

IMPULSVORTRAG  
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FAKULTÄT  
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Faculty of Informatics

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# ME, MYSELF & A.I.

## ARTIFICIAL INTELLIGENCE

- ▶ Goal: machines that exhibit cognitive capabilities
- ▶ Practically: machines that can solve our problems
- ▶ Sub-problems: reasoning, planning, learning, natural language processing, interacting, manipulating, knowledge representation, perception, affection

**A COMPUTER WOULD DESERVE TO BE CALLED INTELLIGENT IF IT COULD DECEIVE A HUMAN INTO BELIEVING THAT IT WAS HUMAN.**

**Alan Turing**

## ELIZA (1966)

- ▶ The first Chatbot
- ▶ Rule-based pattern substitution to generate responses
- ▶ “Automatic person-centered psychotherapy”

**ANY SUFFICIENTLY ADVANCED TECHNOLOGY IS  
INDISTINGUISHABLE FROM MAGIC.**

Arthur C. Clarke

INTELLIGENCE IS WHATEVER MACHINES HAVEN'T DONE YET.

Larry Tesler

- ▶ “The AI Effect”
- ▶ Technology **stops** “**being magical**” as soon as it becomes feasible and explainable
- ▶ Therefore people do not consider it “really” intelligent

## GAMES: POPULAR MILESTONES IN AI HISTORY

- ▶ IBM Deep Blue beats Kasparov in Chess (1996)
- ▶ IBM Watson wins Jeopardy! (2011)
- ▶ Google's DeepMind AlphaGo defeats Go Champion (2016)

## TODAY'S REALITY: AI EVERYWHERE

- ▶ Ubiquitous profiling and Recommender Systems
  - ▶ Assistants: Siri, Alexa, Google
  - ▶ Self-driving vehicles and vacuum cleaners
- etc.



## KEY FACTORS

- ▶ Decades of academic and industrial research
- ▶ Massive increase in available computational power
- ▶ Massive increase in digital data
- ▶ Algorithmic optimizations enabling highly complex models
- ▶ ... and creative people often inspired by science fiction

## SUMMING UP

- ▶ Computer Science provides the key technologies of our daily lives
- ▶ “Artificial Intelligence” = Computer Science + Magic Hype
- ▶ A true, general artificial intelligence remains the final frontier

## THE PROMISE

- ▶ Deep Learning methods outperform humans by learning from big and complex observational data
- ▶ Improvements in medical treatments, piloting vehicles and aircrafts, personalized interfaces, etc.
- ▶ In every domain, we will have tools that take over tasks or support us in making decisions

**USING AI REQUIRES A LEAP OF FAITH ...  
WE'VE NEVER BEFORE BUILT MACHINES THAT OPERATE IN  
WAYS THEIR CREATORS DON'T UNDERSTAND.**

*“The Dark Secret at the Heart of AI” – W. Knight, MIT Technology Review 5/6, 2017*

## CONTACT



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