

## “Intelligente” læringsystemer: Fra leken Furby via spamfiltre til miljø

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# Furby

- Vannvittig populær leke!
- Gjenkjenner tale
- Kan
  - Være blid. Bli sur!
  - Synge og danse
  - Fortelle vitser
  - Rape
- **Lære** (ord)



*Intelligent?!*



# Furby

## Forbudt fra NSA!

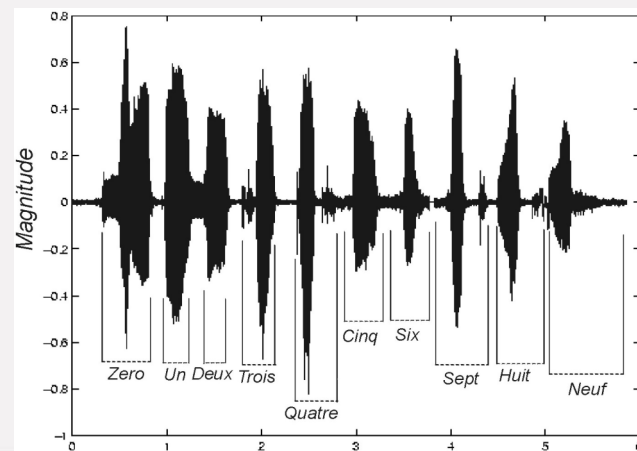
”NSA officials were worried that people would take them home and they’d start talking classified ...” (CNN)



# Tale-til-tekst

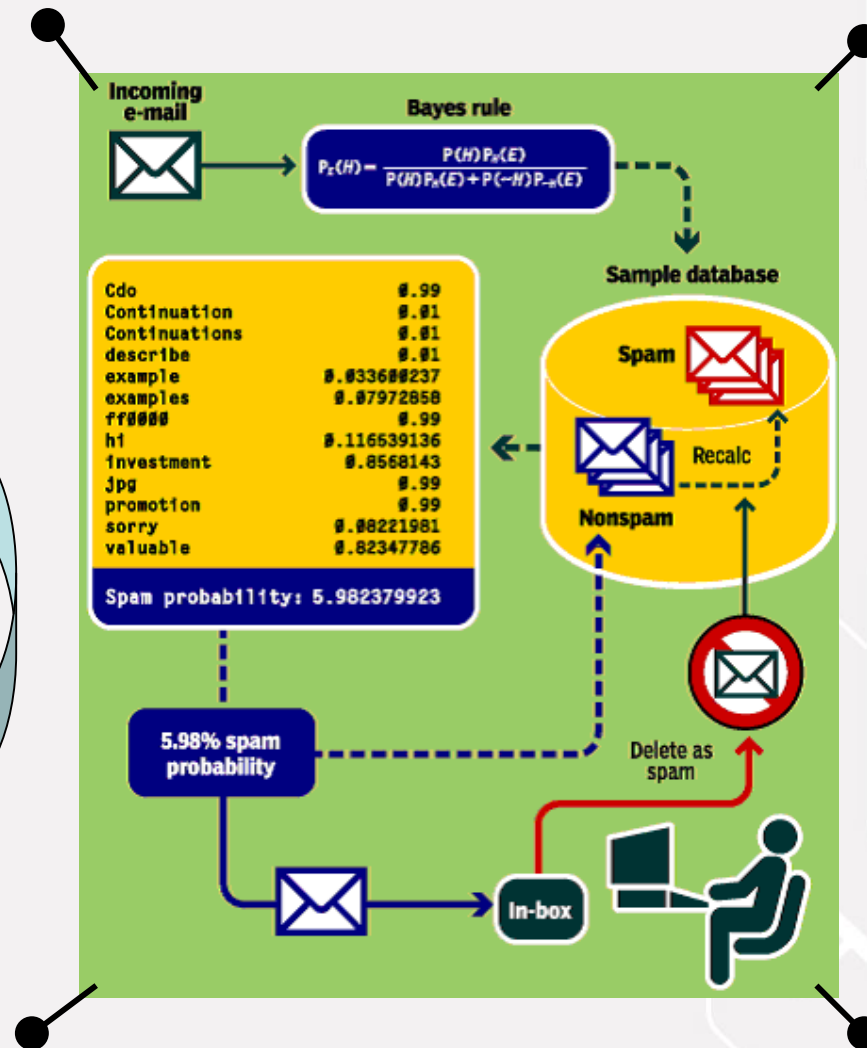
- Diktér og få tekst på skjermen
- Læringsprosess!
- It can work fairly well!

