Modul : Introduction to AI

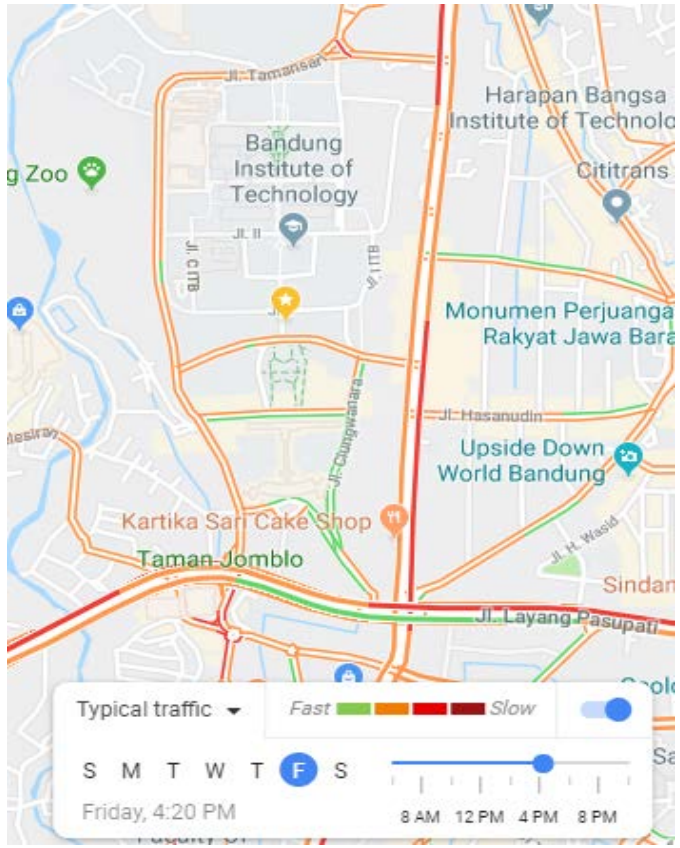
AI Application

KK IF - Teknik Informatika- STEI ITB

Inteligensi Buatan
(Artificial Intelligence)

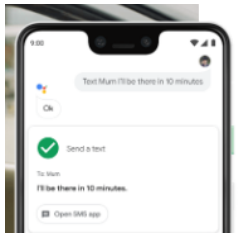
AI in Life: Path Finding

Path Finding / Direction

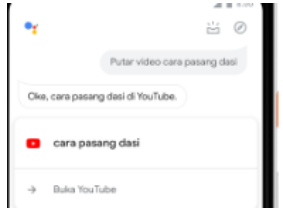


Traffic pattern

AI in Life: AI Assistant



"Hey Google, text Mum I'll be there in 10 minutes"

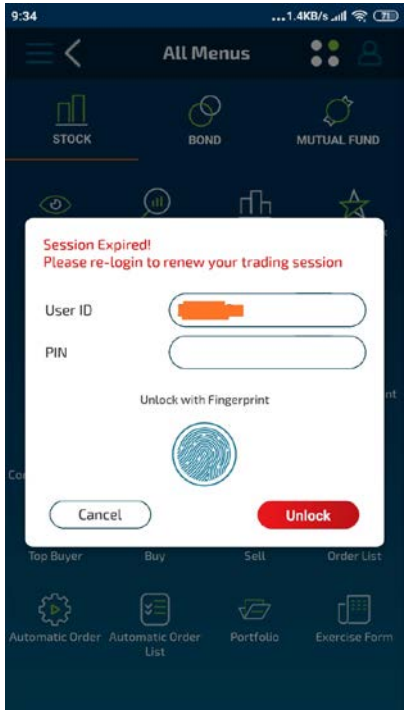


"Hey Google, play my morning playlist"

