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FACULTY OF
VETERINARY MEDICINE
accredited by EAEVE

STAGEGEVERDAG 26 NOVEMBER 2019

Jimmy H. Saunders

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BIG DATA EN ARTIFICIELE INTELLIGENTIE: STAND VAN ZAKEN EN IMPACT OP ONS ONDERWIJS
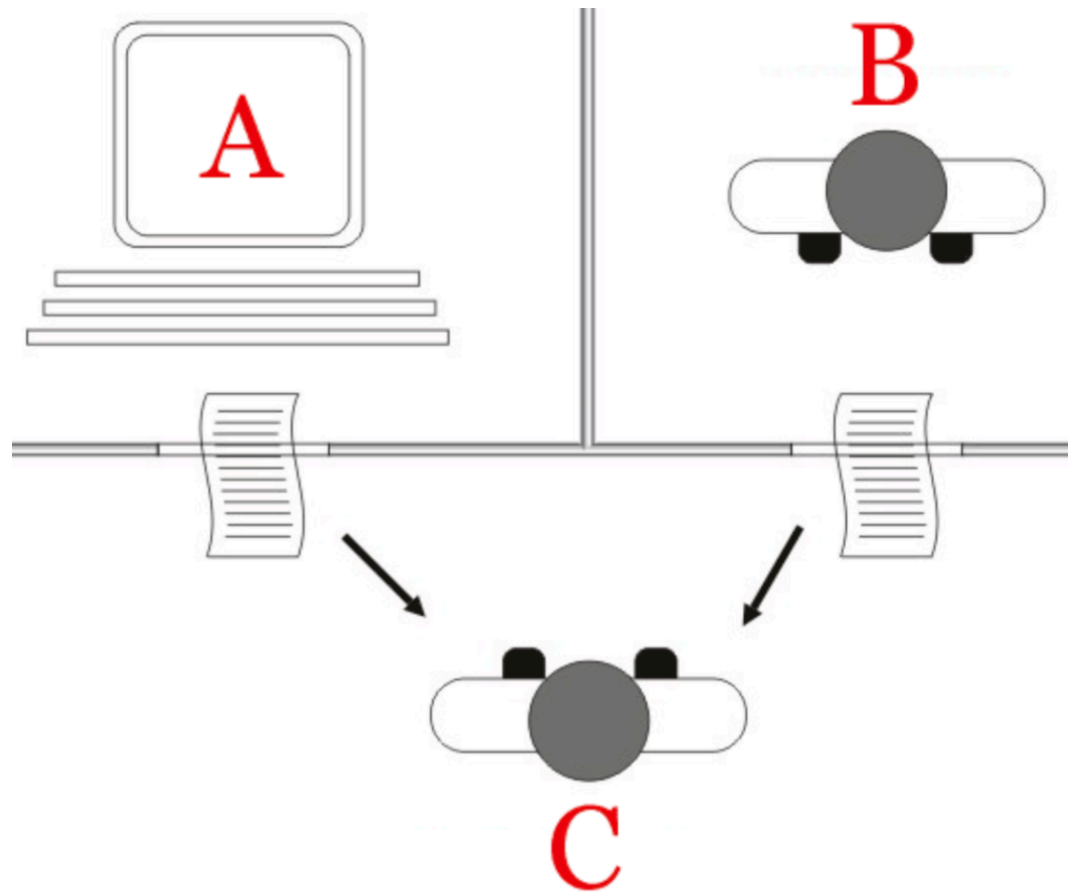
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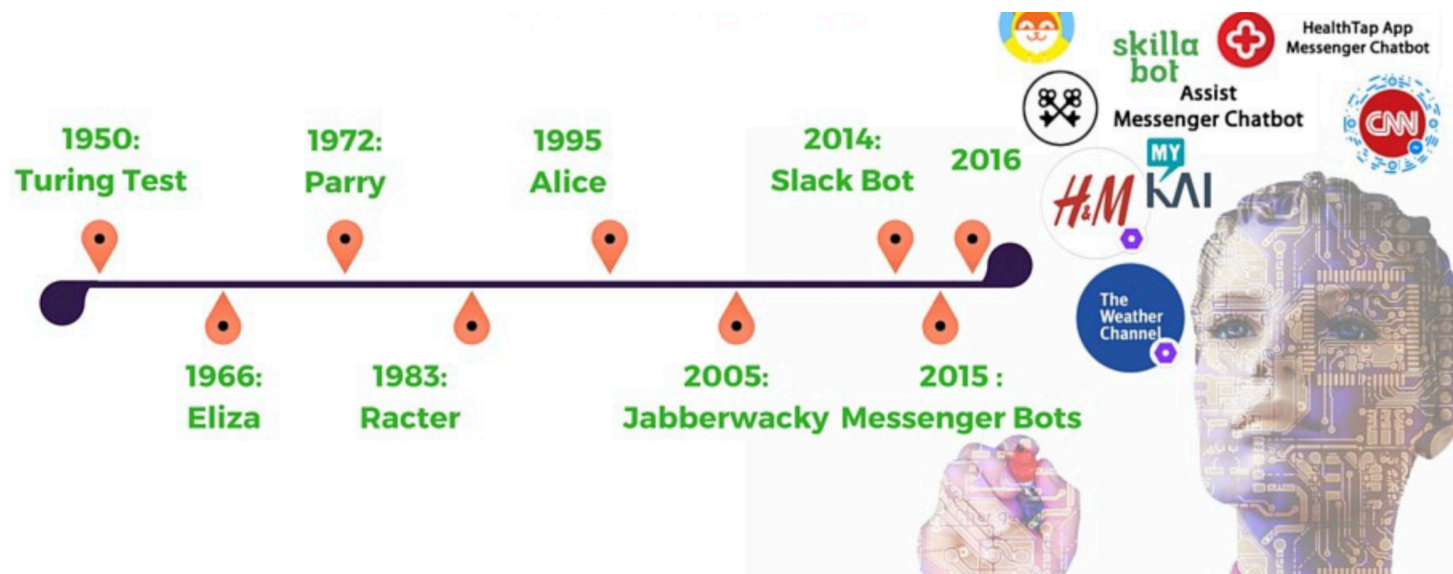
DIt verwacht ik van deze workshop …

