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Kunstmatige Intelligentie ontrafeld

Dr. Tjerk de Greef

Director of Search Technology

Wolters Kluwer

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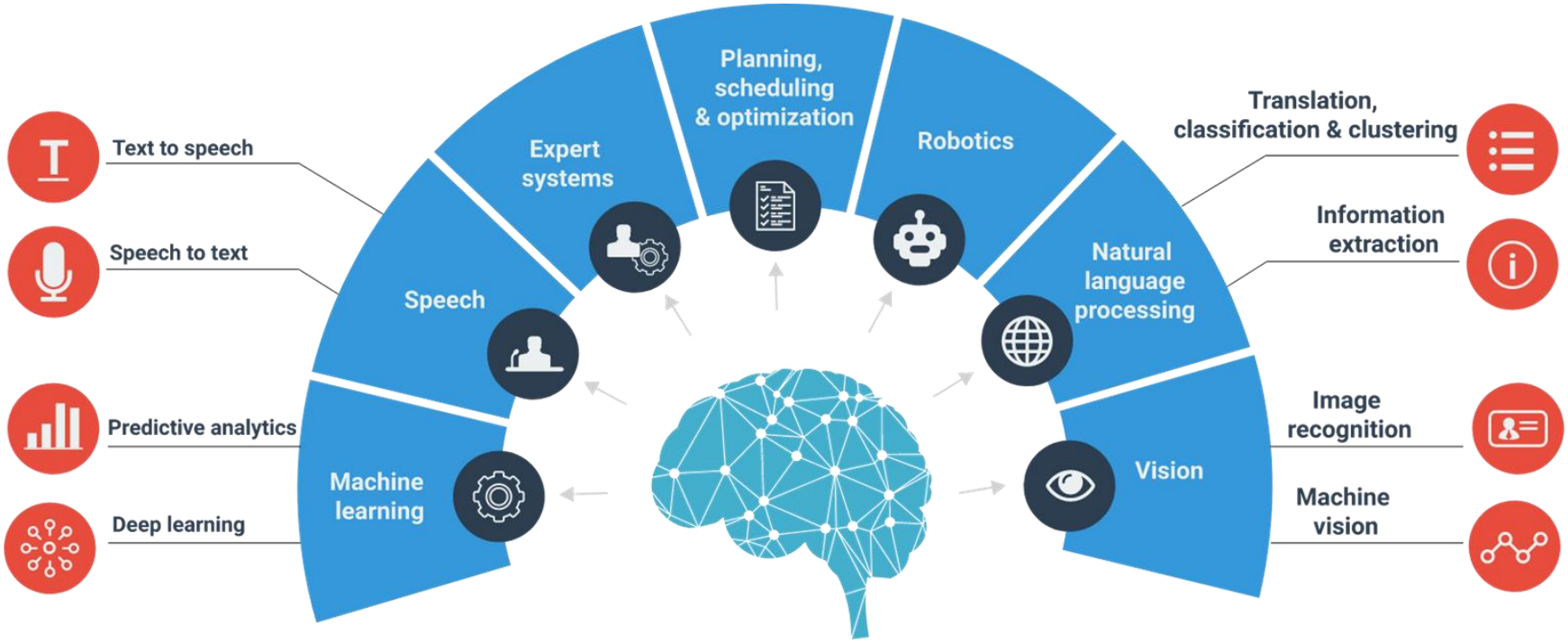
Kernbegrippen AI



Machine learning is the science
of getting computers to act
without being explicitly programmed

(Andrew Ng, Stanford University)

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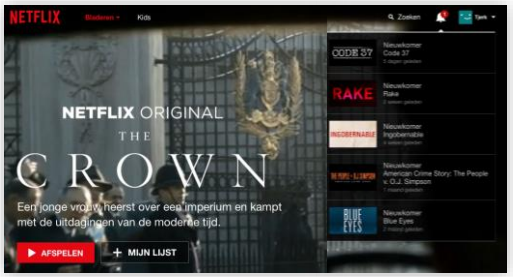
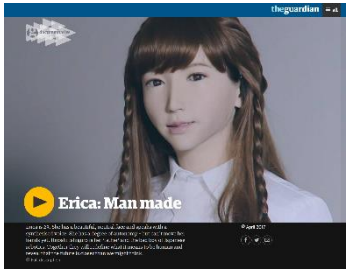
AI Toepassingen

Persoonlijke Aanbevelingen
Spotify, Amazon, Netflix



BeeldherkenningFacebook, Apple, Google, securities

Robotica



Swift key

Zelfrijdende Auto'scar

Spam filters

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Traditioneel Aanpak

Spam?

hi intimate,

WARNING: Wanna miss the opportunity, then move on

VIAGRA, OTHER MEDICATIONS

Are you tired of giving heavy sum of money for prescription medications?

You can save up to 80% on all popular meeds.

Don't miss the opportunity!!! FREE

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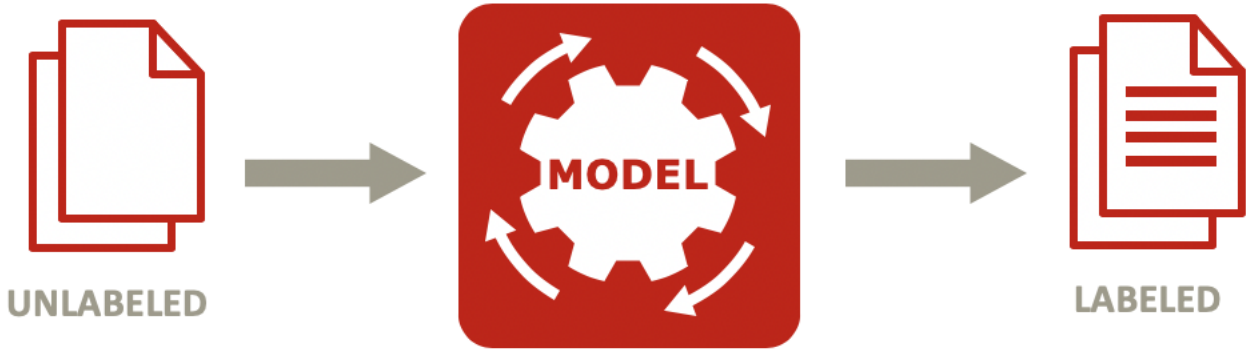
ML Aanpak (1)

DOEL: VOORSPELLEND MODEL



Fiscale informatie
Declaratie
…..