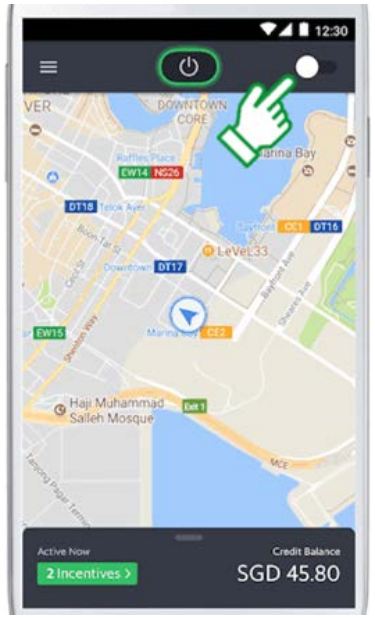
"Hey Google, dim the bedroom lights"

"Hey Google, set the temperature to 20 degrees"

AI in Life: Biometric Application



Fingerprint verification



Face verification

AI in Life: Transform Your Face

Pumarola, A., Agudo, A., Martinez, A.M., Sanfeliu, A., & Moreno-Noguer, F. (2019). *GANimation: One-Shot Anatomically Consistent Facial Animation. In International Journal of Computer Vision*

AI in Life: OpenAI Five for Dota 2

https://www.youtube.com/watch?v=UZHTNBMAfAA

APRIL 15, 2019 • 7 MINUTE READ

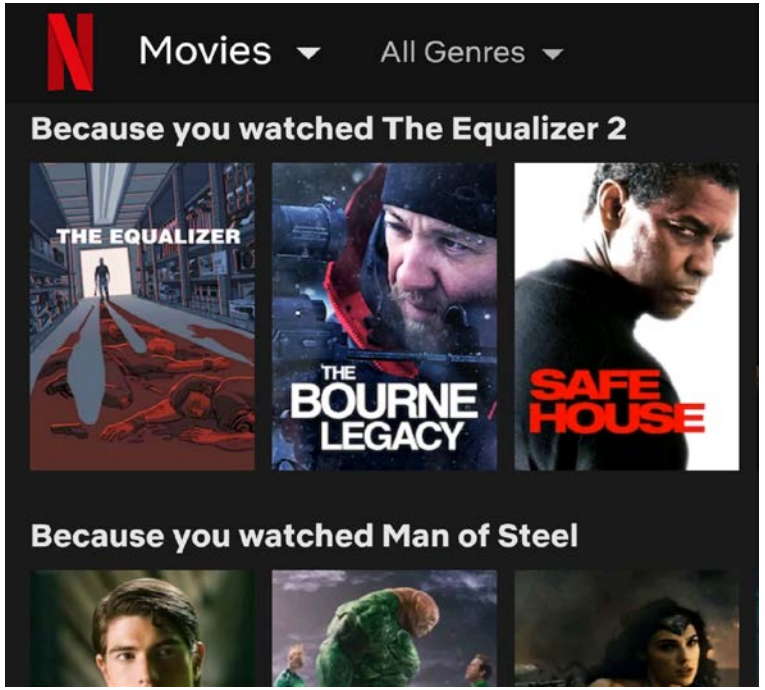
OpenAI Five Defeats Dota 2 World Champions