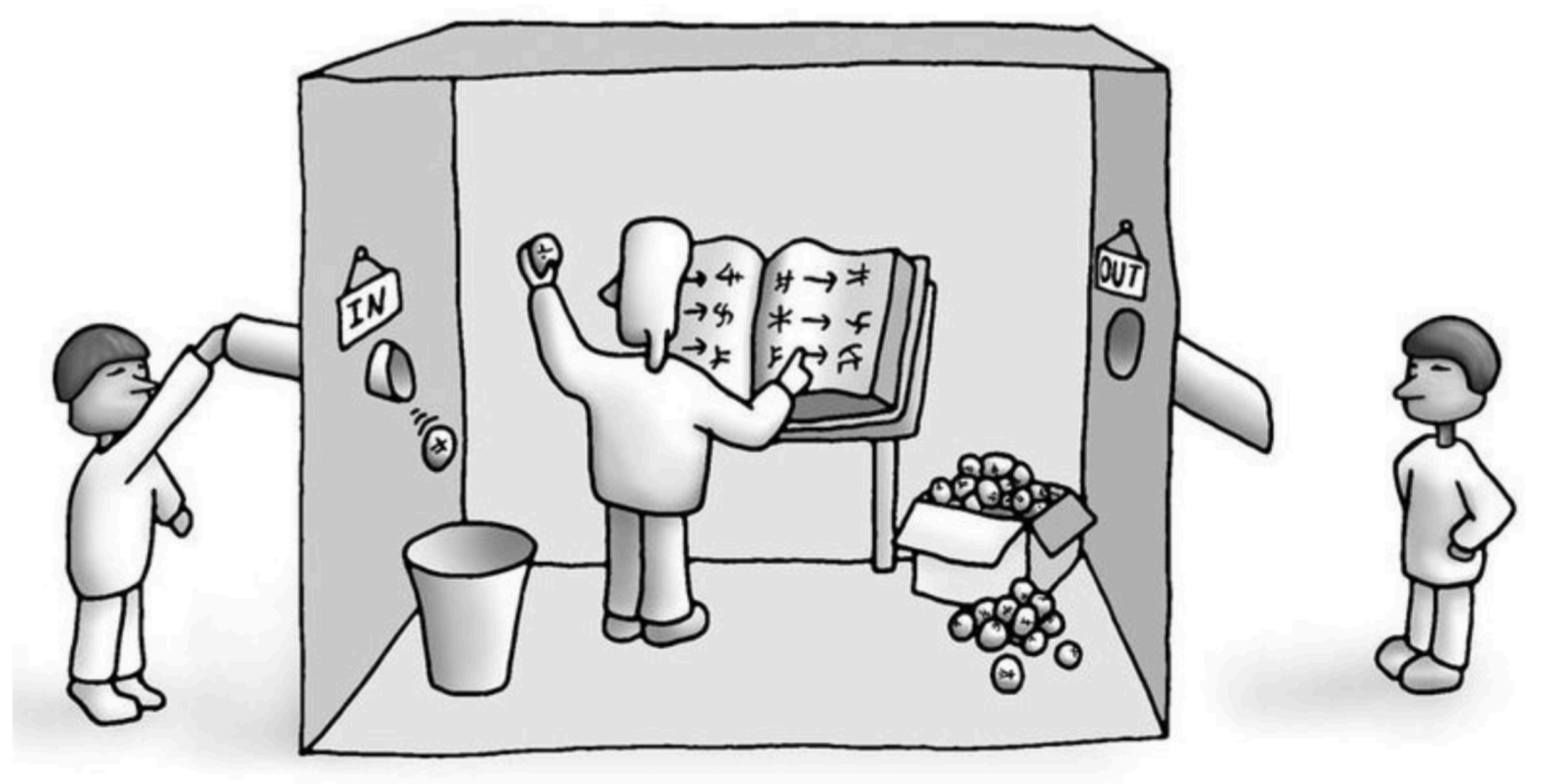# WAT IS ARTIFICIAL INTELLIGENCE ?

