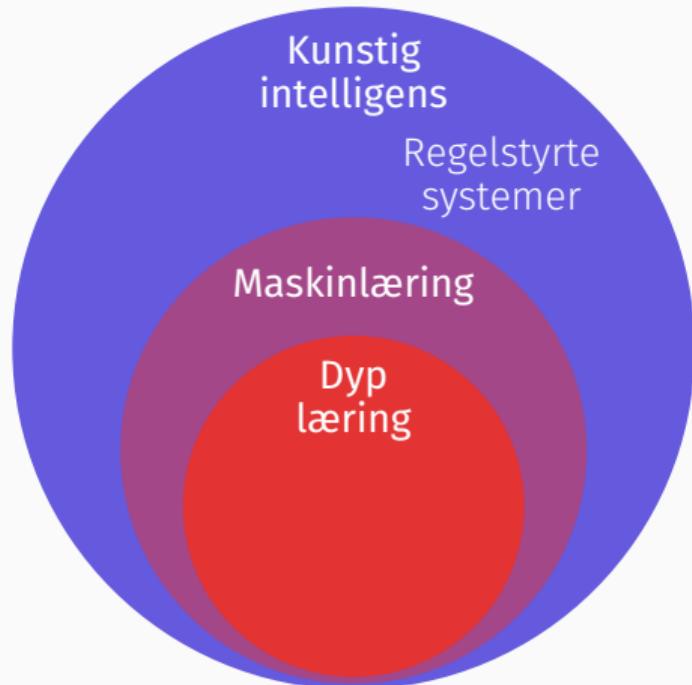
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Kunstig nevron



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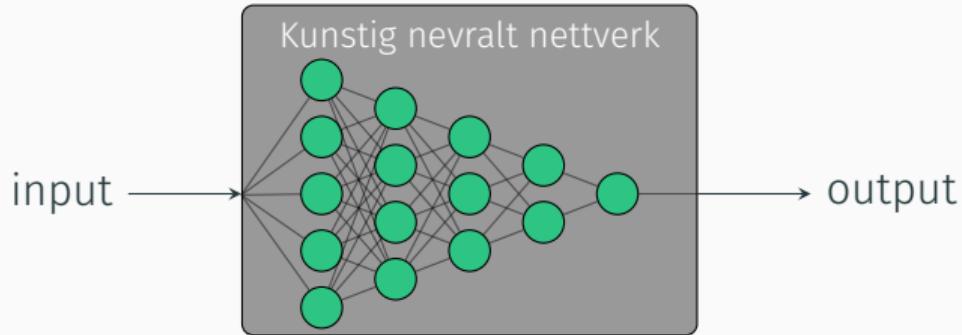
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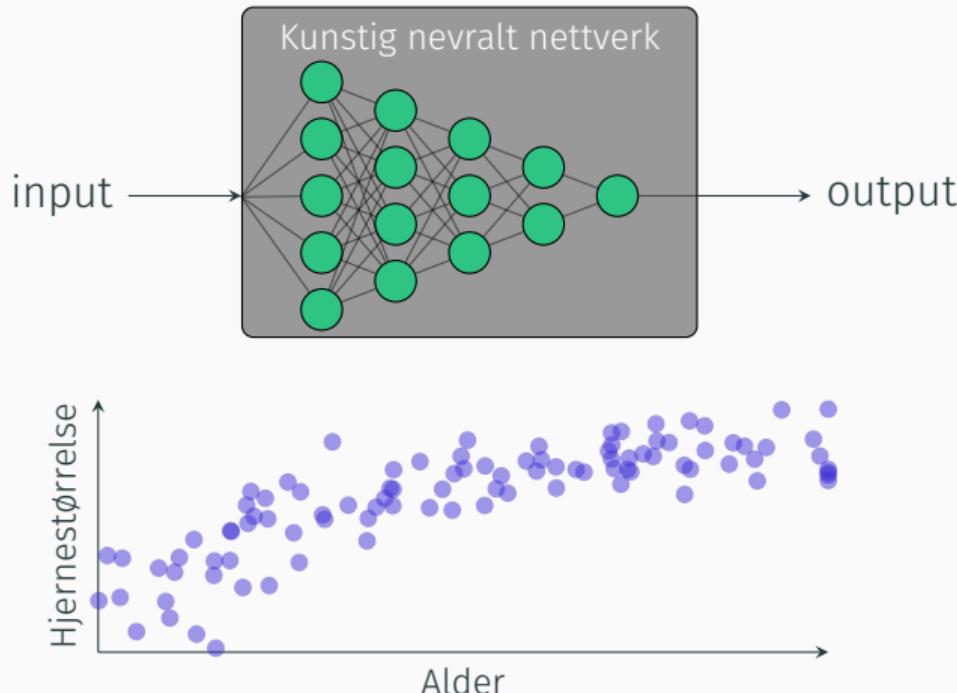
## Dyp læring

Teknologi som bruker kunstige nevrale nettverk for å løse maskinlæringsproblemer

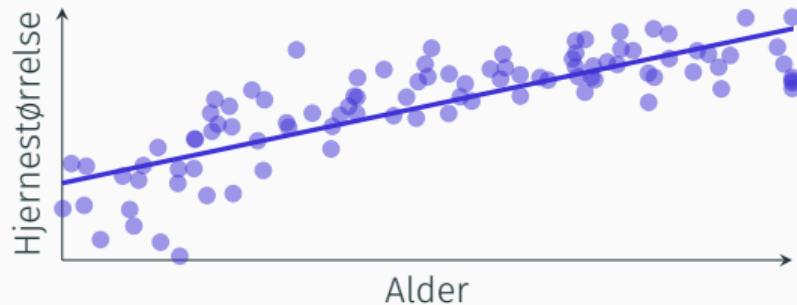
# Hvorfor bruker vi kunstige nevrale nettverk?



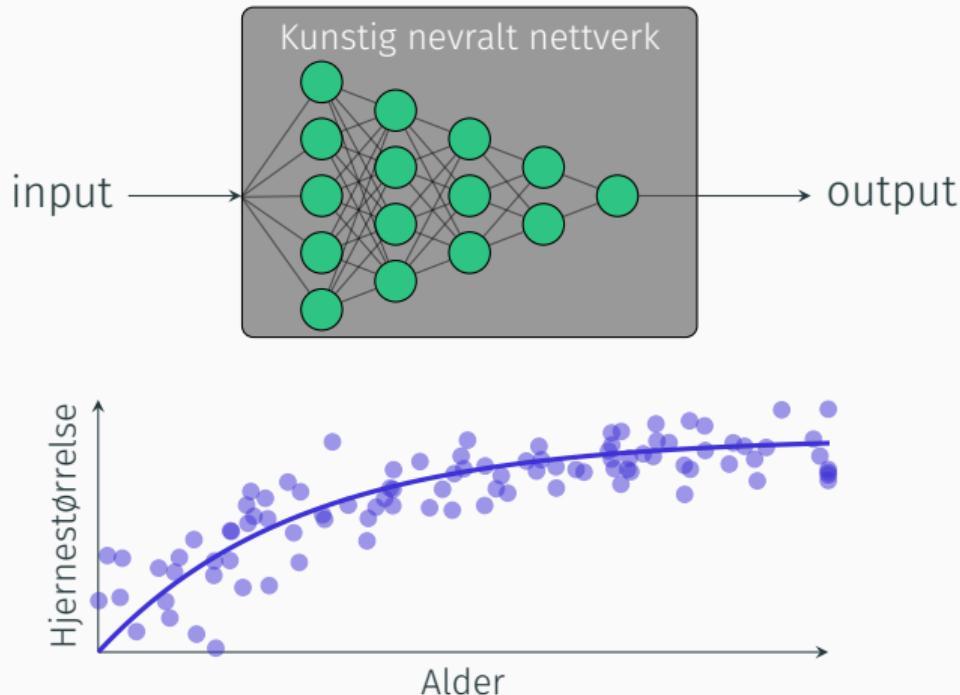
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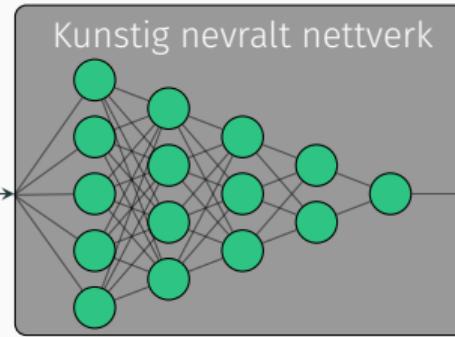
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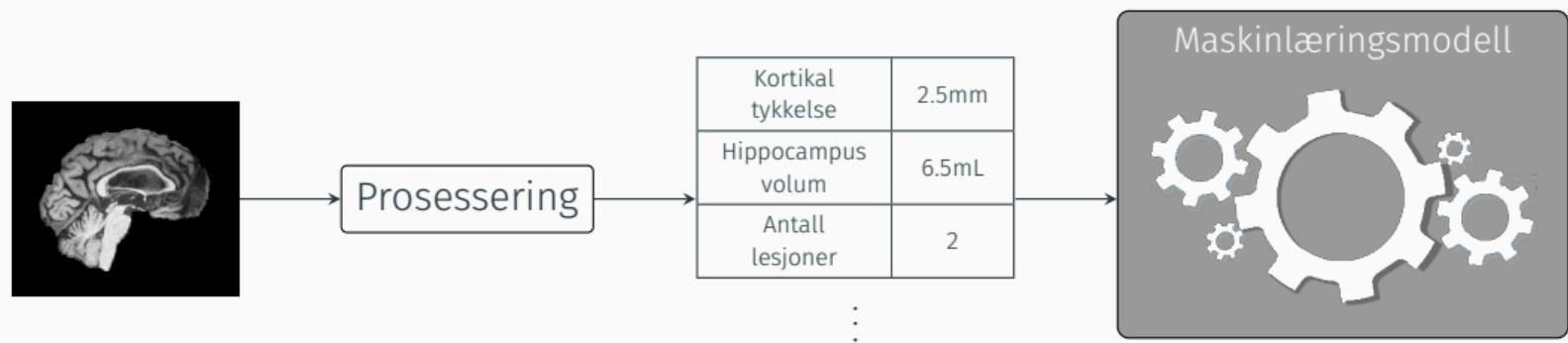