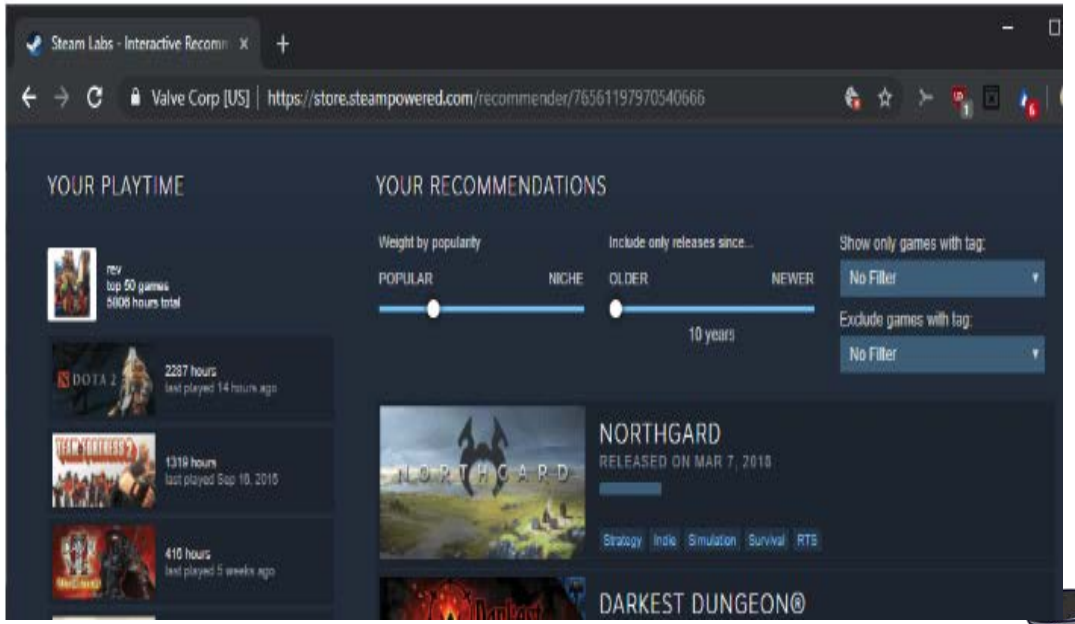
OpenAI Five is the first AI to beat the world champions in an esports game, having won two back-to-back games versus the world champion Dota 2 team, OG, at Finals this weekend. Both OpenAI Five and DeepMind's AlphaStar had previously beaten good pros privately but lost their live pro matches, making this also the first time an AI has beaten esports pros on livestream.