ARTIFICIAL INTELLIGENCE (AI)

- *Narrow (Weak) AI*
  - Use of big data and algorithms to automate processes (chess game, banking, fraud prevention, …)
  - Turing test: -
  - Daily live: +++ (such as financial systems)

    - *General AI*
      - Systems that can think as humans – learn and upgrade itself
      - Turing test: +
      - Daily live :---

        - *Super AI*
          - AI upgrade himself at and surpasses human creators
          - Turing test: +
          - Daily live: science-fiction movies

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AI: TURING TEST

1950:
Turing Test

1972:
Parry

1995:
Alice

2014:
Slack Bot

2016

1966:
Eliza

1983:
Racter

2005:
Jabberwacky

2015 :
Messenger Bots

skilla bot

HealthTap App
Messenger Chatbot

Assist
Messenger Chatbot

CNN

H&M

MY
KAI

The
Weather
Channel

Eugene Goostman

Type your question here:

Sophia

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AI: CHINESE ROOM

AI: CAPTCHA

Wat kunnen toekomstige CAPTCHA's zijn ?

How many times do you see the letter "e" in this sentence ? (30 sec)

"As he crossed toward the pharmacy at the corner he involuntarily turned his head because of a burst of light that had ricocheted from his temple, and saw, with that quick smile with which we greet a rainbow or a rose, a blindingly white parallelogram of sky being unloaded from the van— a dresser with mirrors across which, as across a cinema screen, passed a flawlessly clear reflection of boughs sliding and swaying not arboreally, but with a human vacillation, produced by the nature of those who were carrying this sky, these boughs, this gliding façade."

Which letter(s) of the alphabet is/are only present two times in this word ? (30 sec)

sawjmopefzhulndrtvqwbxyigksajmopefzhulcndrtvqwbxyigksawjmoefzhulcndrtvqwbxyigk

AI: CAPTCHA

FUTURE CAPTCHA ?

- Test that humans will fail such as how many times letter "e" in a very long sentence, optical illusions, ... = Amazon

- Invisible reCaptcha = interaction user with his computer (human motions like mouse movements, click pattern, ...) = Google

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Geef een aantal voorbeelden van AI in het dagelijkse leven

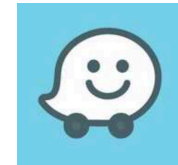# ARTIFICIAL INTELLIGENCE IN THE DAILY LIFE