"Trenes" både generelt og individuelt



# Spamfiltre

- "Sannsynlighet for at email er spam gitt innhold"
- Kan **lære**
  - I. "Sannsynlighet for innhold gitt spam"
  - II. "Sannsynlighet for innhold gitt ok"
  - III. Nye "ord" (viagraxxx)



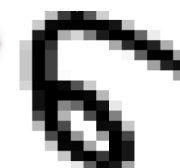
# Motivasjon

- Analyse/behandling av *data* mer effektiv ved bruk av systemer som kan lære (av sine feil)

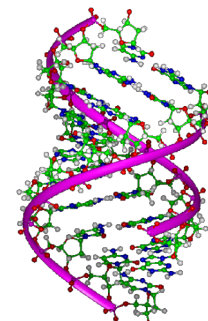
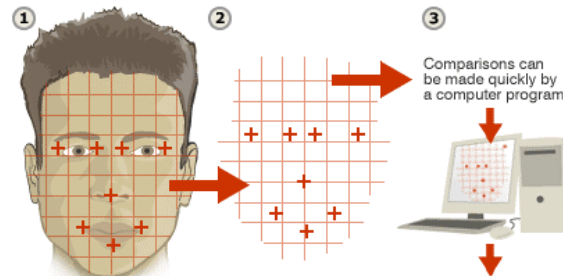


”Intelligent”

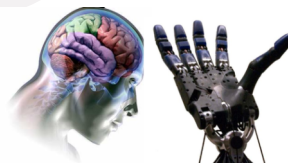
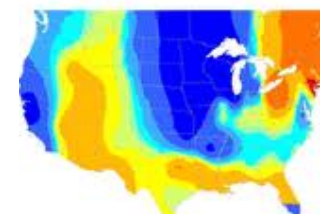
- Relevans!



