

Kunstig intelligens og maskinlæring

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biometrical.io



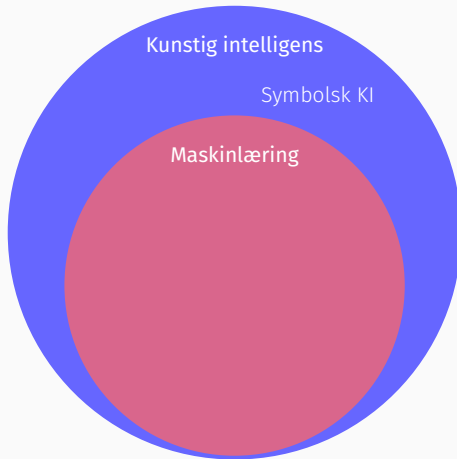
- $\theta_{t+1} = \theta_t - \alpha \nabla_{\theta} \mathcal{L}(\theta_t)$
- $\delta_i = \frac{\partial \mathcal{L}}{\partial z_i}, \delta_j = \sum_i w_{ij} \delta_i, \frac{\partial \mathcal{L}}{\partial w_{ij}} = \delta_i a_j$
- $p_i = \frac{e^{z_i}}{\sum_{j=1}^K e^{z_j}}$
- $\mathcal{L}(\theta) = -\frac{1}{N} \sum_{i=1}^N \sum_{k=1}^K y_{ik} \log p_{ik}$
- $y_{i,j,k} = \sum_{l=1}^C \sum_{p=1}^H \sum_{q=1}^W x_{i+p-1,j+q-1,l} W_{p,q,l,k}$
- $\hat{x} = \frac{x-\mu}{\sqrt{\sigma^2+\epsilon}}, y = \gamma \hat{x} + \beta$
- $r_i \sim \text{Bernoulli}(p), h_i = r_i \odot f(x_i), f_{\text{out}}(x) = \frac{1}{1-p} \sum_{i=1}^n h_i$
- $L(x, g(f(x))) = \|x - g(f(x))\|^2$



Kunstig intelligens

Kunstig intelligens:

Maskiner som løser oppgaver
som krever intelligens

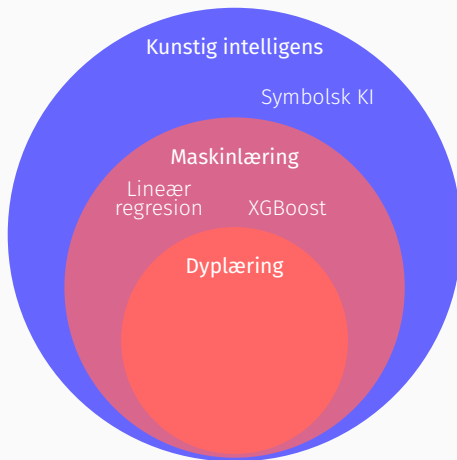


Kunstig intelligens:

Maskiner som løser oppgaver som krever intelligens

Maskinlæring:

Modeller som lærer å løse oppgaver gjennom å finne mønster i data



Kunstig intelligens:

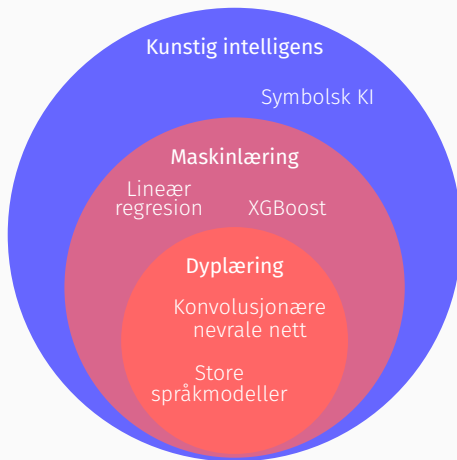
Maskiner som løser oppgaver som krever intelligens

Maskinlæring:

Modeller som lærer å løse oppgaver gjennom å finne mønster i data

Dyplæring:

Maskinlæringsmodeller som er lagvis organisert (\approx dype nevrale nett) for å lære mer effektive representasjoner av data