https://openai.com/blog/openai-five-defeats-dota-2-world-champions/

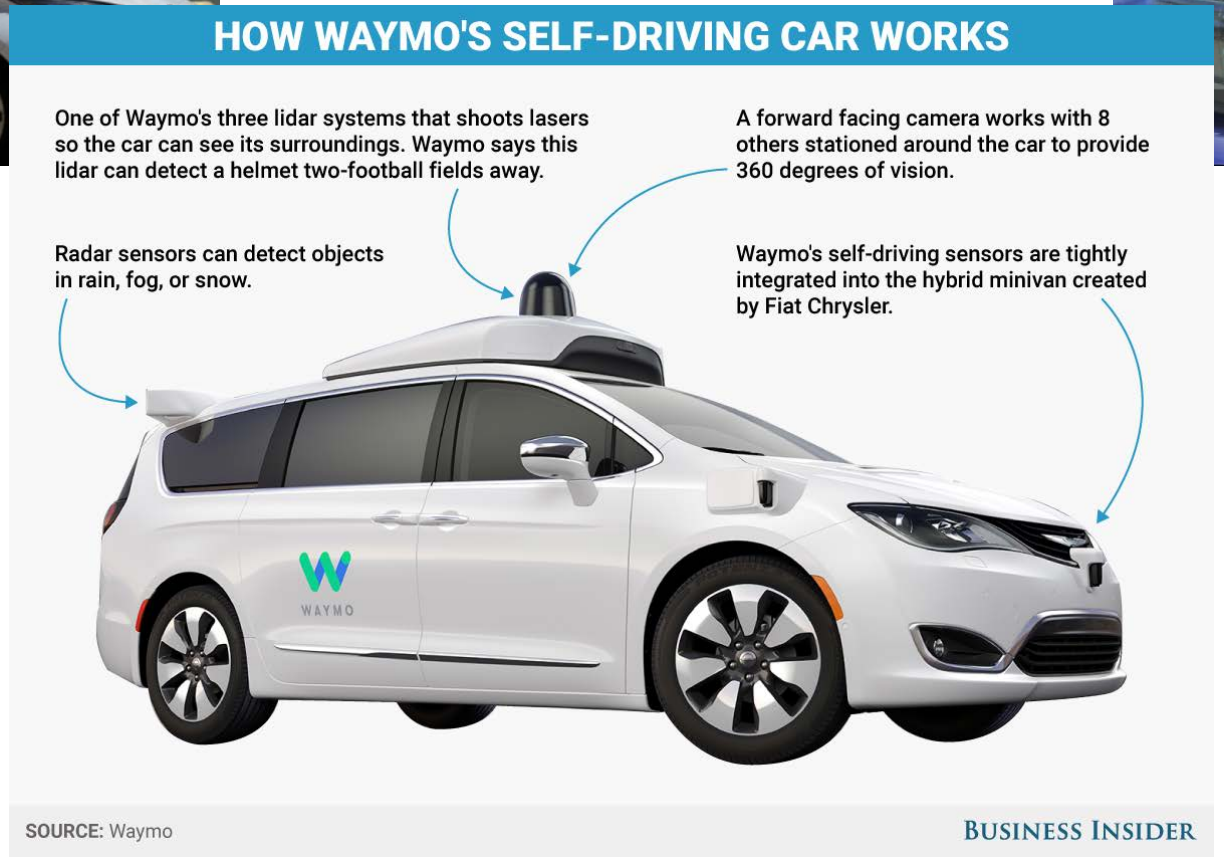
AI in Life: Recommender System

Spotify





AI in Life: Self Driving Car



http://www.businessinsider.sg/how-does-googles-waymo-self-driving-car-work-graphic-2017-1/?r=US&IR=T

VARIOUS AI APPLICATION

- AI for HEALTHCARE
- AI for EDUCATION
- AI for ENERGY INDUSTRY
- AI for MANUFACTURING

Modul: Introduction to AI

What is AI (1): Acting Humanly

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4 Approaches in AI Definition

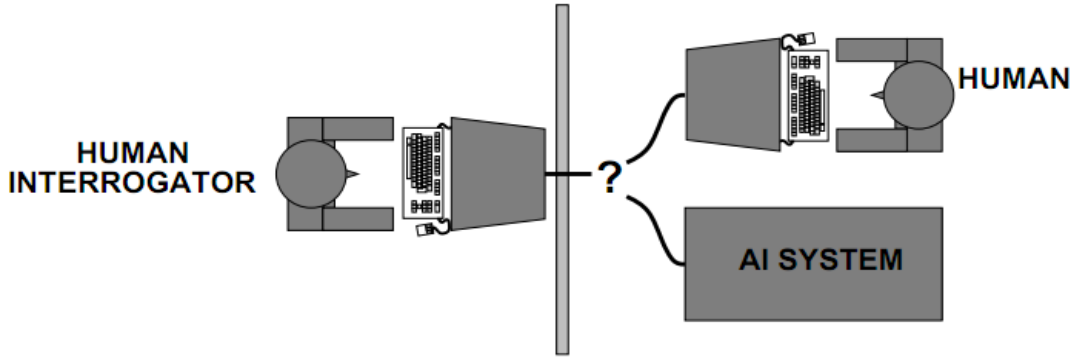
	Humanly	or	Rationally
Thinking or Acting	Thinking Humanly		Thinking Rationally
	Acting Humanly		Acting Rationally

1st Approach of What is AI: ACTING HUMANLY

The art of creating machines that perform functions that require intelligence when performed by people (Kurzweil, 1990)

The study of how to make computers do things at which, at the moment, people are better (Rich and Knight, 1991)

1st Approach of What is AI: Acting Humanly (2)