NLFT Rechtsgebied
Controle
…..

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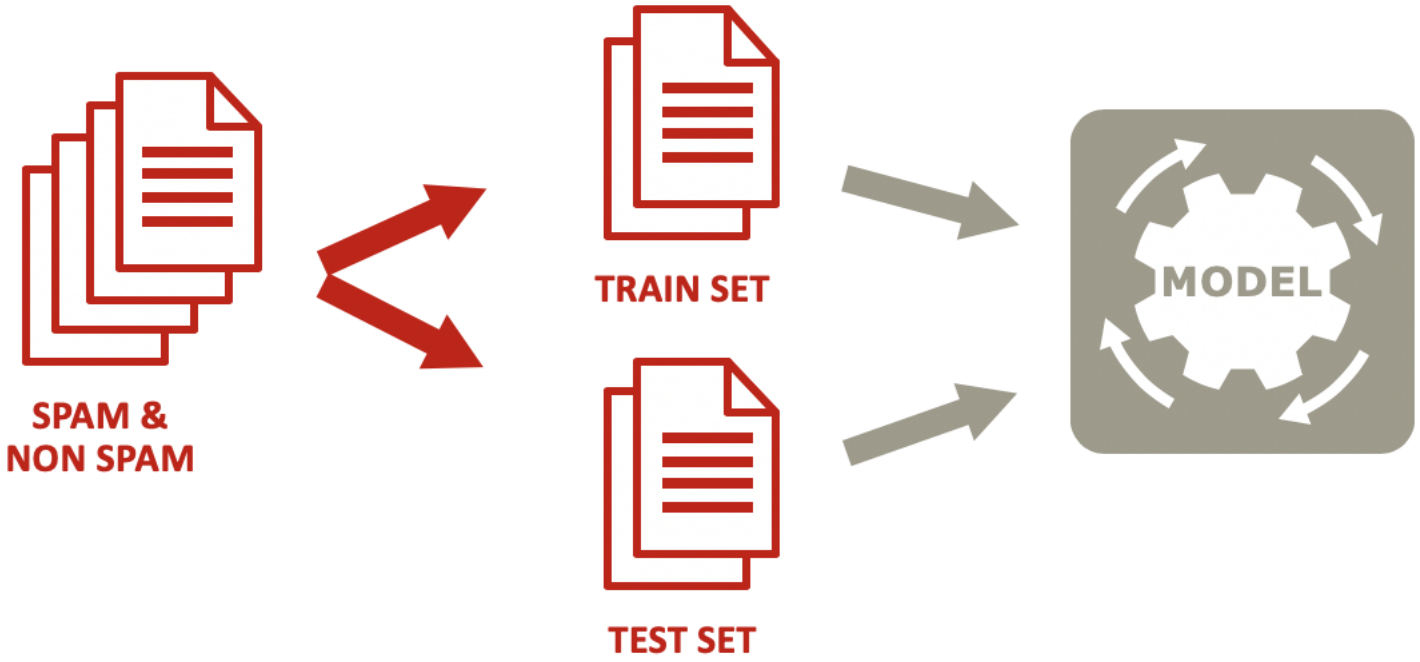
ML Aanpak (2)

SPLITSEN DATA



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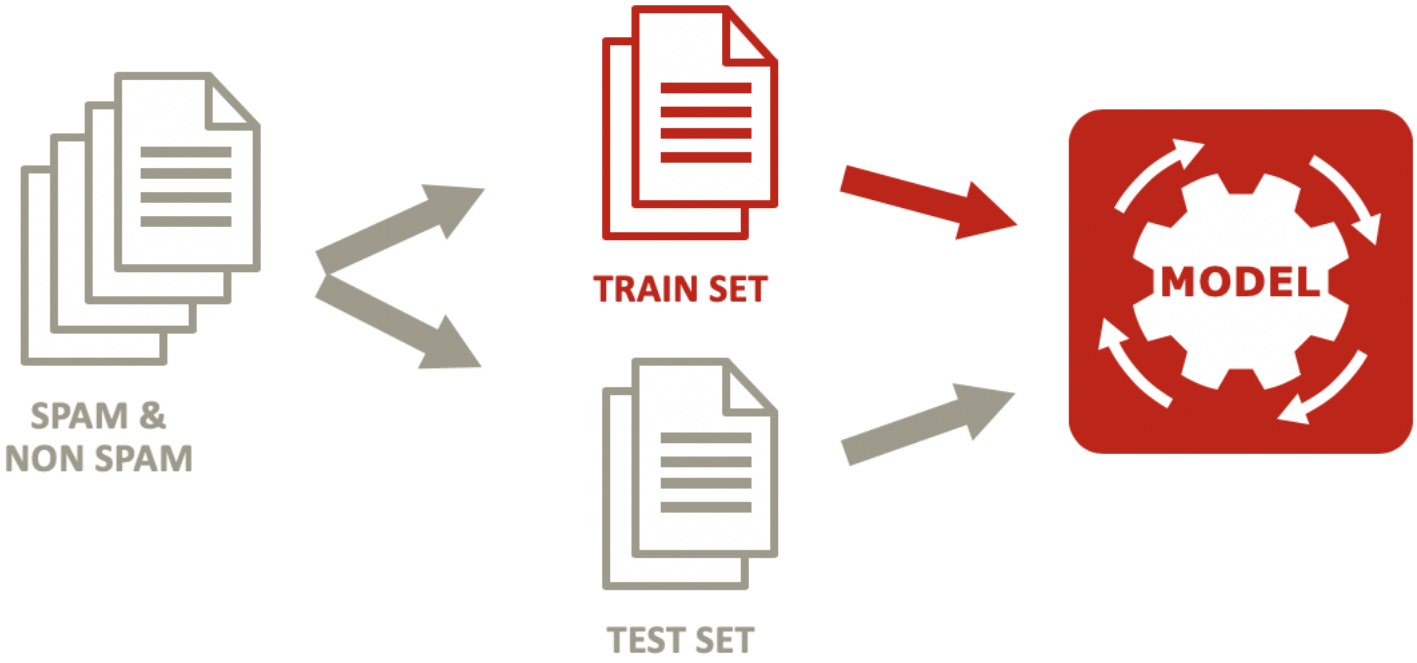
ML Aanpak (3)