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Konvolusjonære nevrale nett:

Nevrale nett som løser problemer i bilde data

Store språkmodeller:

Nevrale nett som løser problemer i naturlig språk (ChatGPT)

Terminologi: Sterk vs svak KI

Svak (smal)

Sterk (generell)

I stand til å løse flere problemer
og/eller i flere domener/miljøer



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← Mer spesifikk



Mer generell →

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Bilde-
diagnostikk

Forsikrings-
prising

Dokument-
lesing



← Mer spesifikk

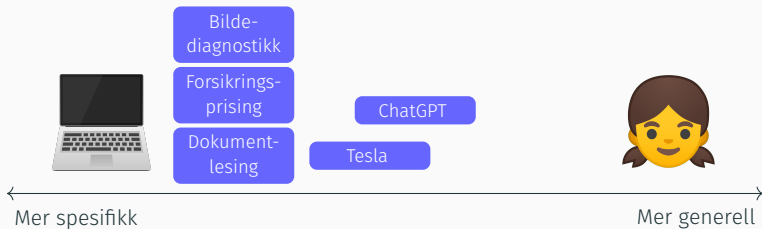
Mer generell →

Terminologi: Sterk vs svak KI

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Terminologi: Veiledet vs ikke-veiledet læring

Veiledet læring (Supervised learning)



→ Katt



→ Hund



→ Katt



→ Hund

Ikke-veiledet læring (Unsupervised learning)



Generative modeller

Oslo er hovedstaden i _____

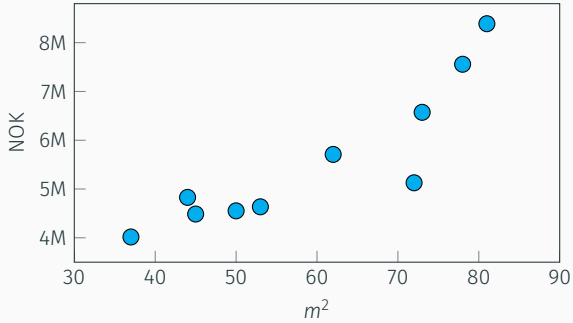
| m ² | NOK |
|----------------|-----------|
| 72 | 5.127.379 |
| 50 | 4.552.170 |
| 45 | 4.486.654 |
| 62 | 5.709.276 |
| 53 | 4.634.912 |
| 81 | 8.388.570 |
| 44 | 4.828.170 |
| 78 | 7.557.770 |
| 37 | 4.016.520 |
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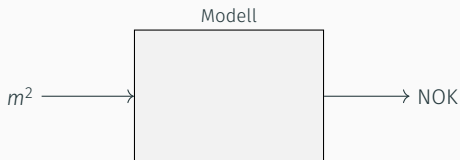
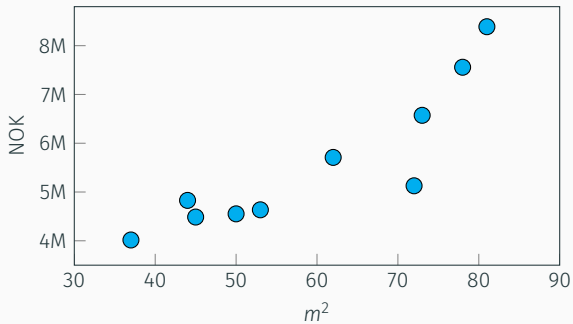
Input

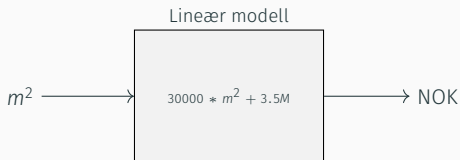
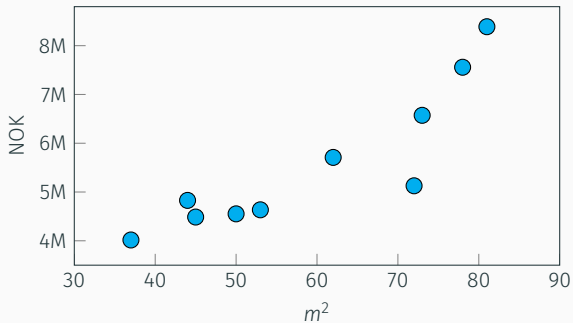
Output