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AI IN THE DAILY LIFE

⋯→ E-mail communications

⋯→ web search

⋯→ stores & services

⋯→ E-mail social media

⋯→ vocal/virtual assistant

⋯→ travel experiences

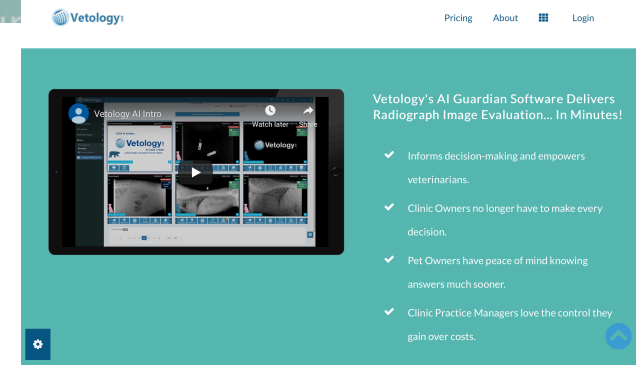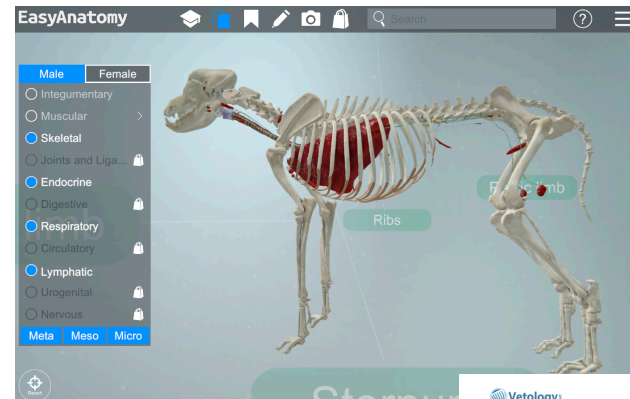⋯→ autonomous driving

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Geef 5 voorbeelden van AI in je professionele omgeving

ARTIFICIAL INTELLIGENCE IN VETERINARY MEDICINE

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[APPS](#)

- Anatomy: dog, horse
- Small Animals: Feline ophthalmology, Vet Cardiology, Vetology, ...
- Equines: dermatology, reproduction, ...
- Exotic Vet Guide
- Lab tests results/Drug Formulary (A Vet Tool, Vet Blood Tests Guide, CVP Vet)
- Calculators (Dog Nutritions, VetPDA Calcs, Vet calculator, DVM Calc)
- Counters: WBC counter, bone marrow
- Target (antimicrobial guide)
- Kwikvet (24h service)

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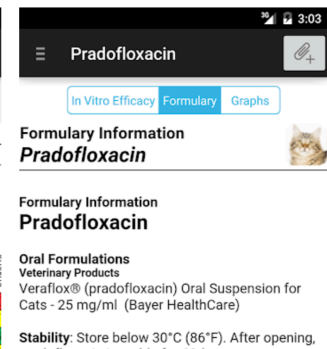
WAARVOOR WORDT AI AL GEBRUIKT IN VET MED?

AI APPLICATION	JA	(NOG) NIET
1. Detecting heart disease with a single heartbeat		
2. Pain management in lambs		
3. Prosthesis		
4. Smart Halter in horses		
5. Diagnosis of retinopathy from eye images		
6. Diagnosis of acute pancreatitis in dogs		
7. Urolith analysis and treatment		
8. Livestock disease prediction		
9. Diagnosis of Chiari malformation associated with pain		
10. Predicting chronic kidney disease in cats		

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WAARVOOR WORDT AI AL GEBRUIKT IN VET MED?

AI APPLICATION	JA	(NOG) NIET
1. Detecting heart disease with a single heartbeat	X	
2. Pain management in lambs	X	
3. Prosthesis		X
4. Smart Halter in horses	X	
5. Diagnosis of retinopathy from eye images		X
6. Diagnosis of acute pancreatitis in dogs		X
7. Urolith analysis and treatment	X	
8. Livestock disease prediction	X	
9. Diagnosis of Chiari malformation associated with pain	X	
10. Predicting chronic kidney disease in cats	X	
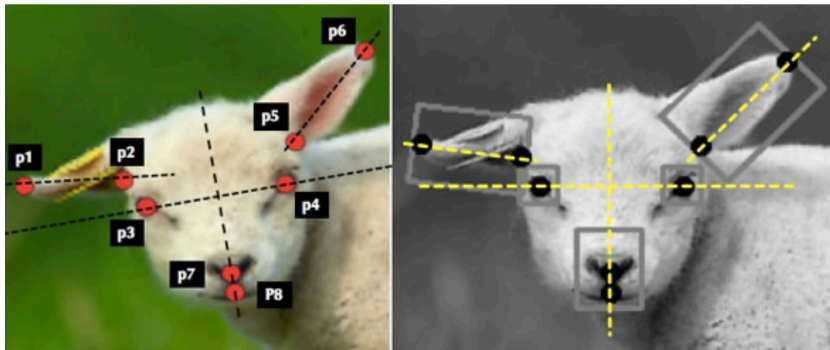
---> pain management in lambs

How does the RenalTech™ predictive diagnostic tool work?