TRAIN MODEL



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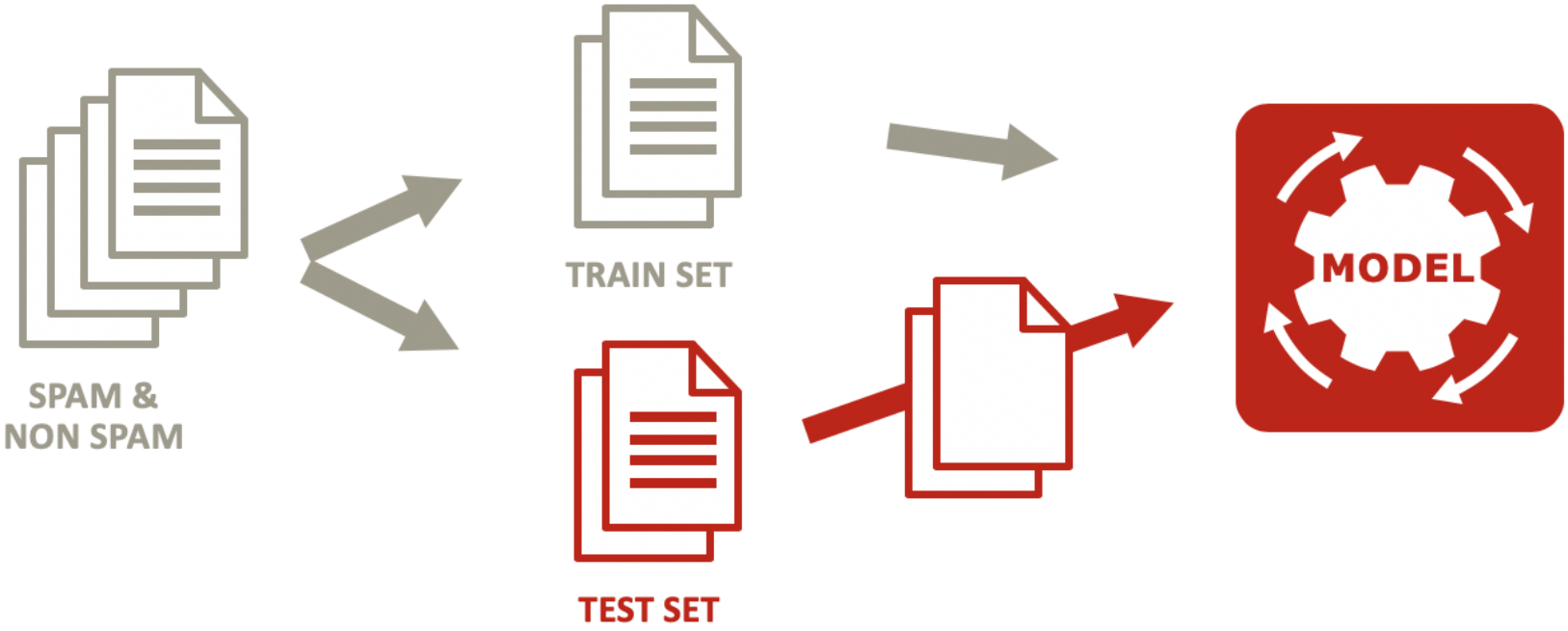
ML Aanpak (4)