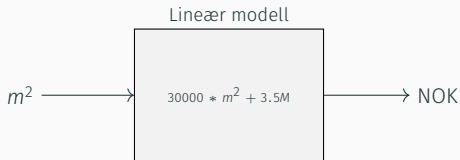
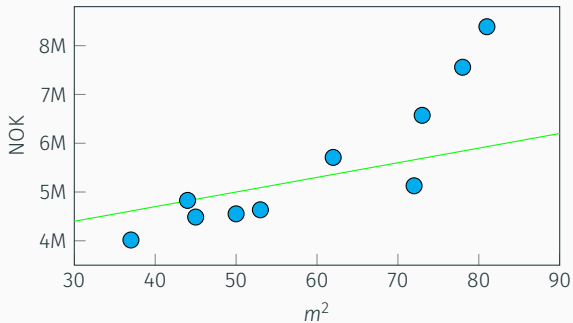
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← Datapunkt

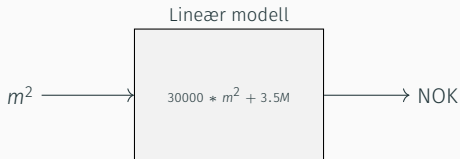
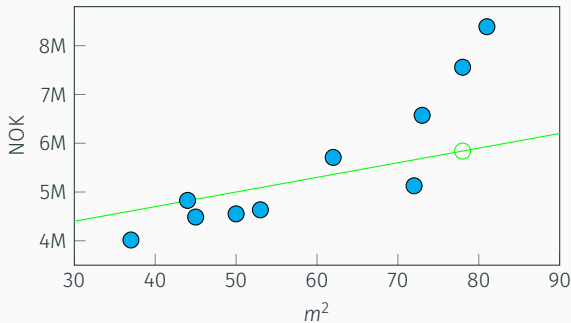


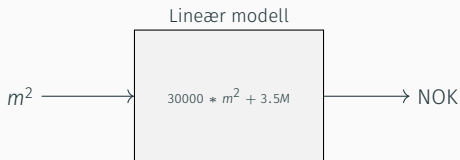
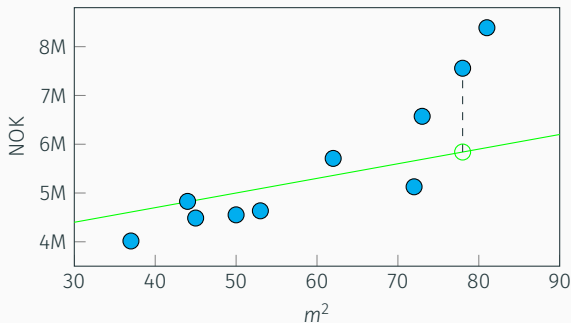


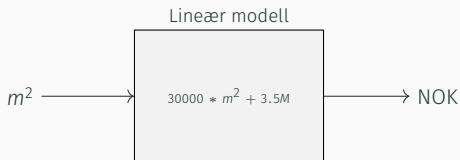
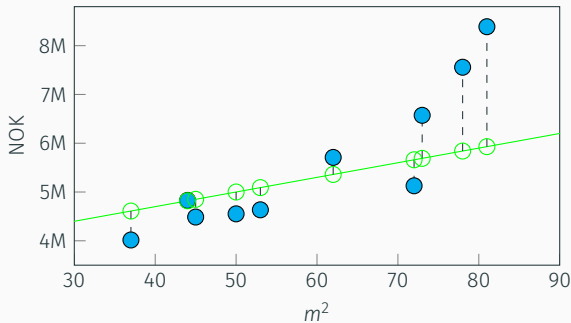