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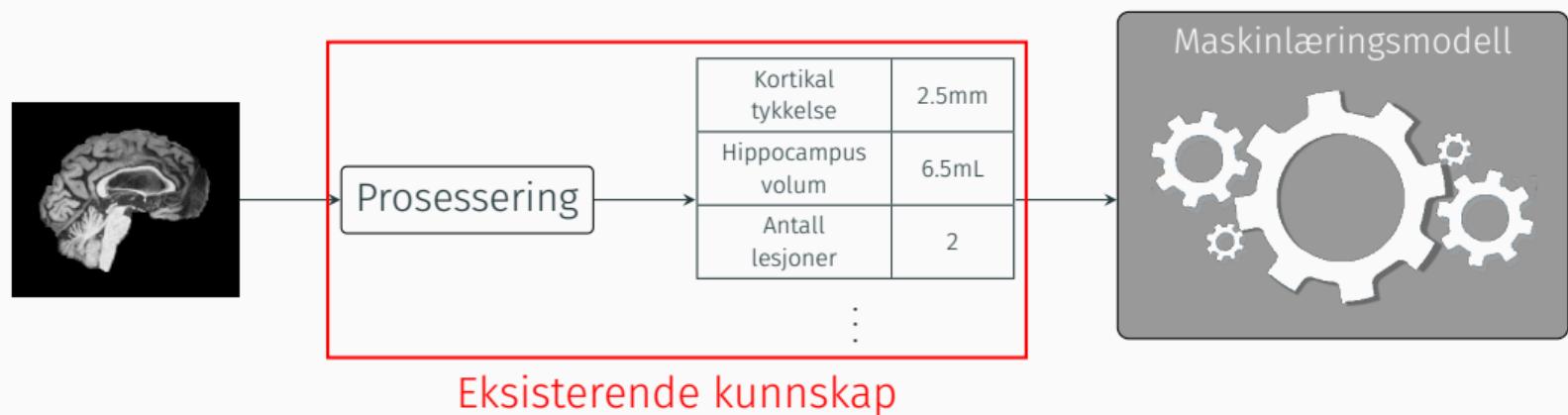


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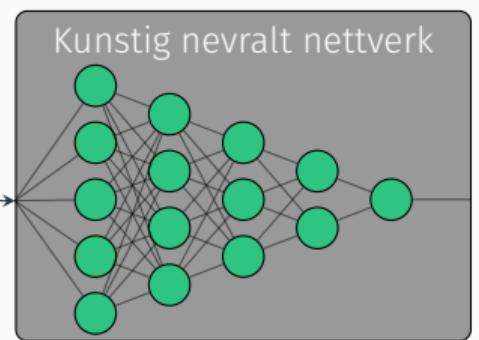
# Hva er fordelen med å bruke ustrukturert data i (medisinsk) forskning



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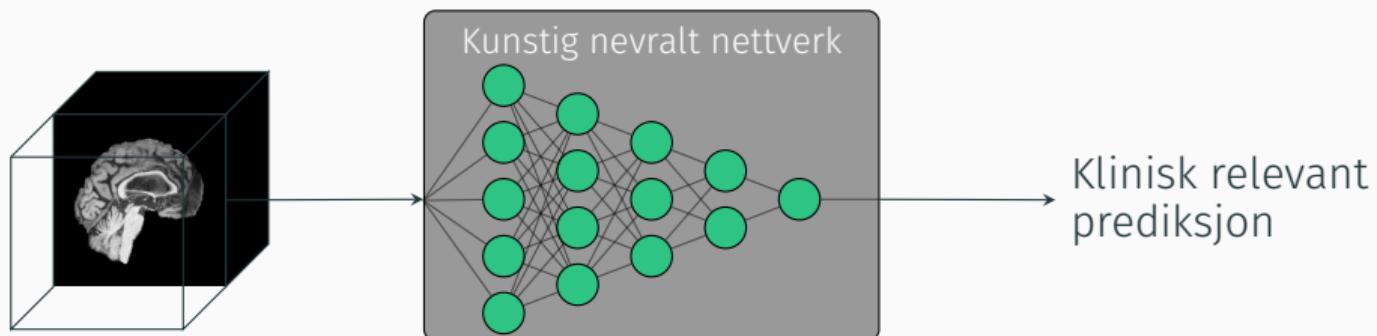
# Kunstig intelligens i medisinsk forskning

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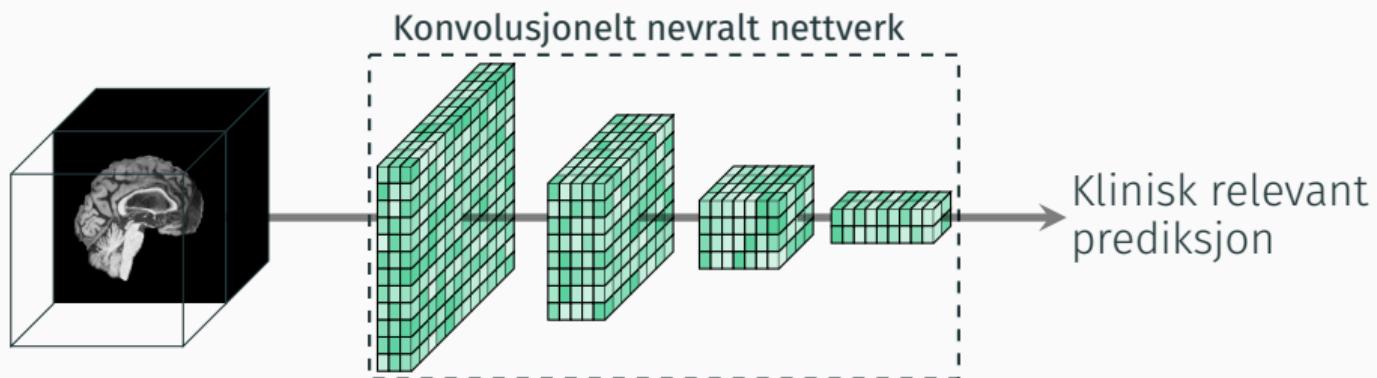


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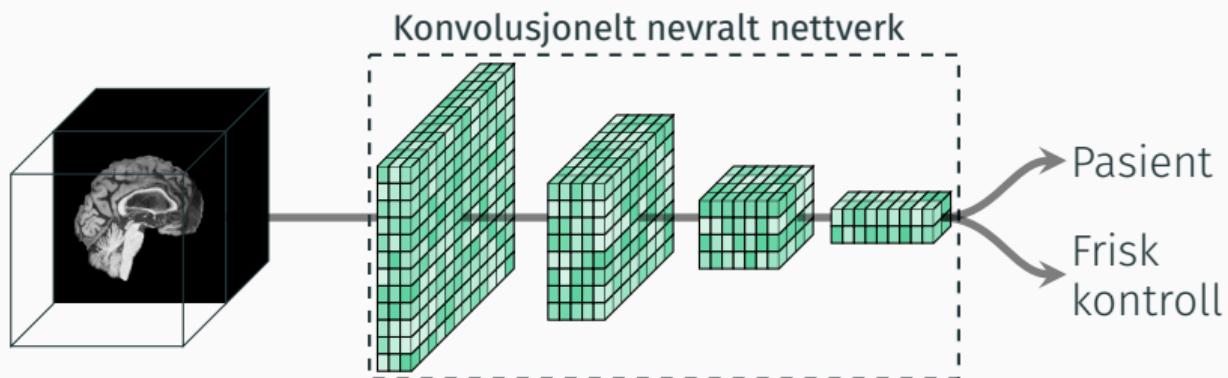
# Kunstig intelligens og hjerneavbildningsdata