ONTLABEL TEST SET



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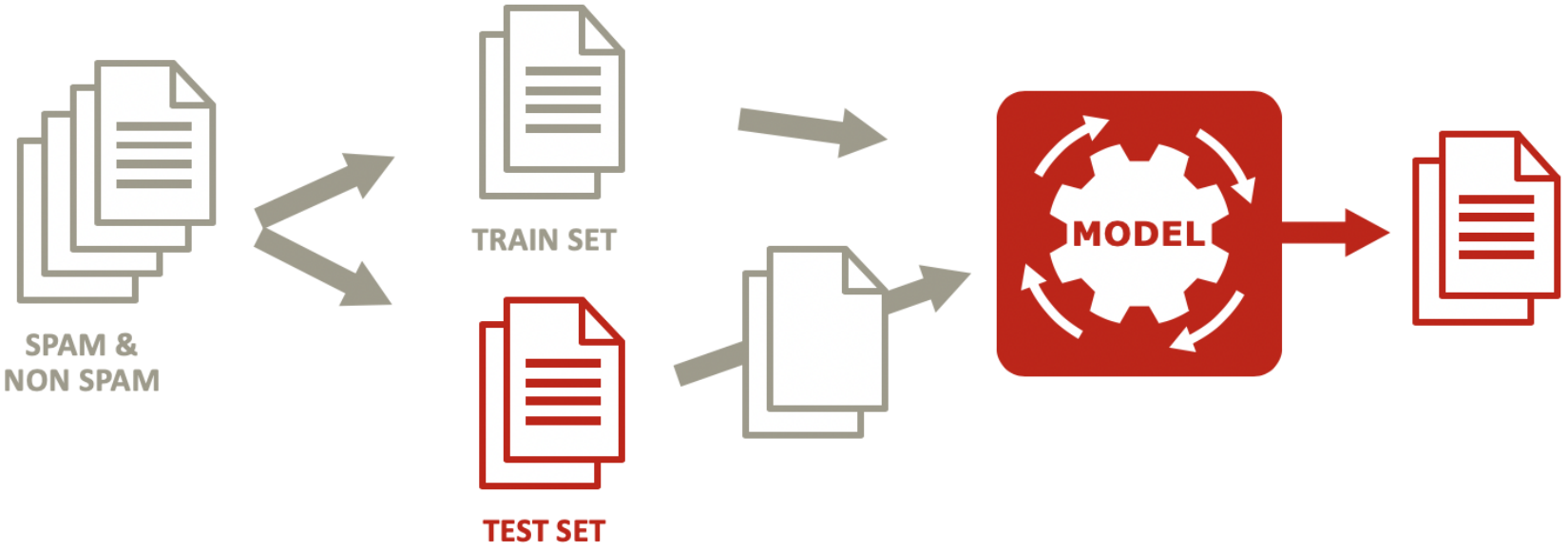
ML Aanpak (5)

LAAT MODEL VOORSPELLEN



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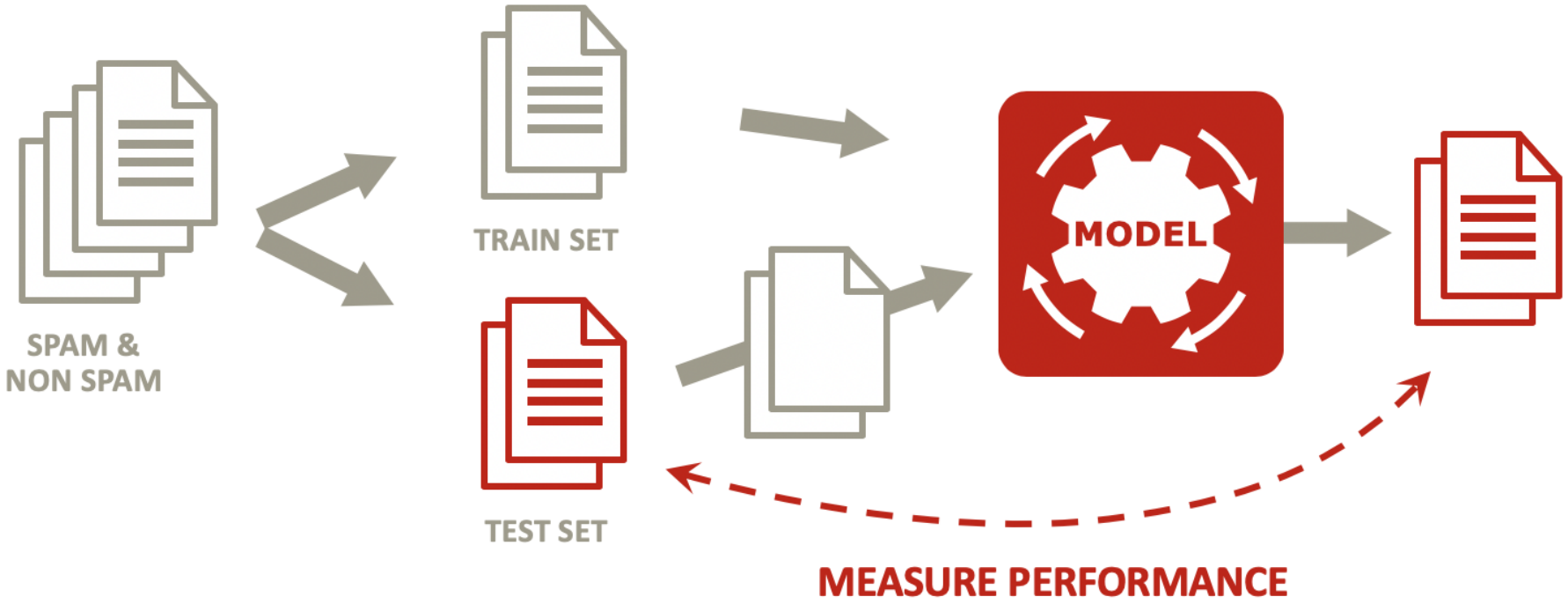
ML Aanpak (6)

EN VERGELIJK



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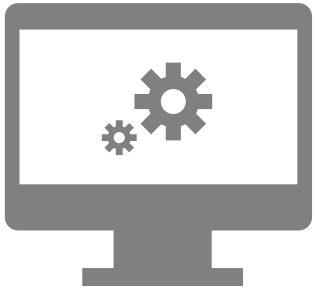
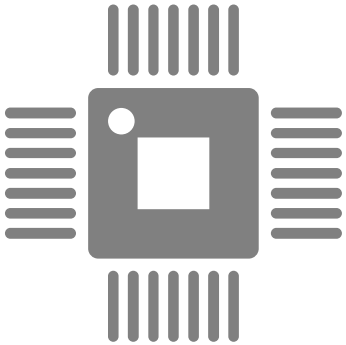
Waarom nu?