- RenalTech™ uses common blood and urine tests that you already run routinely on your feline patients combined with the pets age.

- The artificial intelligence that powers RenalTech™ uses results from 2 diagnostic testing events – one current diagnostic event can be paired with another set of results captured within the last 24 months.

- Based on that data, RenalTech™ produces a value that indicates a cat's likelihood to develop chronic kidney disease.

---> Renal Tech Test

THE WORLD'S 1ST
SMART HALTER

REAL-TIME MONITORING

- HEART RATE
- RESPIRATORY RATE
- ACTIVITY
- MOTION
- POSTURE

BREAKAWAY HALTER   SAFETY COLLAR

---> Protequus

Victhom Bionique humaine

POWER KNEE

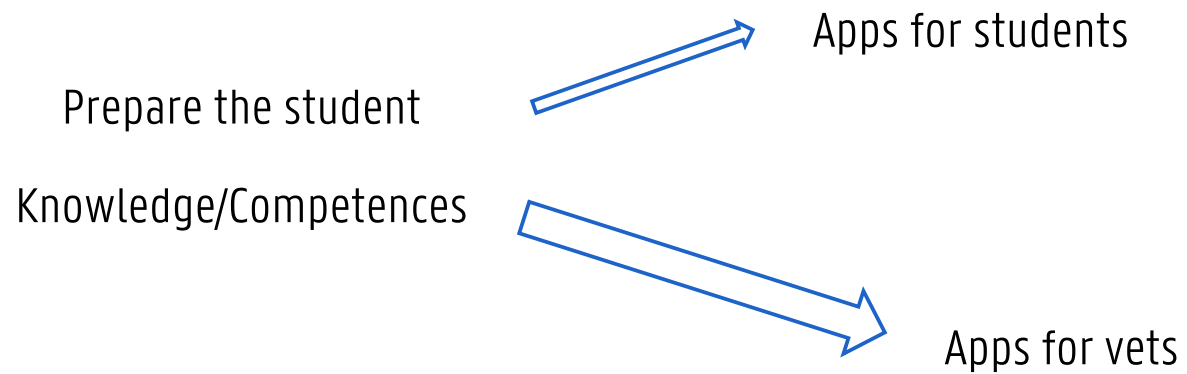The world's only motor-powered artificially intelligent prosthesis for above-knee amputees.

ÖSSUR

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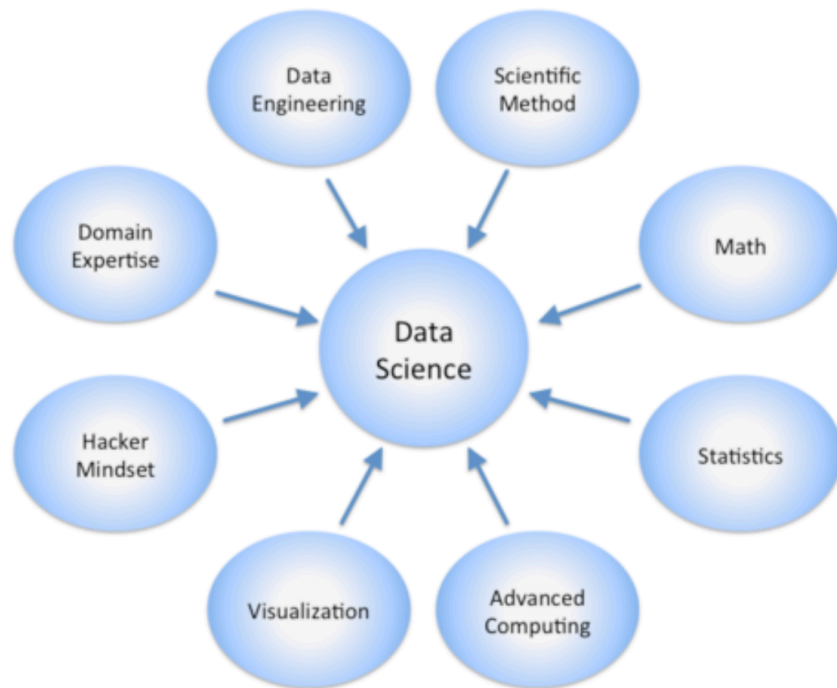# ARTIFICIAL INTELLIGENCE IN EDUCATION