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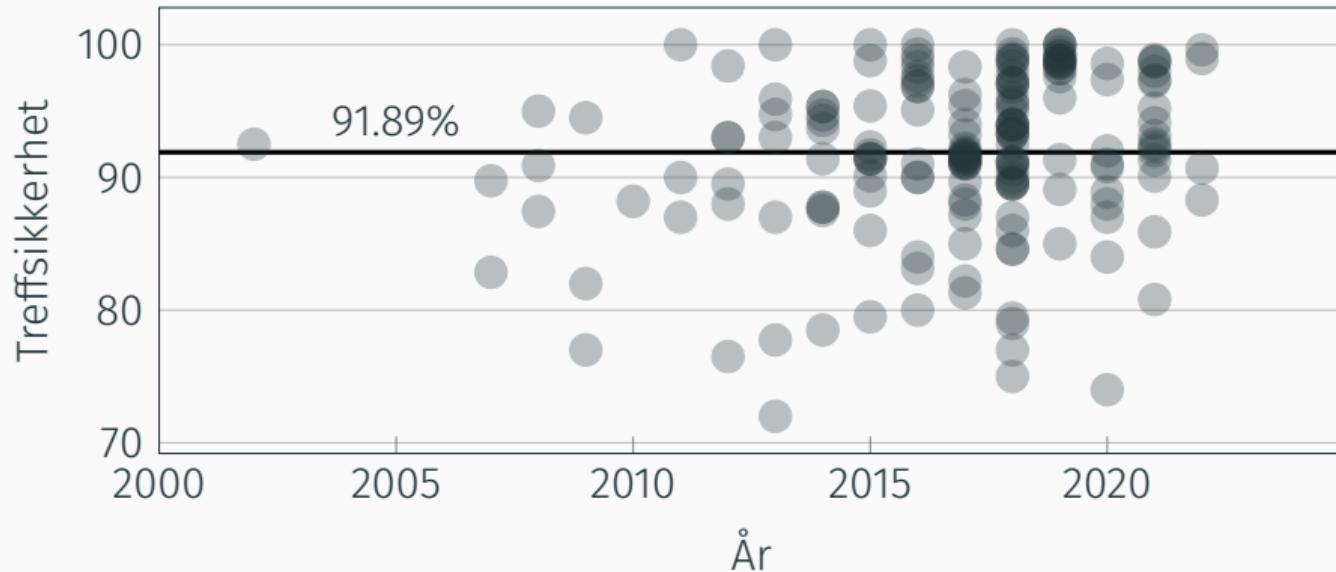
# Klassifikasjonsstudier



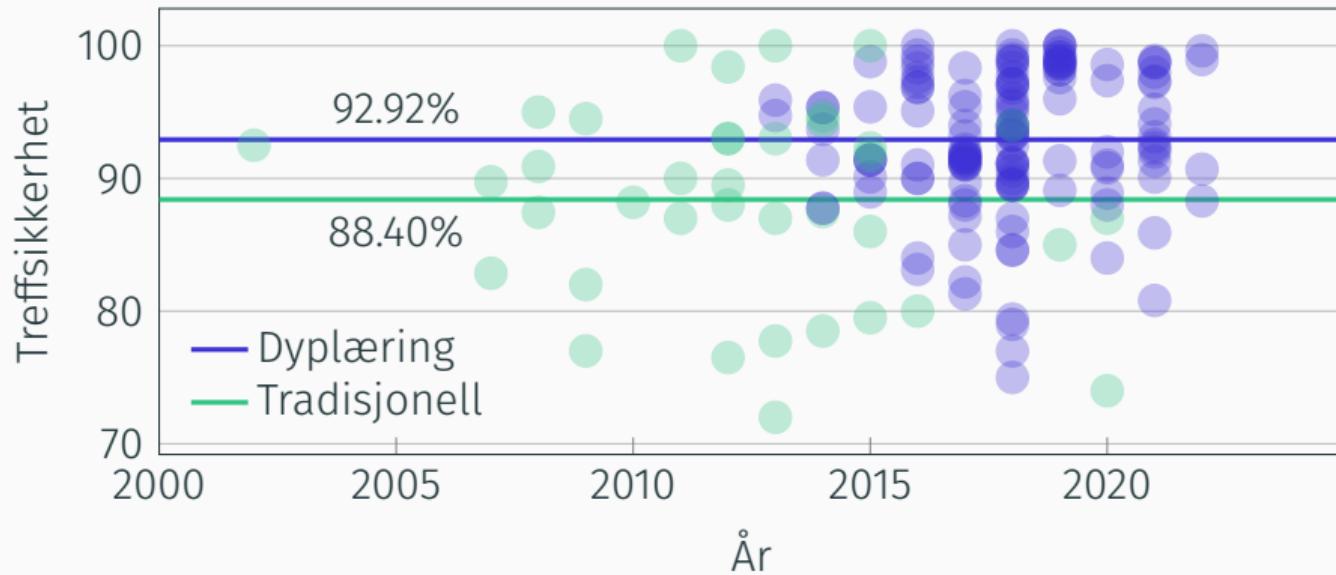
Artikler som inneholder "(dementia classification) AND (machine learning OR deep learning OR artificial intelligence)"  
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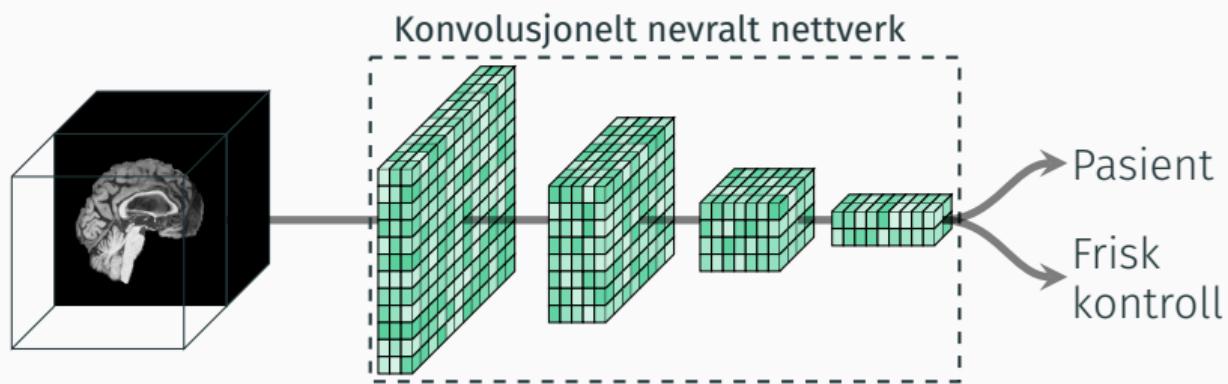