Software

- Efficiënte Programmeertalen
- Active Open Source Community
- Hot topic in zowel academisch als commerciële wereld

Hardware

- Cloud computing minimaliseert investeringen en biedt flexibiliteit
- Hergebruik van **GPU's** maakt matrixberekeningen bijzonder efficiënt (lineaire algebra)
- Deep Blue kost nu $2,000 kosten i.p.v. $15 miljoen

Data

- De hoeveelheid data groeit exponentieel
- Data krijgt waarde (Bureau van Dijk = $3B)
- Steeds meer gestructureerde data maar ongestructureerde data kan steeds beter verwerkt worden

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5 vormen van ML

1. Supervised Learning
2. Unsupervised Learning
3. Reinforcement Learning
4. Deep Learning
5. Natural Language Processing (NLP)

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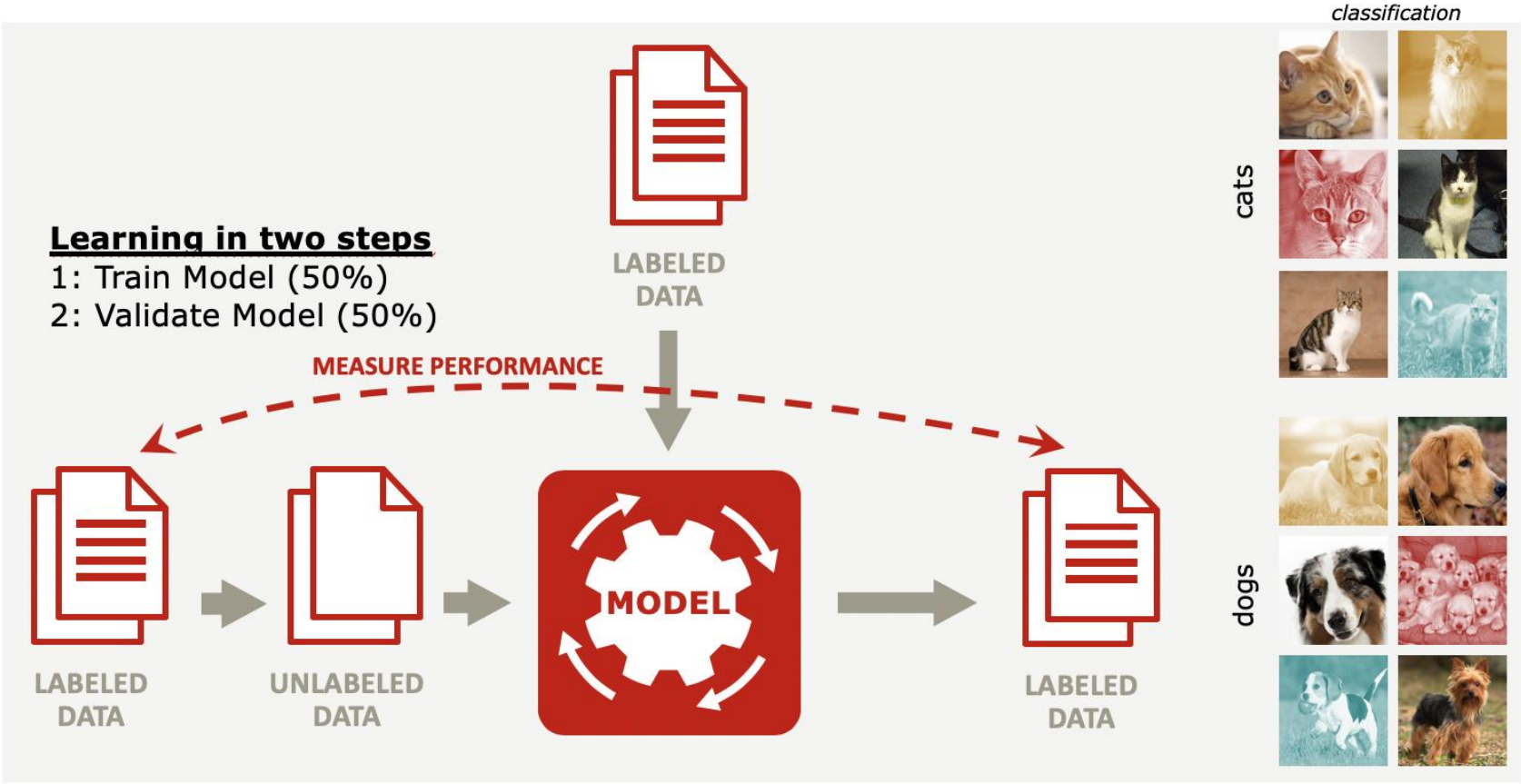
1. Supervised Learning