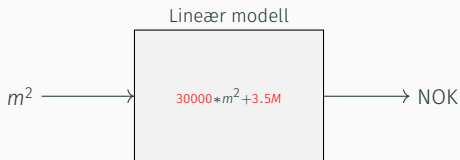
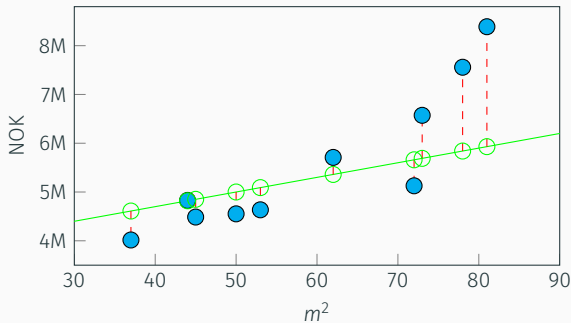


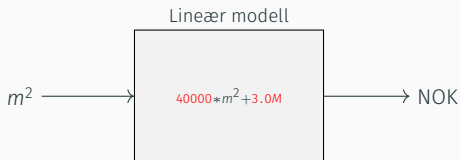
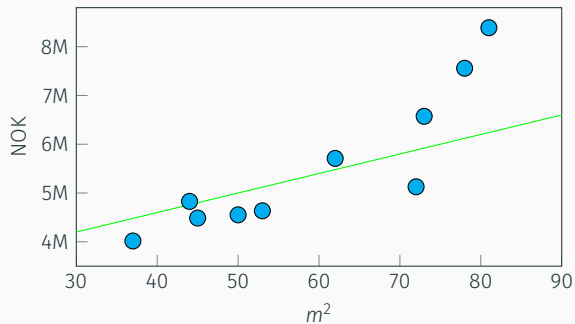
Teori: Prediksjon



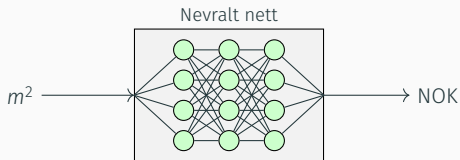
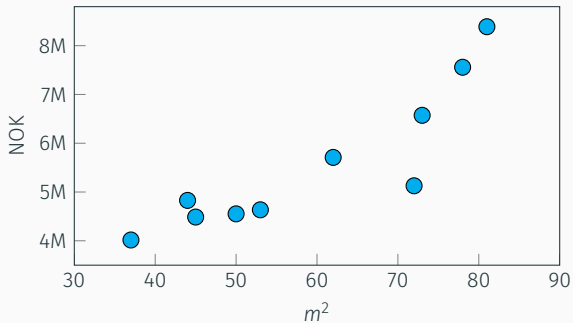




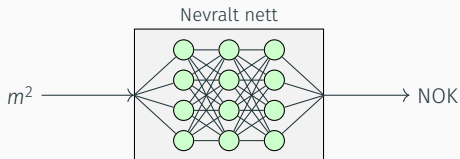
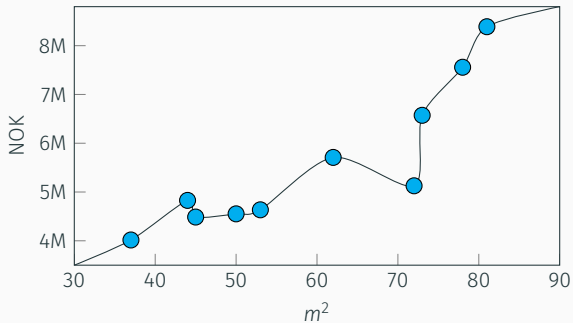