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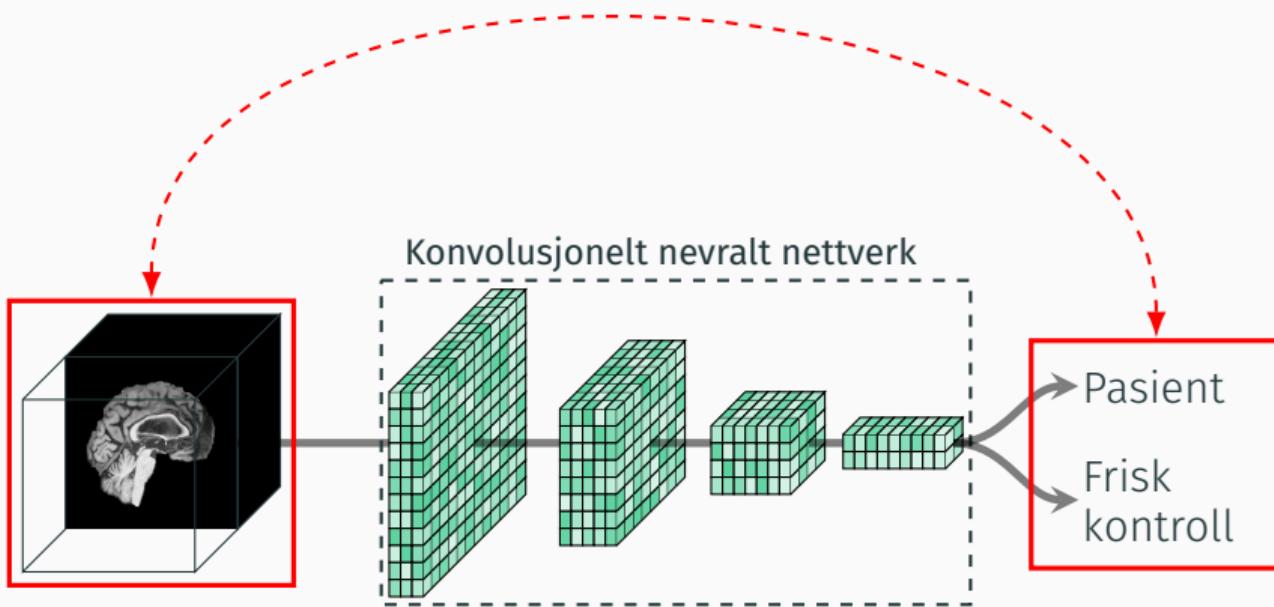


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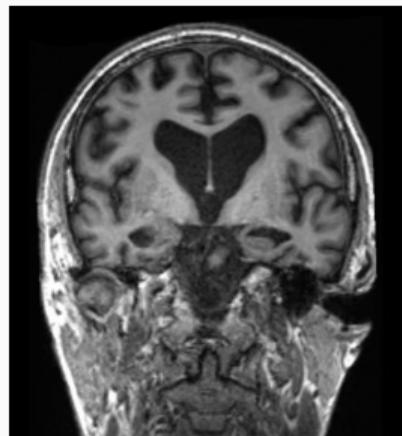




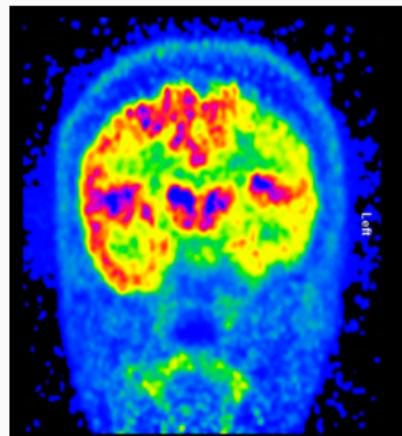
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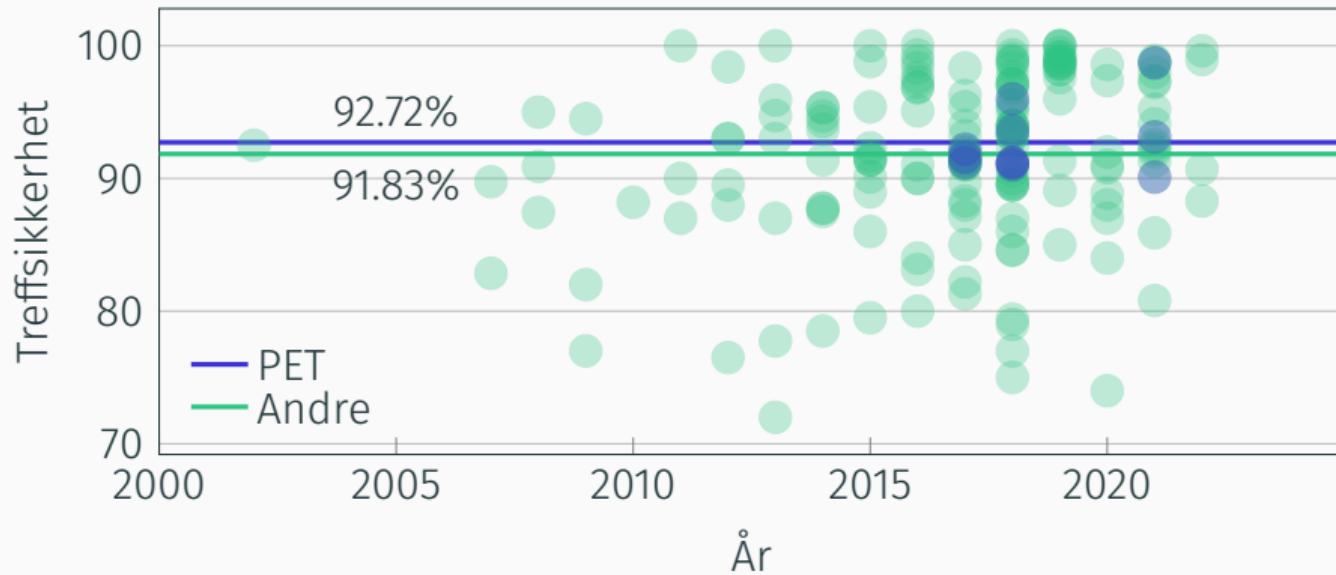
Strukturell MRI



PET



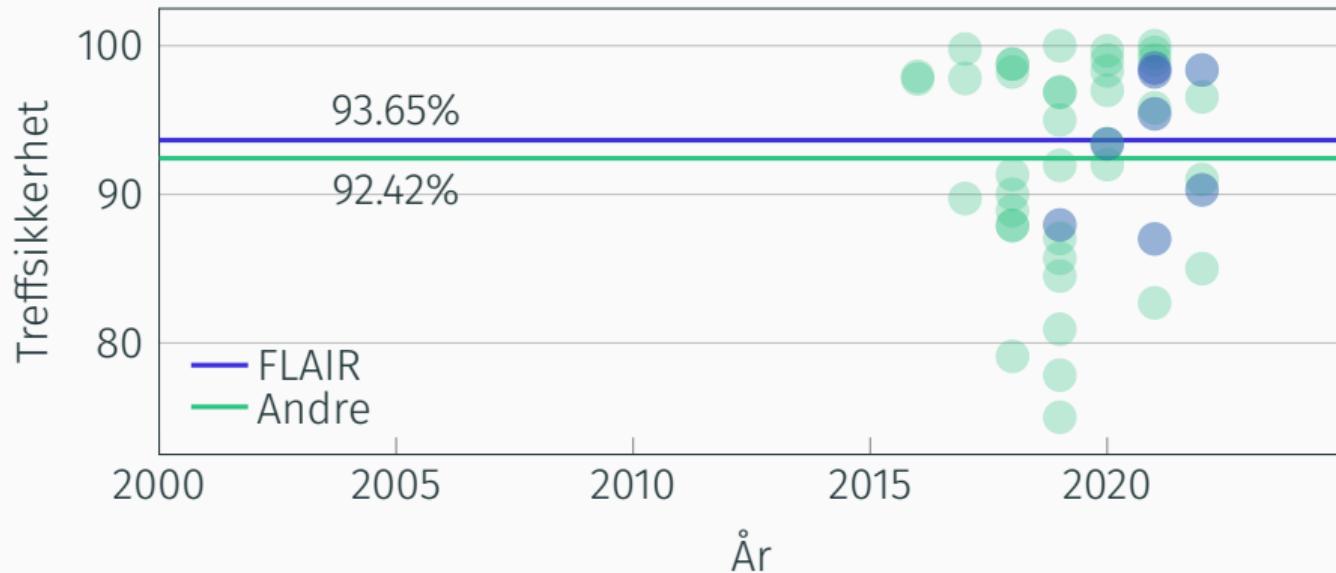
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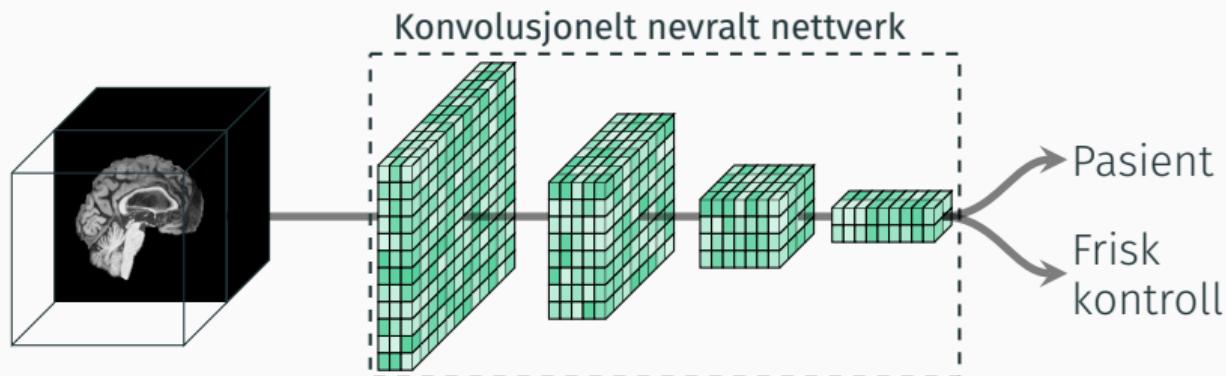
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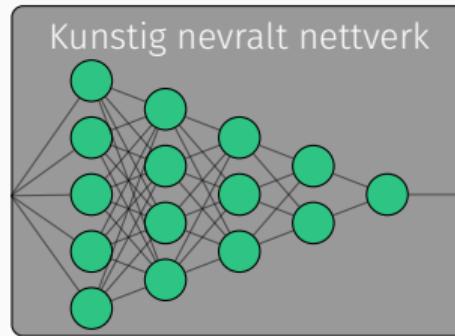
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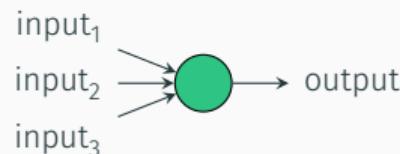
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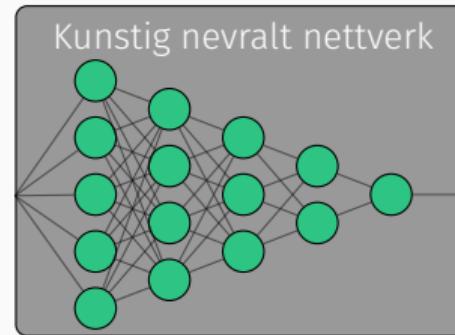
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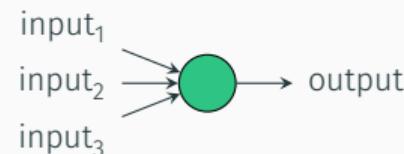
Kunstig nevron