Structuur vinden m.b.t. **gelabelde** data



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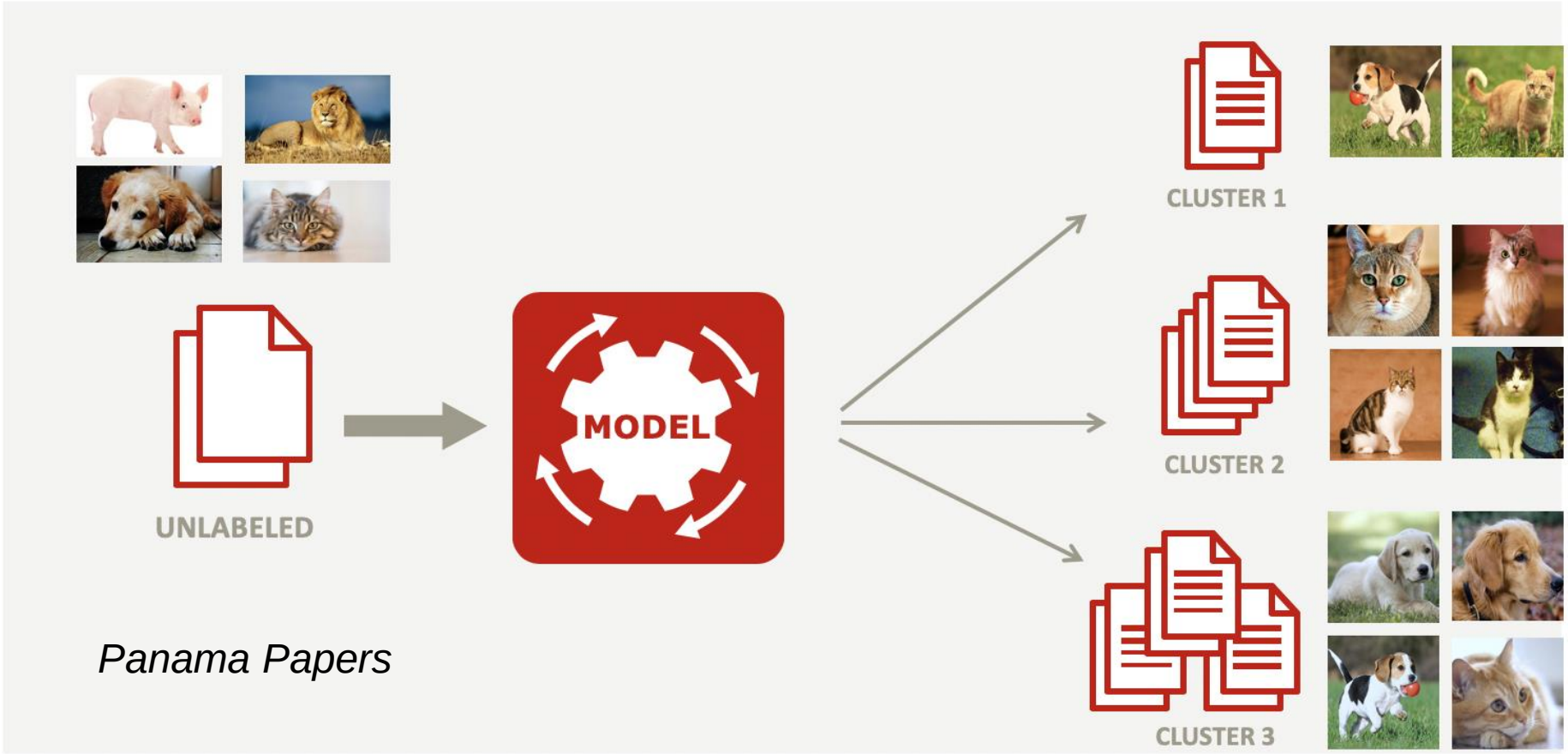
2. Unsupervised Learning

Structuur vinden m.b.t. **ongelabelde** data



Panama Papers

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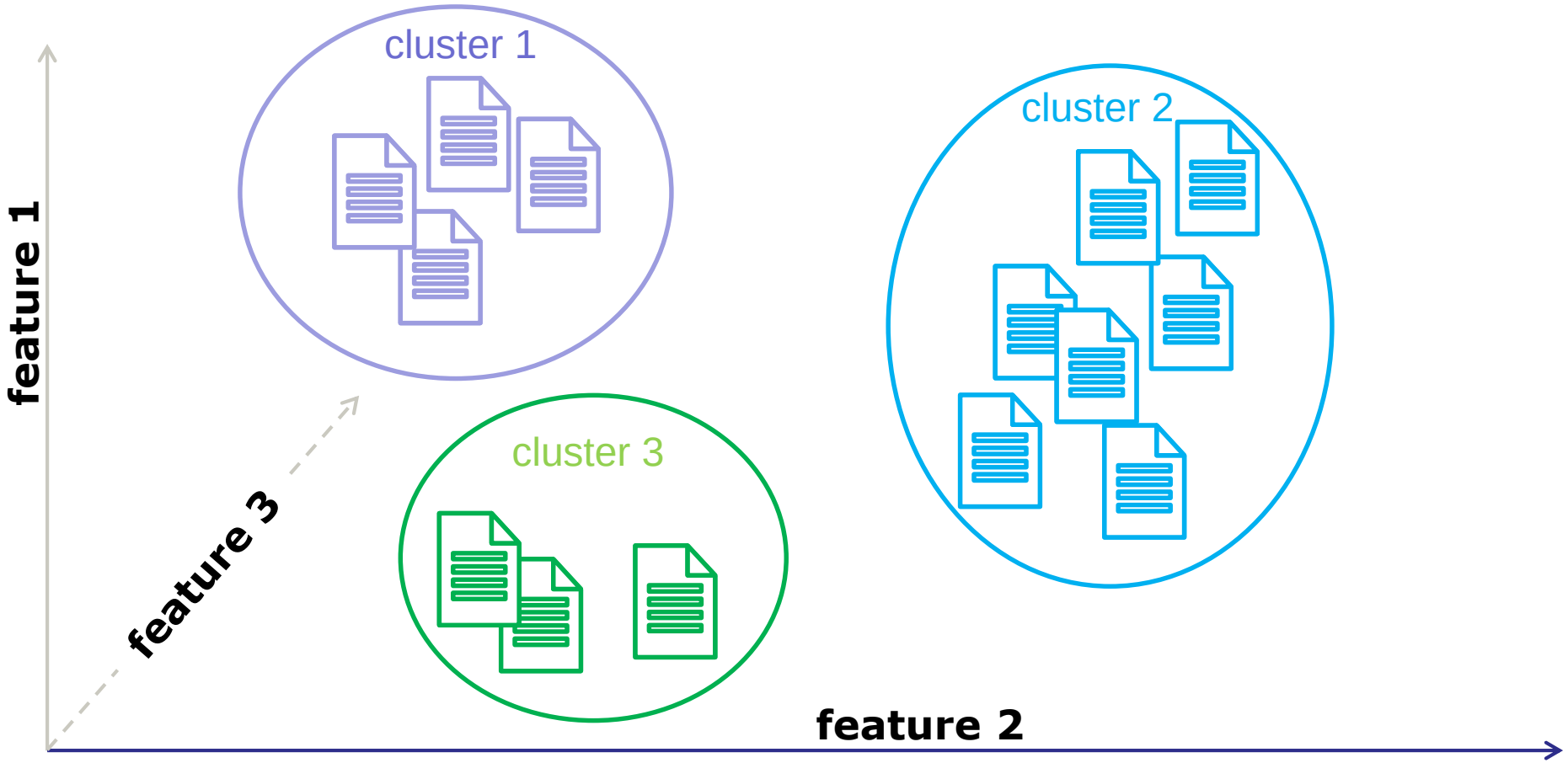
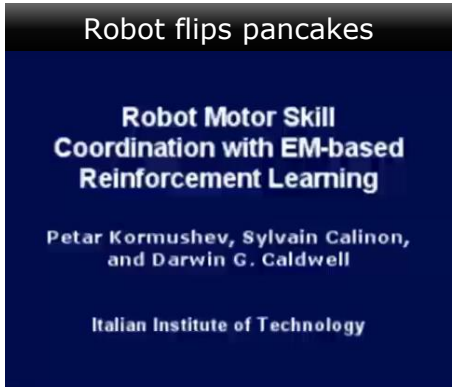
Leren = Clusters Vinden