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WAY OF TEACHING

- Differentiated and individualized learning (*e.g. Content Technologies, Carnegie learning*)

- Universal access for all students (*e.g. Presentation Translator*)

- Automate admin tasks

- Tutoring and support outside the classroom

- Learning platforms for collaborative learning

- Connected learning

- Adaptive learning

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Hoe kan AI bijdragen in de opleiding diergeneeskunde ?

HOW CAN AI HELP ?

Apps for students

Prepare the student

Knowledge/Competences

Apps for vets

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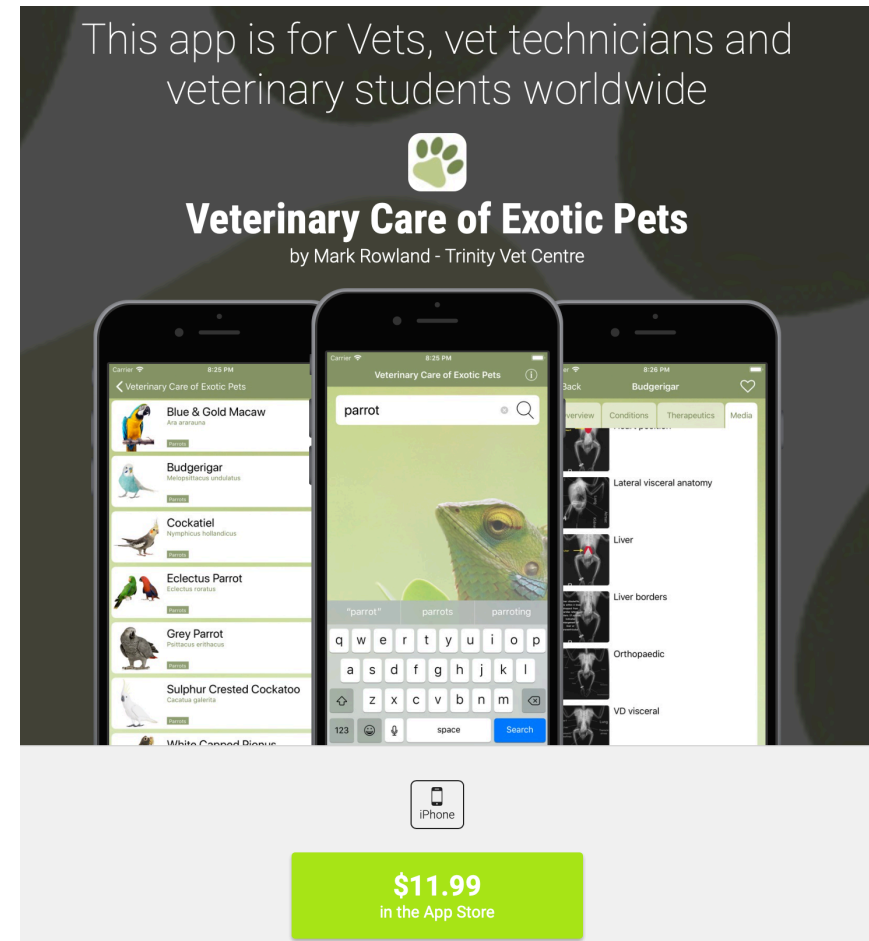UNIVERSITY