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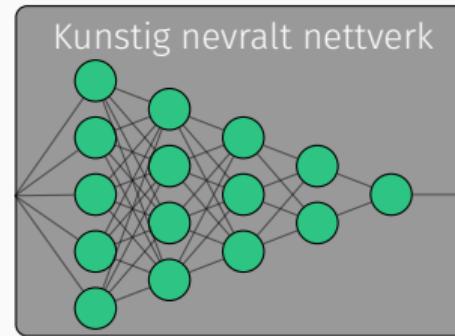
Kunstig nevron



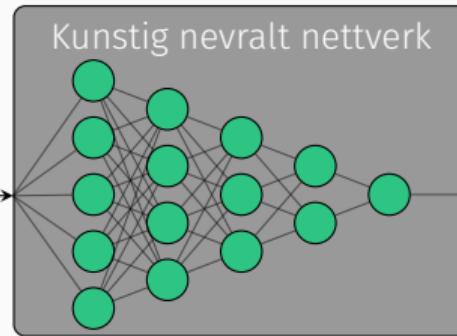
$$\text{output} = \max(0, \text{input}_1 * w_1 + \text{input}_2 * w_2 + \text{input}_3 * w_3)$$



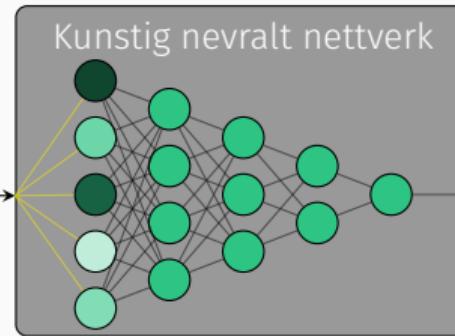
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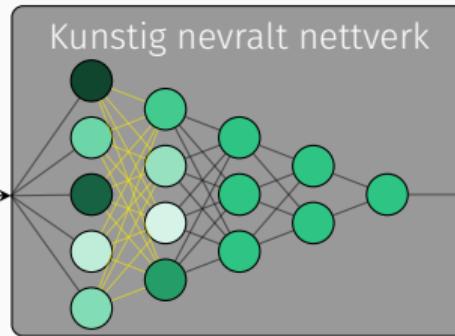
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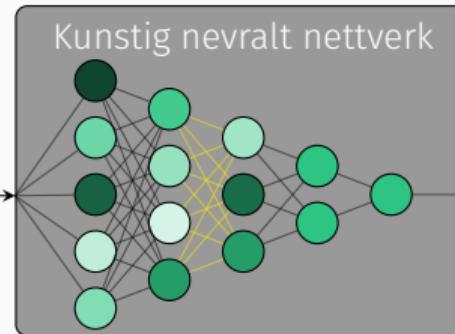
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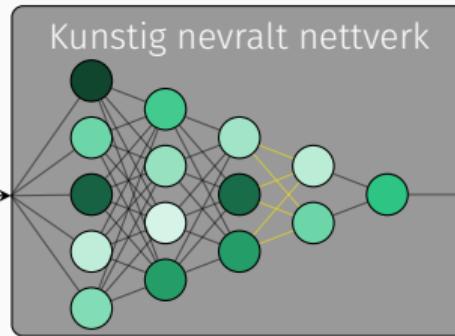
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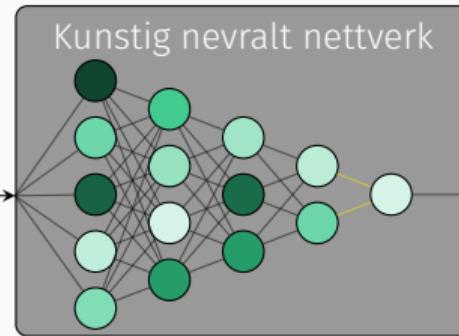
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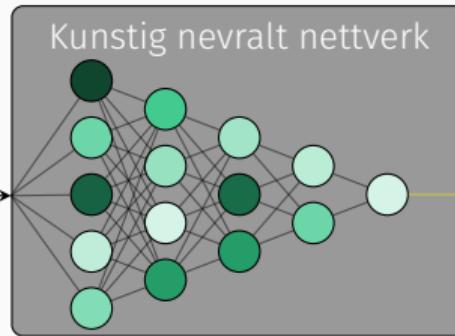
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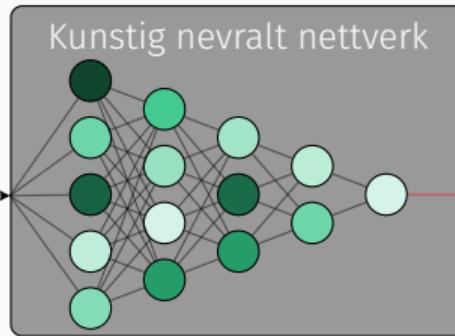
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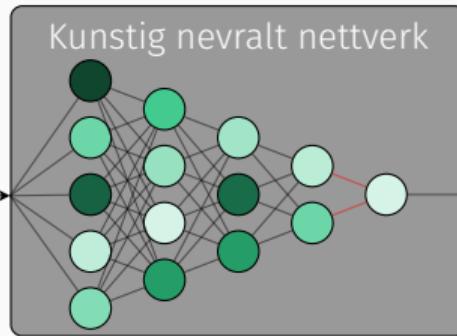
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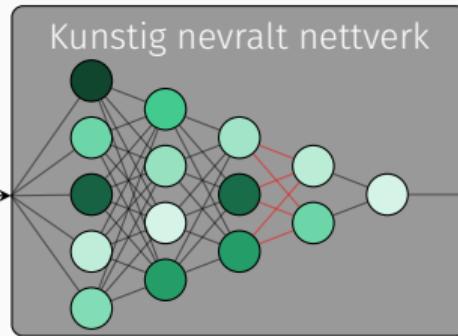