HOW 2D FACIAL SCANNERS RECORD IDENTITIES

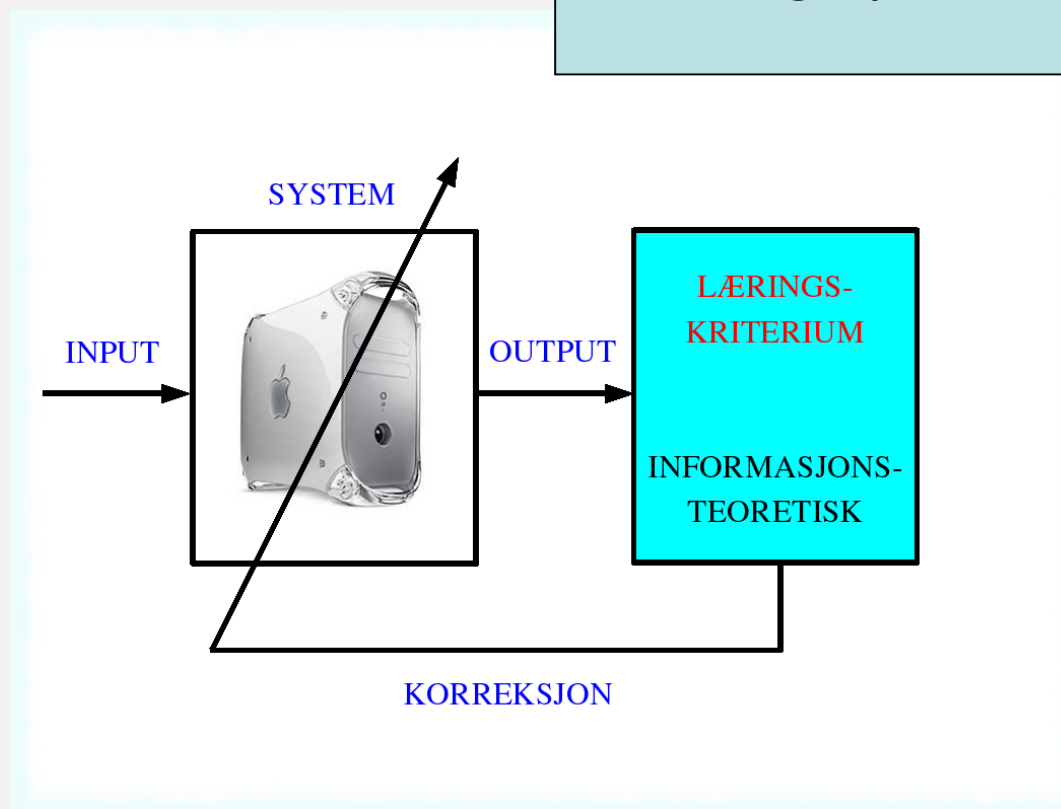


Bio



# Problemstilling:

- Hvordan lage best mulige "intelligente" læringssystemer?



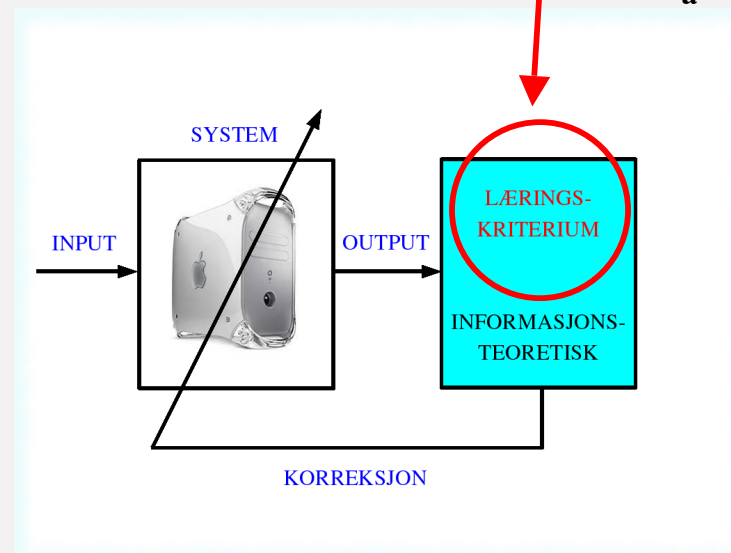
# @ Fysikk & Teknologi

- Har sentral forskningsaktivitet innen *maskinlæring for dataanalyse*.
- Flere utmerkelser over flere år, sist i 2010