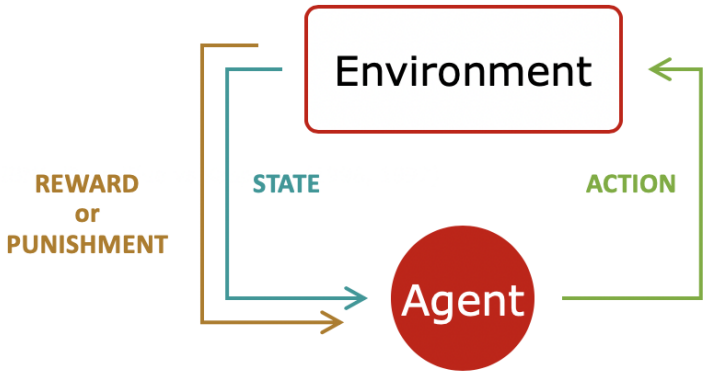


3. Reinforcement Learning

- Geïnspireerd op psychologie
  (operant conditioning)

- Twee soorten feedback
  positief (beloning)
  negatief (straf)





reward if clicked → 1
reward if not click → 0

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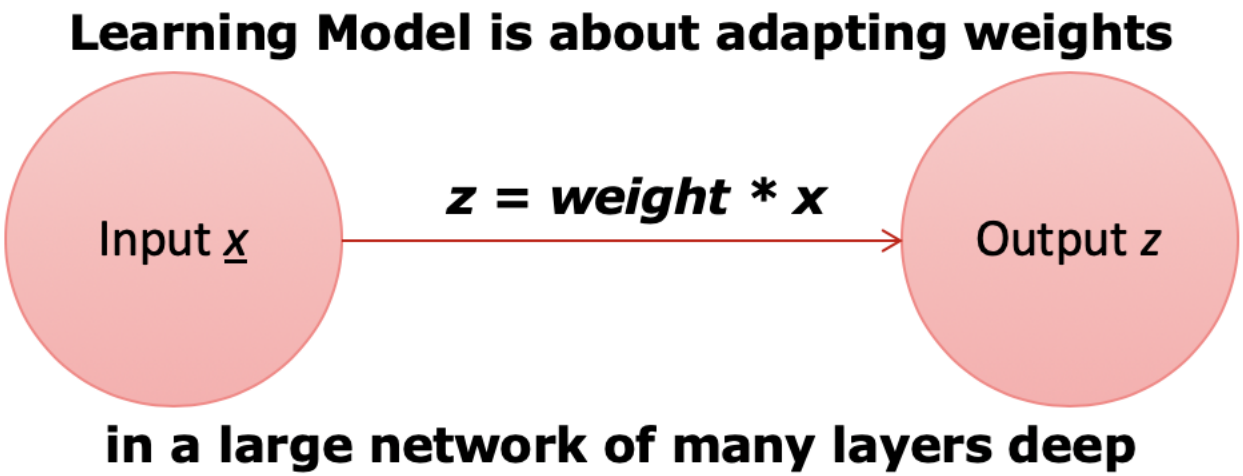
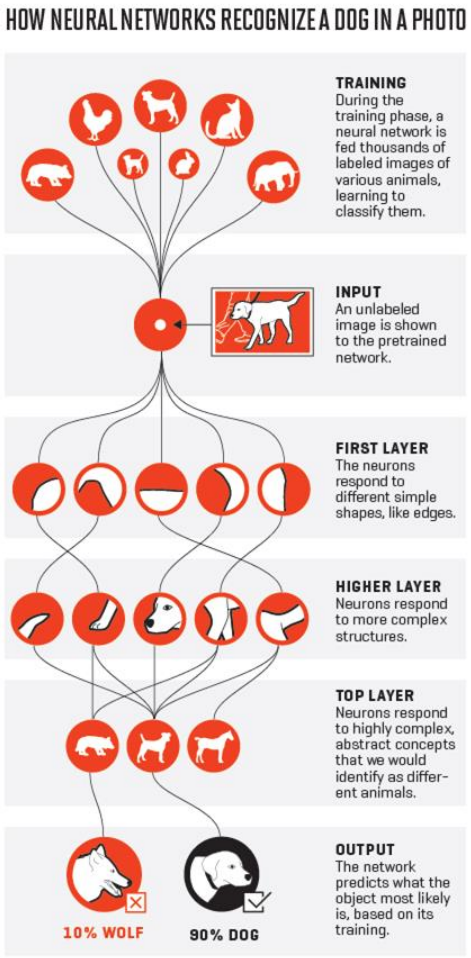
4. Deep Learning