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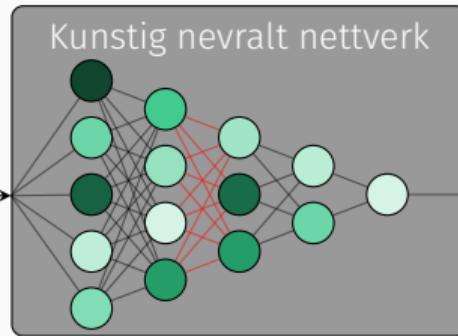
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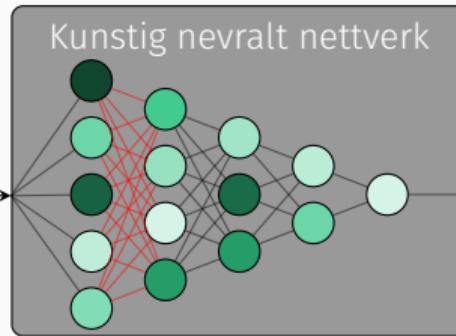
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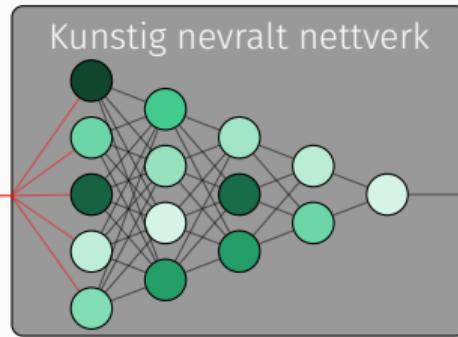
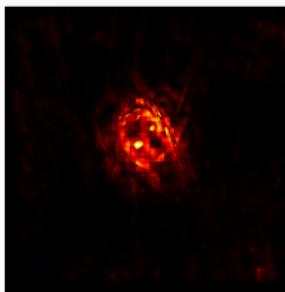
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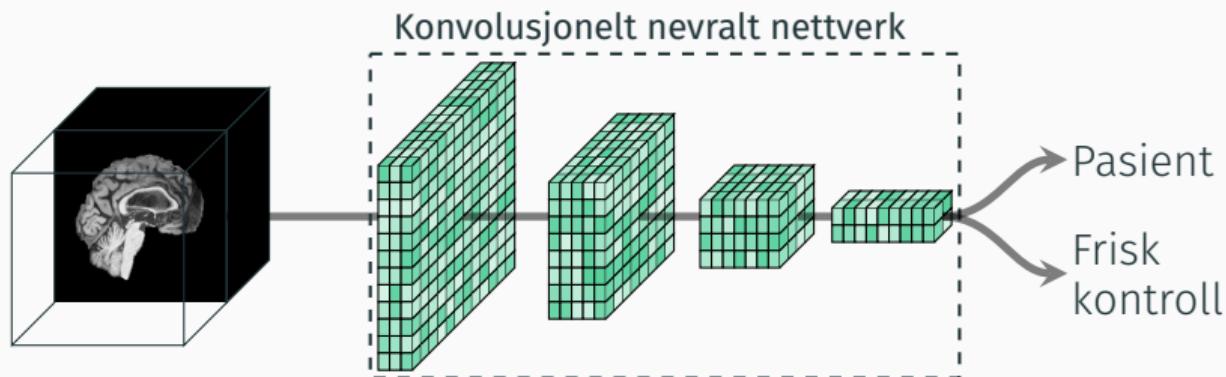
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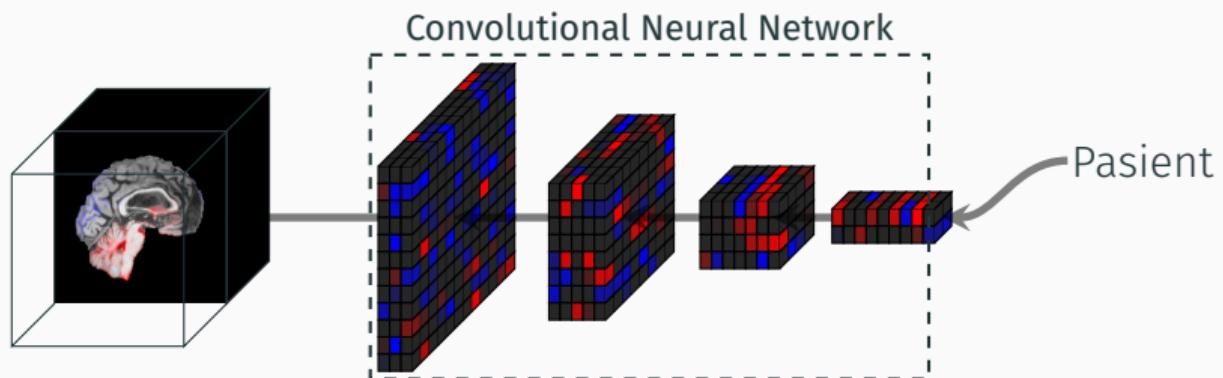
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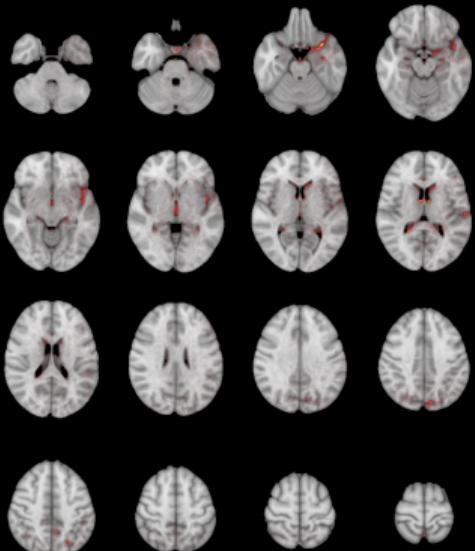
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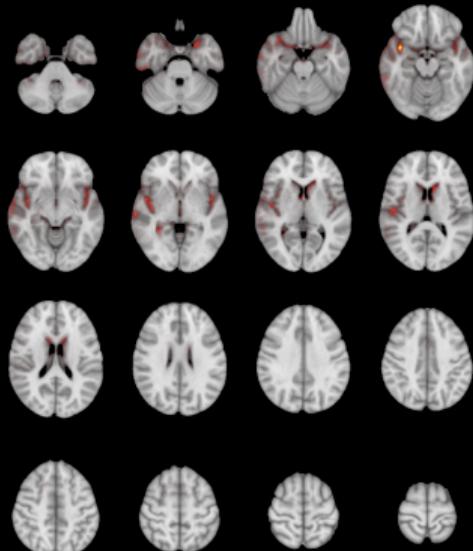
# Forklarbar kunstig intelligens og demens



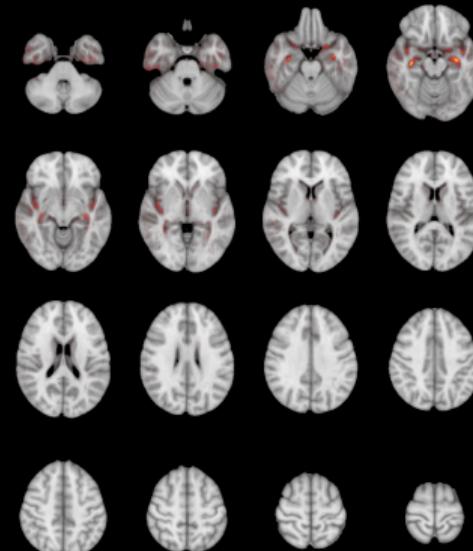
Pasient 1



Pasient 2



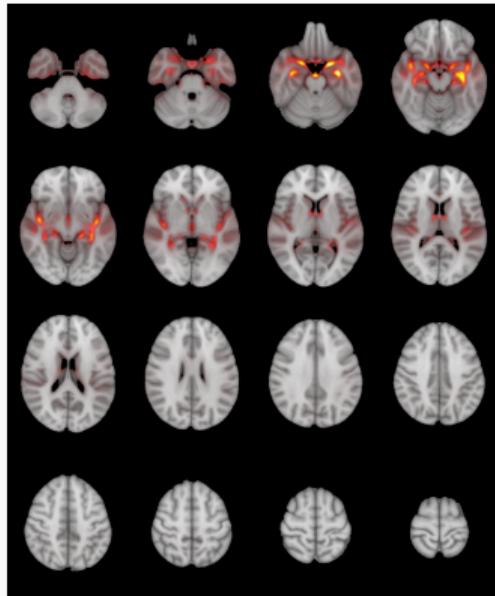
Pasient 3



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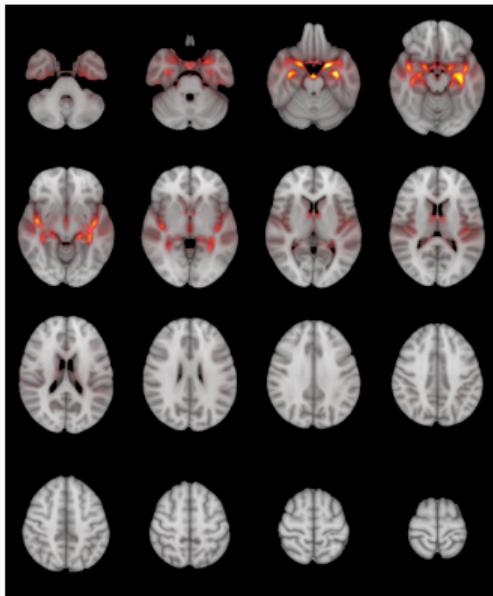
## Forklarbar KI