Spisskompetanse:  
Spesifisere "intelligent"  
og utøve læring



$$\max_a \mathbf{a}^T \mathbf{K} \mathbf{a}$$





# Statfjord A

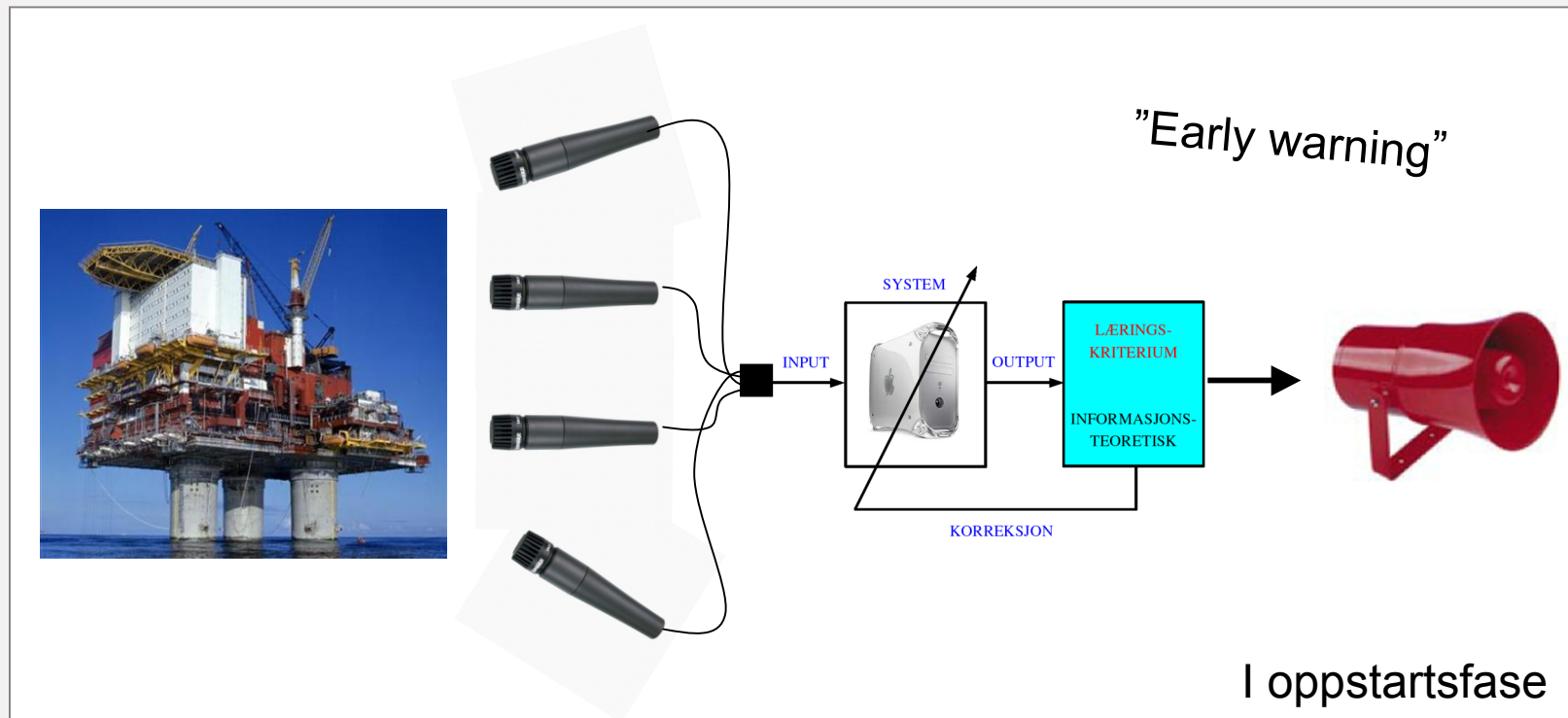
- Norgeshistoriens nest største utslipp



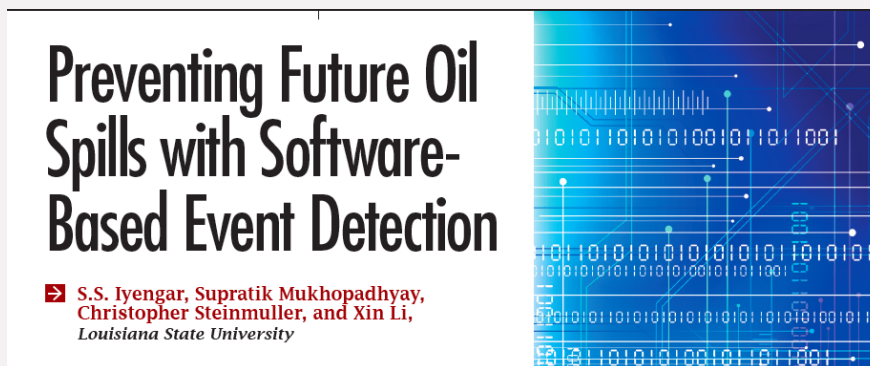
"The spill was first discovered when it had become light enough to observe the oil on the sea.

That reflected inadequate systems for detecting abnormal conditions or for preventing and limiting their consequences."

# "Intelligent" varsling



# I fokus - BP



- Computing Now, August 2010

# Institutt for fysikk og teknologi UiT



- Sivilingeniør, master og bachelor
- Jordobservasjon
- Undervannssensorer
- Energi og klima
- Atmosfære og verdensrom

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"Yes, I've learned from my mistakes. I've learned if you call them 'missed opportunities' you get in less trouble."

# Kilder for bilder

Nærmere spesifisering ved behov



[poseidon.csd.auth.gr](http://poseidon.csd.auth.gr)

[amusement.com](http://amusement.com)

[spam-filter-express.com](http://spam-filter-express.com)

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