Structuur vinden m.b.t. **gelabelde** data
door probleem in lagen op te splitsen





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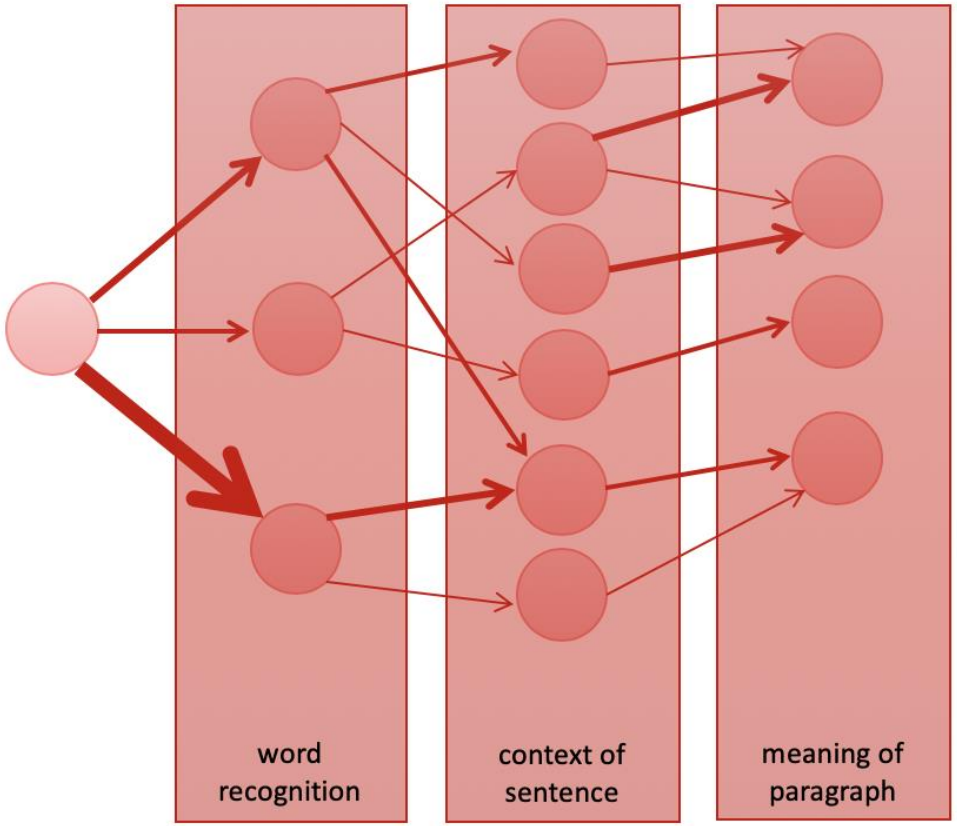
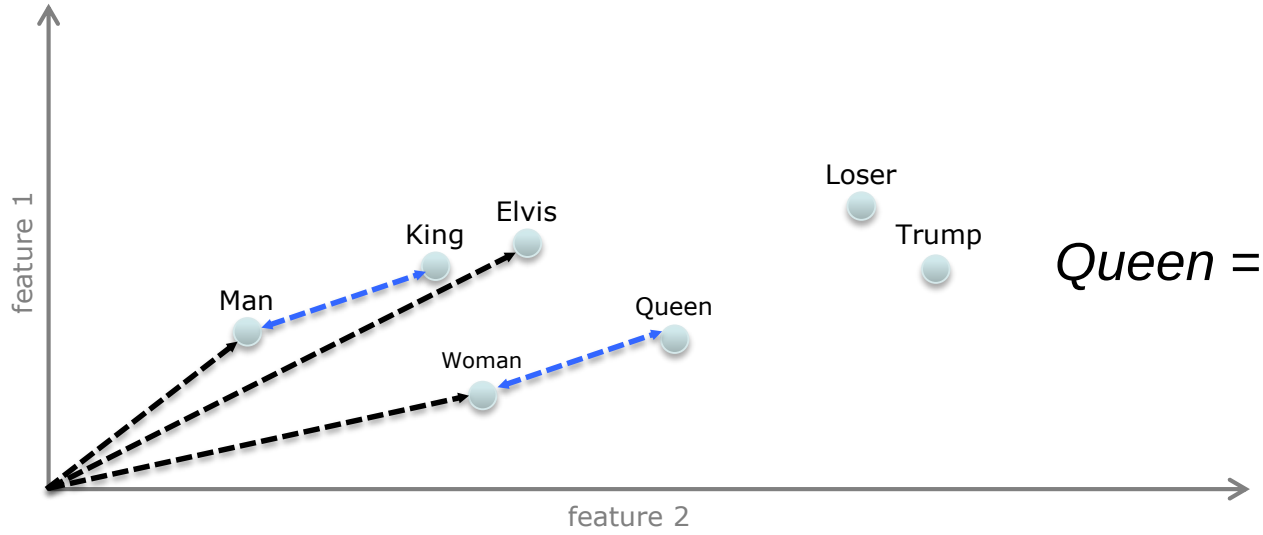
4. Deep Learning

Structuur vinden m.b.t. **gelabelde** data
door probleem in lagen op te splitsen



5. NLP

- Vroeger
  - Regels
  - Grammatica's
- Nu m.b.v.. Machine Learning (Word-2-Vec)



Queen = (King – Man)

Begrijp AI

Waardenken

AI Capabilities

- Cognitive Insights
- Outlier Detection
- Cognitive Engagement

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Vragen