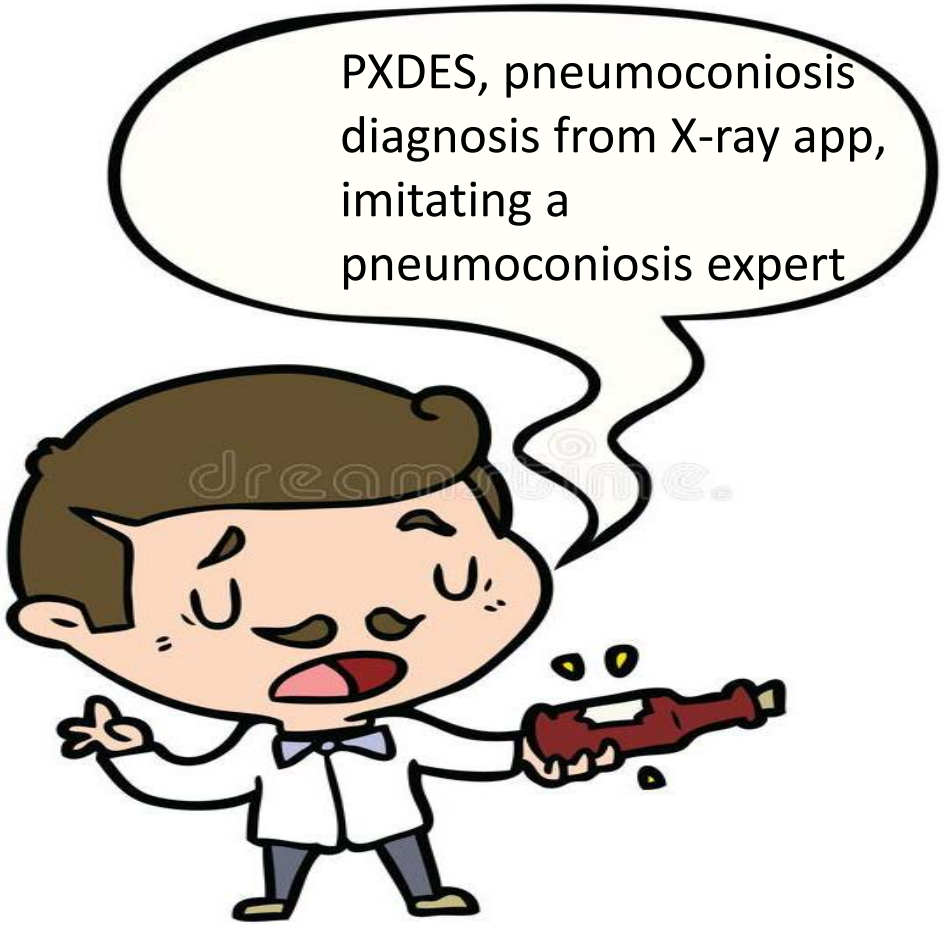
TURING TEST

LOEBNER PRIZE

Annual Turing Test Competition

https://www.pandorabots.com/mitsuku/

Acting Humanly Approach: Applications Examples



Modul: Introduction to AI

What is AI (2): Thinking Humanly

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Inteligensi Buatan
(Artificial Intelligence)

4 Approaches in AI Definition

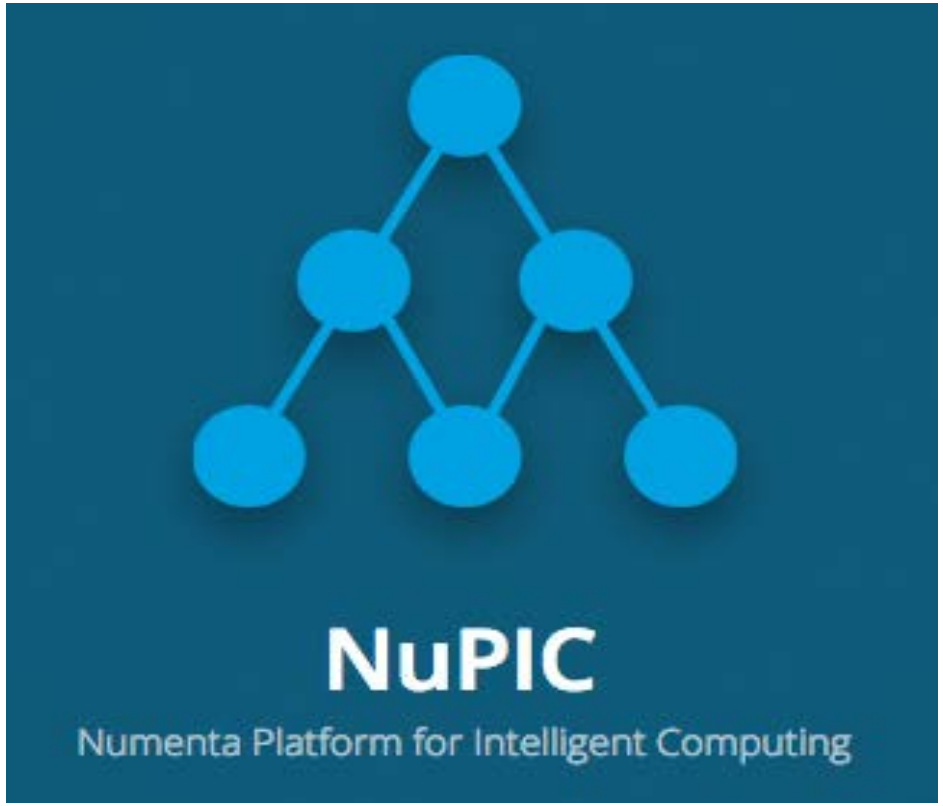
Thinking or Acting	Humanly or Rationally
	Thinking Humanly
	Thinking Rationally
	Acting Humanly
	Acting Rationally