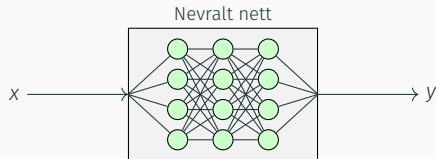


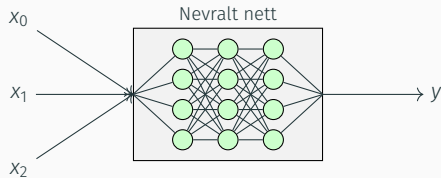
Teori: Nevrale nett

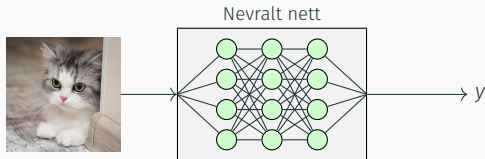


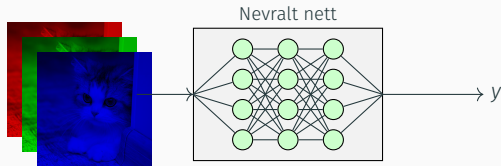
Teori: Nevrale nett



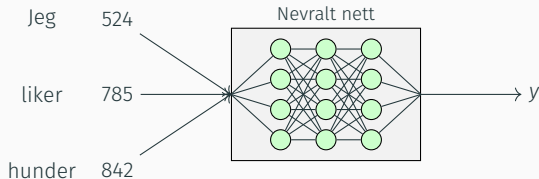


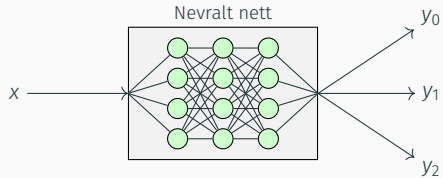


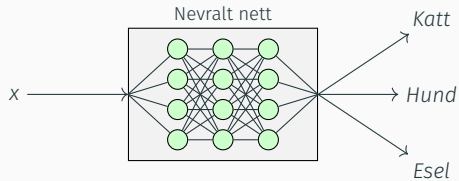


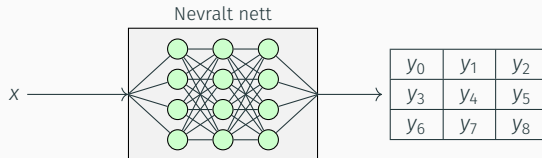


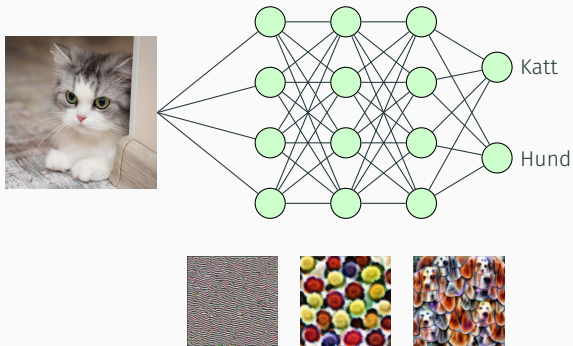
| adgang | adkomst | advarsel | aktelse | ... |
|--------|---------|----------|---------|-----|
| 0 | 1 | 2 | 3 | ... |