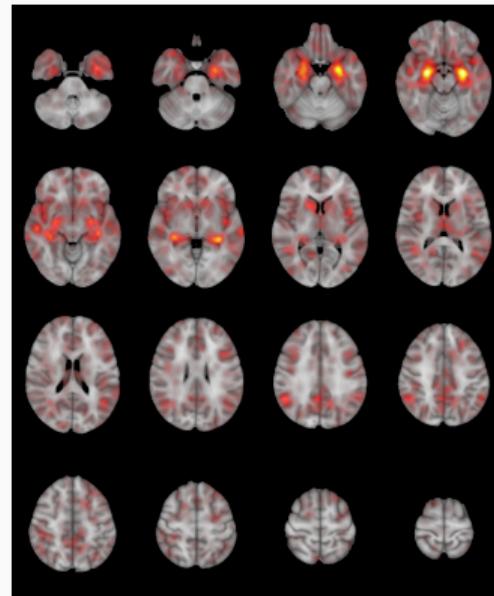
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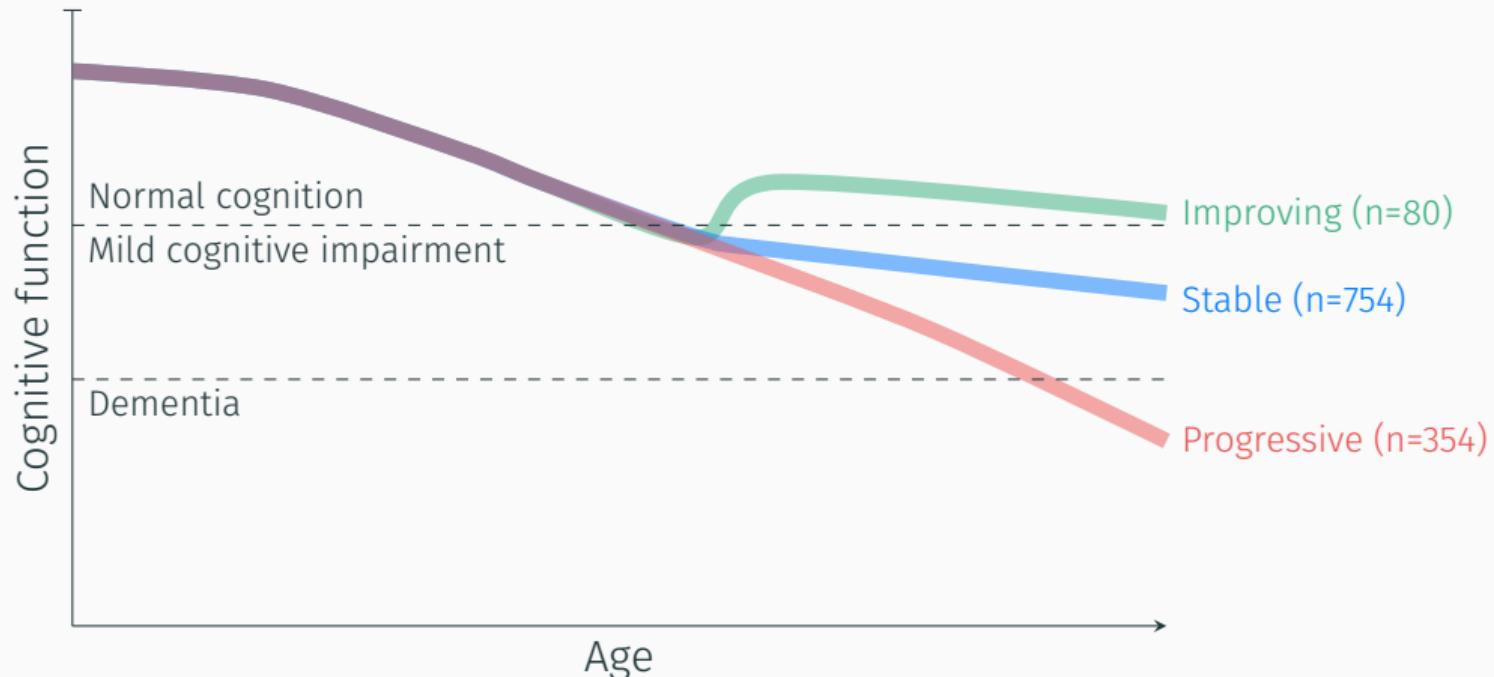
Forklarbar KI