2nd Approach of What is AI: THINKING HUMANLY

[The automation of] activities that we associate with human thinking, activities such as decision-making, problem solving, learning ... (Bellman, 1978)

The exciting new effort to make computers think ... machines with minds, in the full and literal sense (Haugeland, 1985)

Thinking Humanly Approach: Applications Examples



https://numenta.org/

Sighthound VIDEO
intelligent security camera software

Our patented deep learning computer vision technology teaches your cameras to see video just like the human brain.

https://www.sighthound.com/products/sighthound-video

Modul: Introduction to AI

What is AI (3): Thinking Rationally

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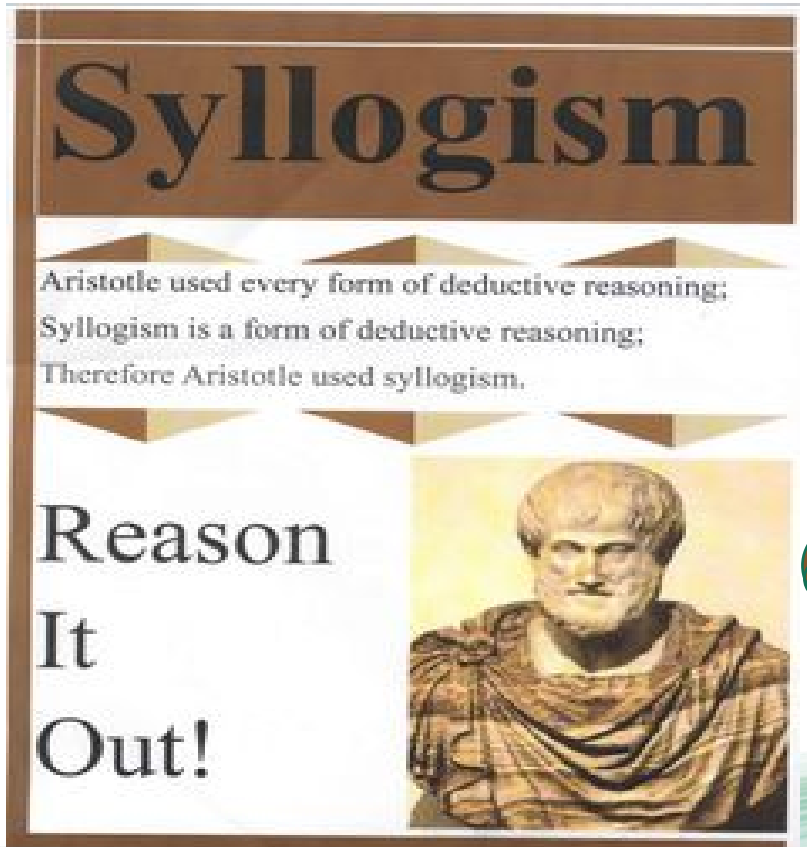
Inteligensi Buatan
(Artificial Intelligence)