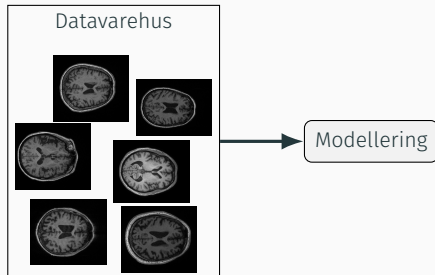


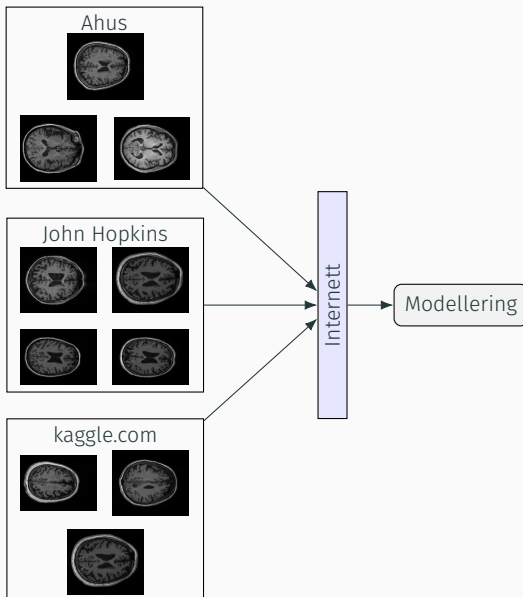




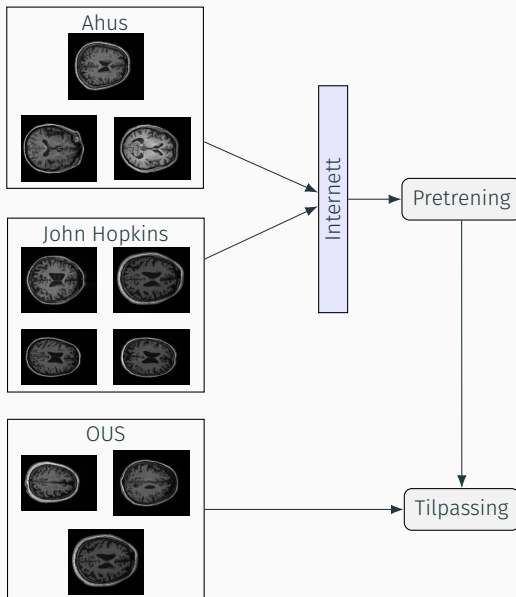


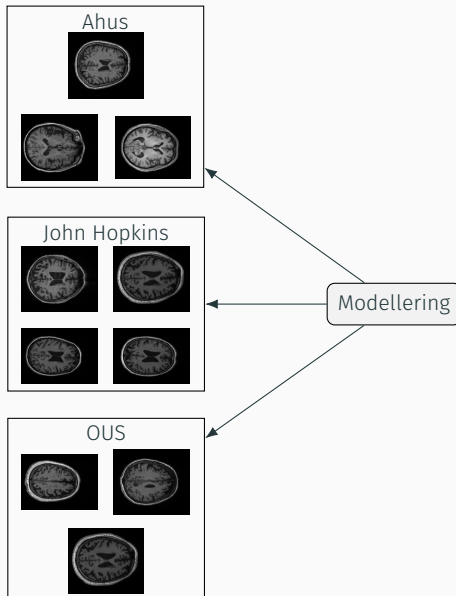




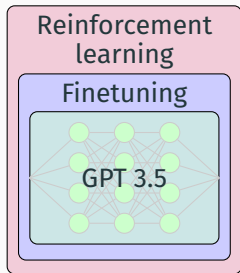


Data: Transfer learning

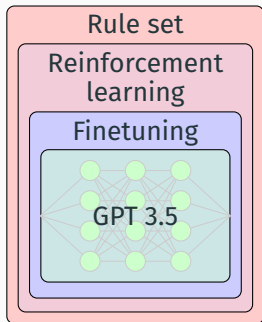




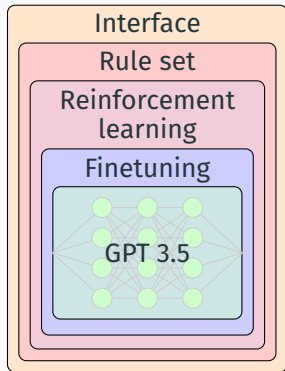
1. Samle data
2. Forbered data for trening
3. Tren modeller
4. Sammenlign modeller og velg den beste (validering)
5. Test hvor bra modellen gjør det (testing)
6. Implementer modellen inn i et sluttbrukersystem
7. Sluttbruker testing
8. Kontinuerlig monitorering






I'm sorry, but I cannot provide instructions or advice on how to make dangerous or illegal items such as pipe bombs. It is illegal and extremely dangerous to make or possess explosives, and doing so can cause harm to yourself and others. I strongly advise you not to attempt to make a pipe bomb or any other type of explosive device. If you are experiencing feelings of anger, frustration, or other negative emotions that may be leading you to consider such actions, I encourage you to seek help and support from a mental health professional or a crisis hotline.



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|  Examples |  Capabilities |  Limitations |
|---|---|--|
| "Explain quantum computing in simple terms" → | Remembers what user said earlier in the conversation | May occasionally generate incorrect information |
| "Got any creative ideas for a 10 year old's birthday?" → | Allows user to provide follow-up corrections | May occasionally produce harmful instructions or biased content |
| "How do I make an HTTP request in Javascript?" → | Trained to decline inappropriate requests | Limited knowledge of world and events after 2021 |