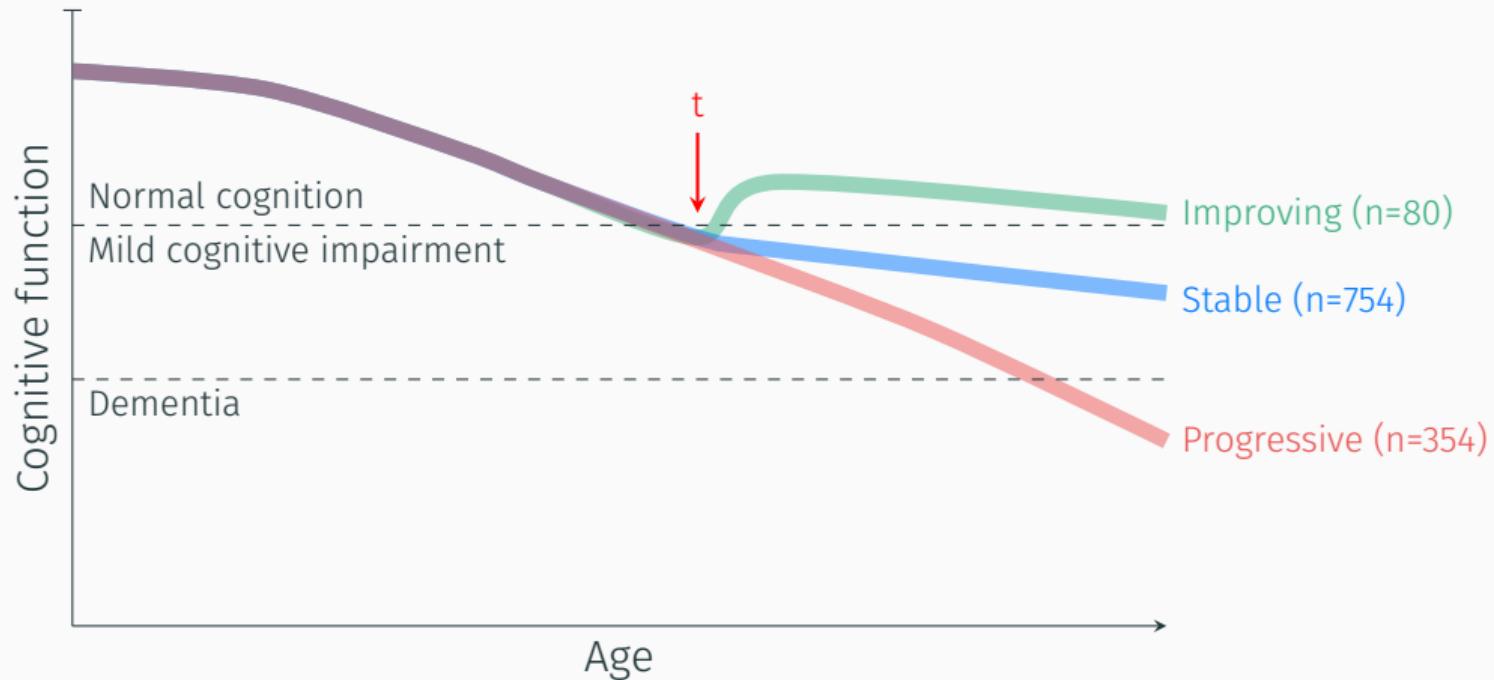
Mennesker



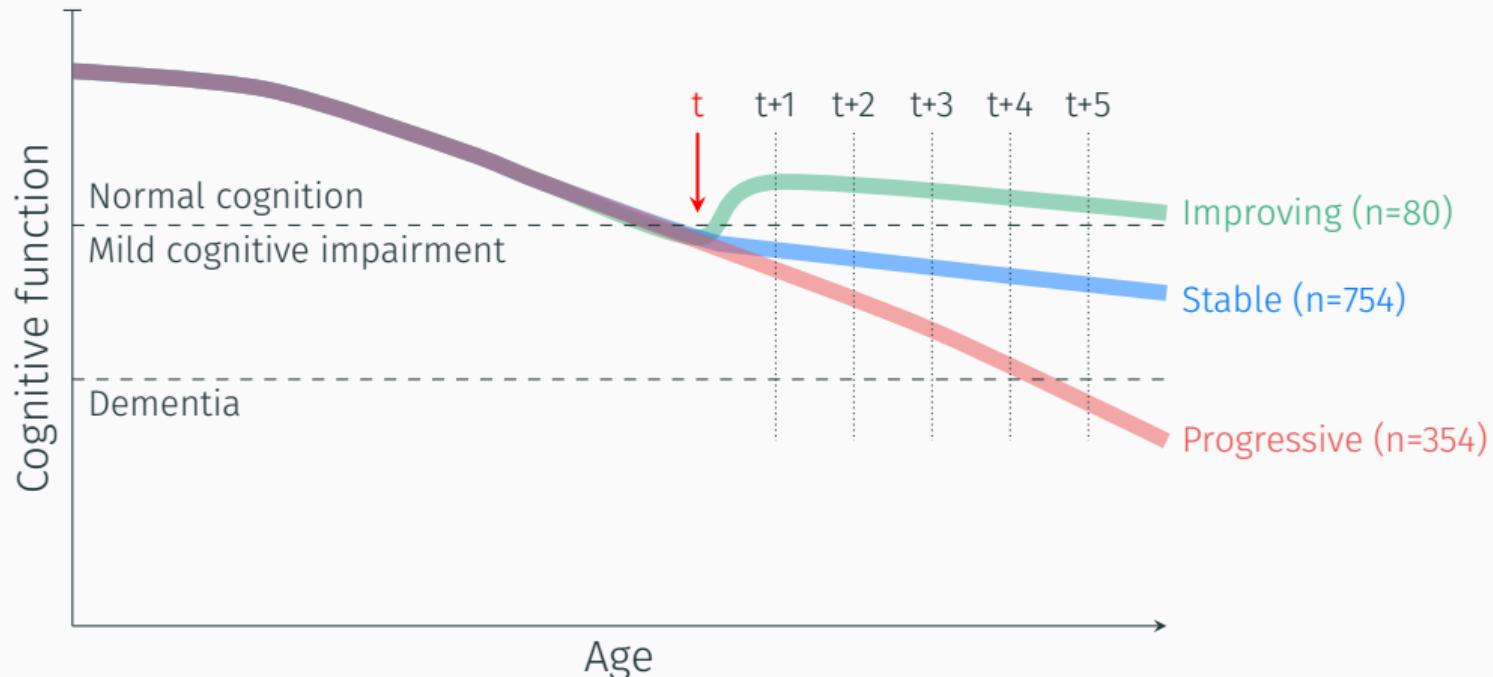
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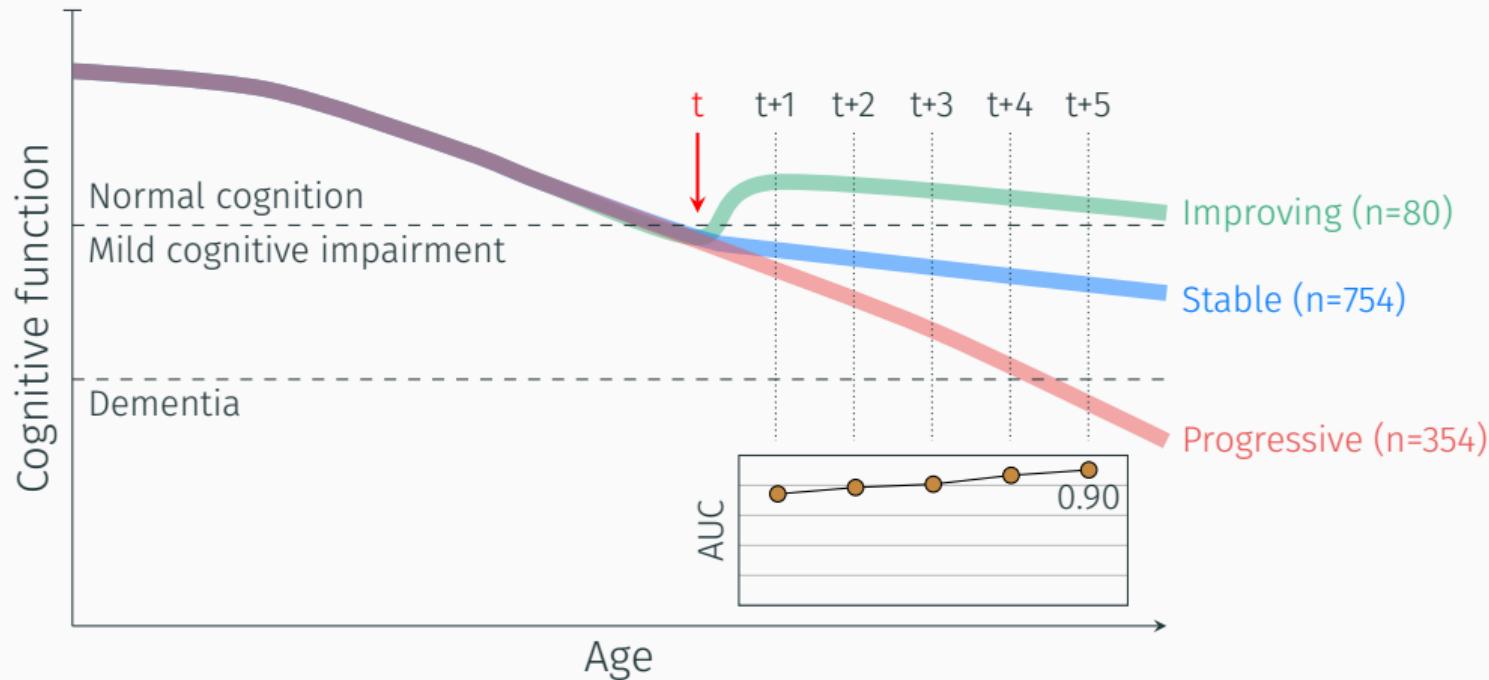
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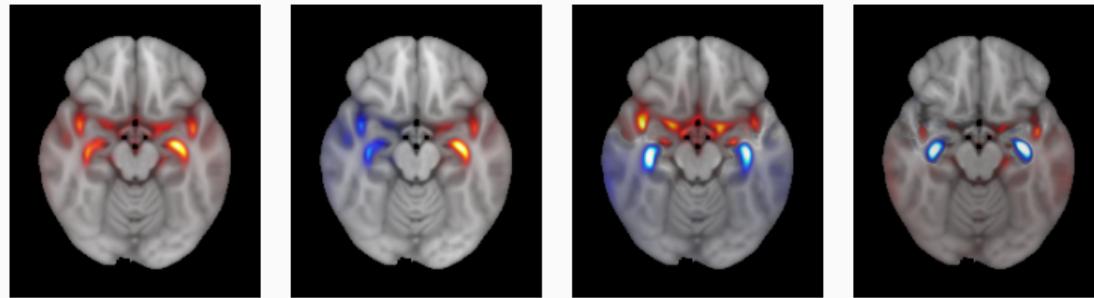
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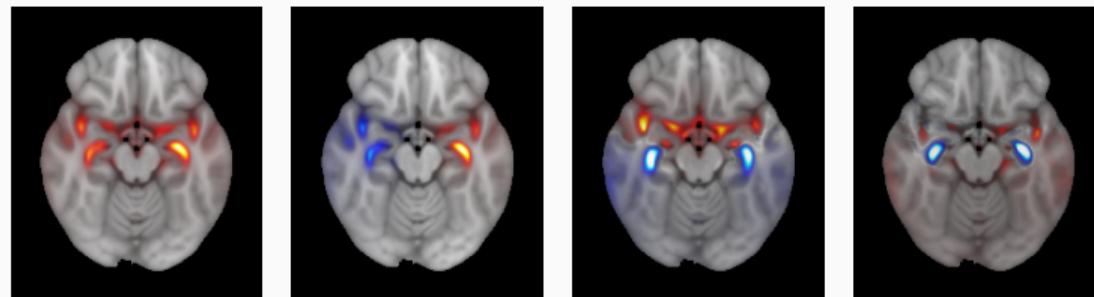
# Forklarbar kunstig intelligens og demens



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# Forklarbar kunstig intelligens og demens



Takk for oppmerksomheten!  
[estenhl@uios.no](mailto:estenhl@uios.no)



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