4 Approaches in AI Definition

Thinking or Acting	Humanly or Rationally
	Thinking Humanly
	Thinking Rationally
	Acting Humanly
	Acting Rationally

3rd Approach of What is AI: THINKING RATIONALLY

The study of mental faculties through the use of computational models (Charniak and McDermott, 1985)



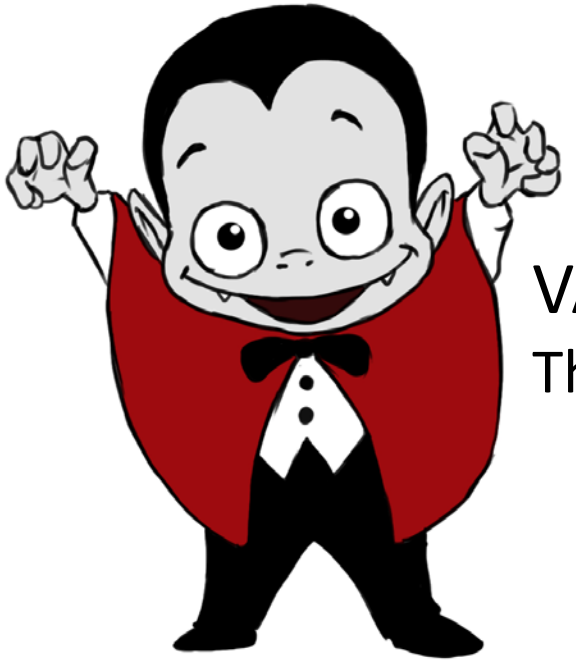
The study of the computations that make it possible to perceive, reason, and act (Winston, 1992)

Thinking Rationally Approach: Applications Examples

LEAN
THEOREM PROVER

Microsoft Research

http://leanprover.github.io/



VAMPIRE
Theorem Prover

https://vprover.github.io/index.html

Modul: Introduction to AI

What is AI (4): Acting Rationally

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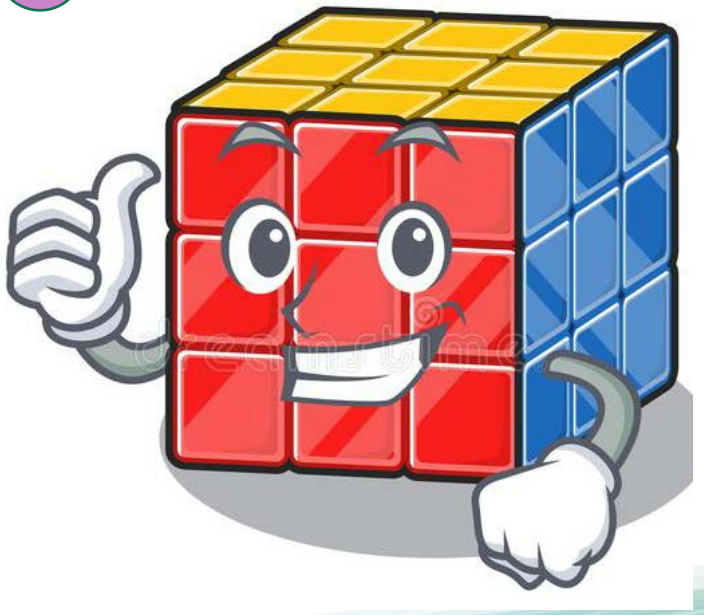
Inteligensi Buatan
(Artificial Intelligence)

4 Approaches in AI Definition

	Humanly	or	Rationally
Thinking or Acting	Thinking Humanly		Thinking Rationally
	Acting Humanly		Acting Rationally

4th Approach of What is AI: ACTING RATIONALLY

Computational intelligence is the study of the design of intelligent agents(Poole et al., 1998)



AI...is concerned with intelligent behavior in artifacts (Nilsson, 1998)

Acting Rationally Approach: Applications Examples

JobShop visual
Visual Production Scheduling

http://www.jobshop.72.sk/?m=0HU

https://blog.dota2.com/?l=english

THANK YOU