KENNIS – COMPETENCES – DATA SCIENCE

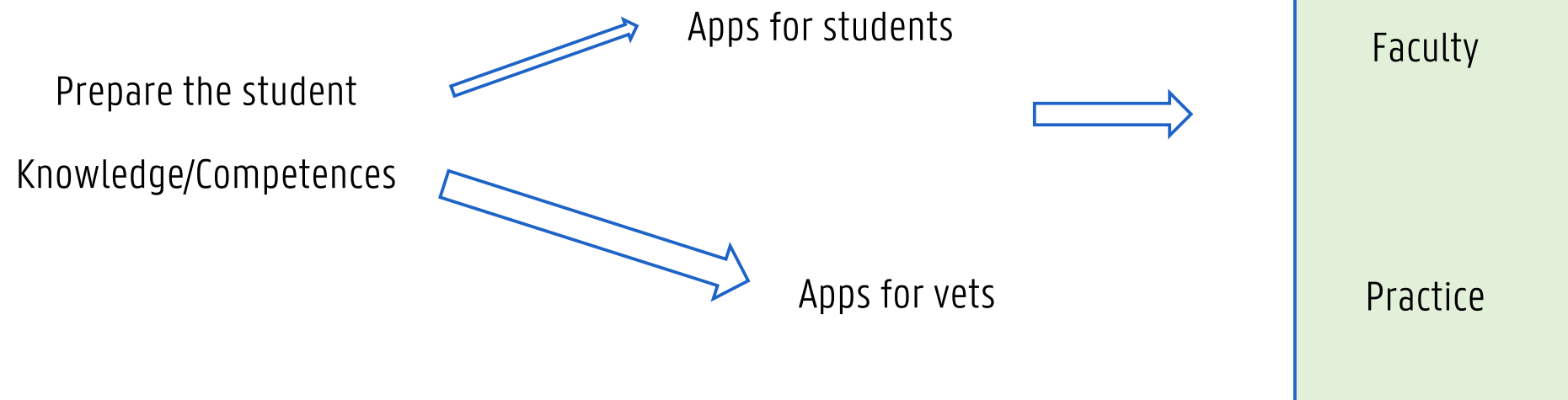- Basic and clinical medicines

- Evidence-based medicine

- Abilities to distinguish correct information about AI from hype and spin
- Capabilities to create thoroughly trustworthy information for patients and the public

APPS FOR STUDENTS

- A Vet Tool

- Compendium of Veterinary Products

- Merck Veterinary Manual

- Exotic Pet Vet

- Certified Veterinary Assistant

HOW CAN AI HELP ?

Apps for students

Prepare the student

Knowledge/Competences

Apps for vets

CLINICS

Faculty

Practice

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Wat betekent dit voor de stagegever ?

WHO IS DOING WHAT? THE EXTERNSHIP

EXCHANGE

TRAINEE

(STAGIAIR)

TRAINER

(STAGEGEVER)

COMMUNICATION

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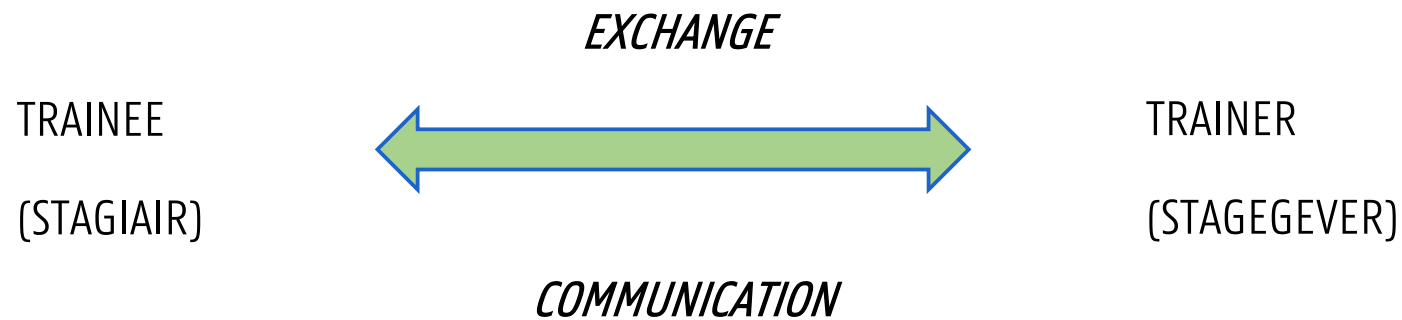
THE EXTERNSHIP

- Students with less factual knowledge / another type of knowledge

- Increased/Different use of smartphones

- Communication between trainee and trainer essential

  - Student expectations of the workplace

  - Trainer expectations of student know-how

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TAKE HOME MESSAGE

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TAKE HOME MESSAGE

- Need to change the mind of the teachers and to adapt the vet study program

- New generation of students in the practice

- APPs will be used by all of us: clients, students, vets

  - Not tomorrow but today ! AI is already present in the practice and the field

    evolves very quickly

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