

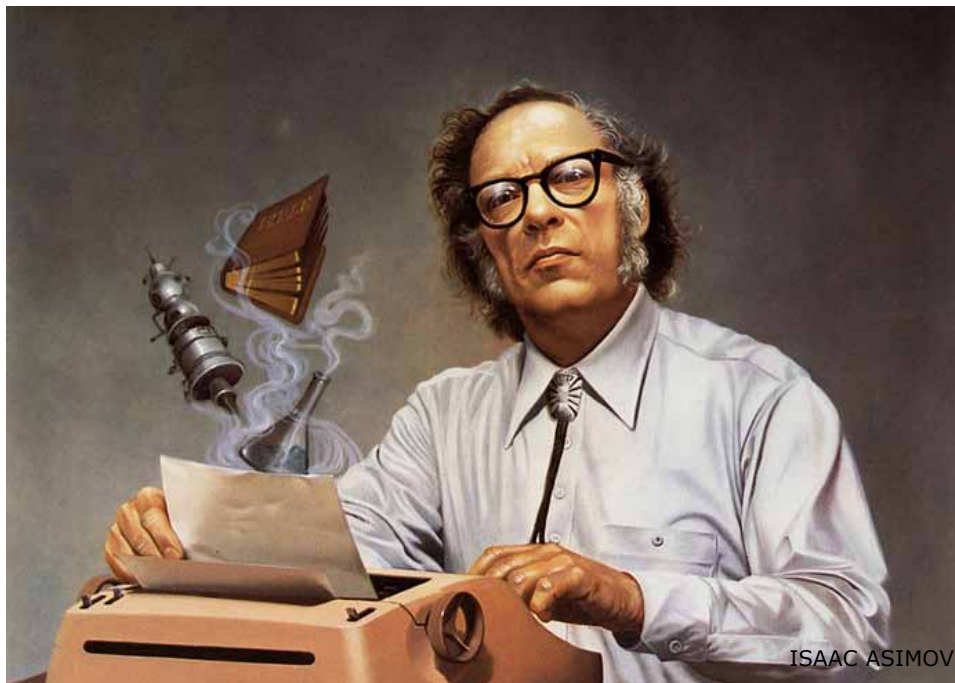
HUMAN/ROBOT interaction

BA PROJECT // ZHdK Zürich

Nino Cometti / Florian Wille



HISTORY



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THREE LAWS OF ROBOTICS

In science fiction, the Three Laws of Robotics are a set of three rules written by Isaac Asimov, which almost all positronic robots appearing in his fiction must obey. Introduced in his 1942 short story „Runaround“, although foreshadowed in a few earlier stories, the Laws state the following:

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey orders given to it by human beings, except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law

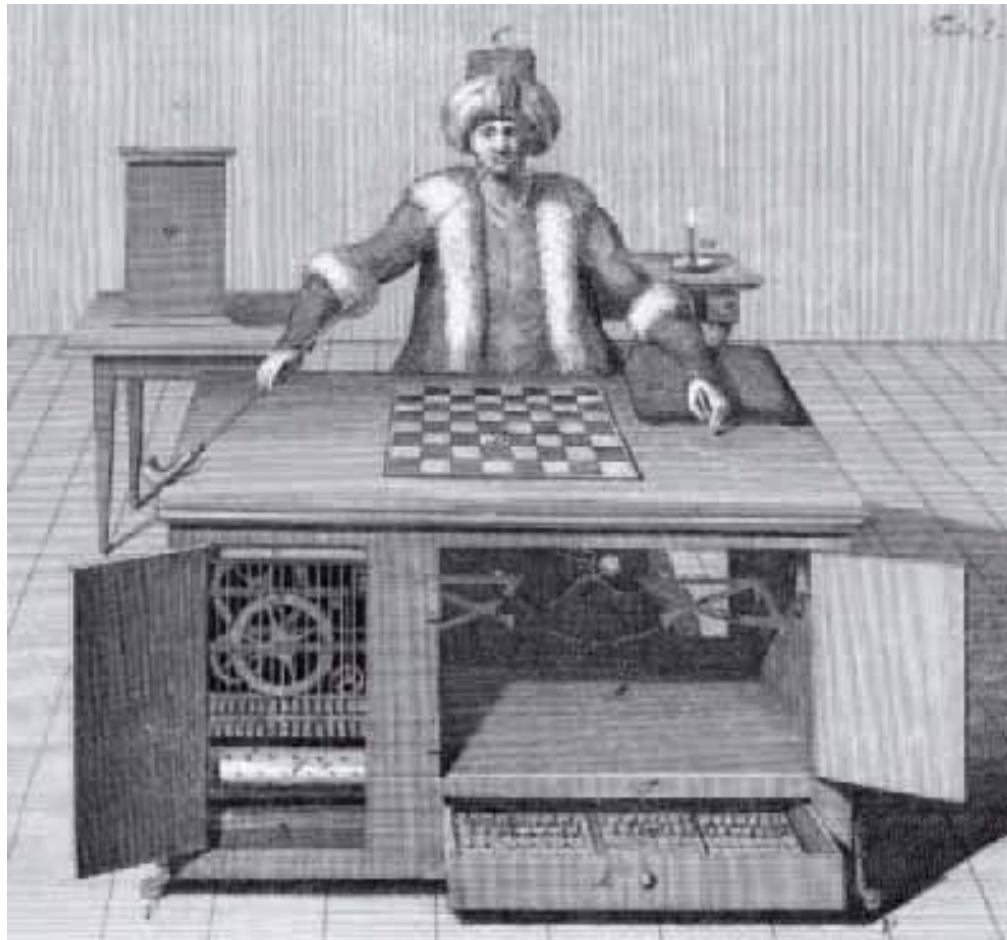
WHAT IS A ROBOT?

„Ein Roboter ist ein frei und wieder programmierbarer, multifunktionaler Manipulator mit mindestens drei unabhängigen Achsen, um Materialien, Teile, Werkzeuge oder spezielle Geräte auf programmierten, variablen Bahnen zu bewegen zur Erfüllung der verschiedensten Aufgaben.“
VDI-Richtlinie Nr. 2860 – offizielle Definition

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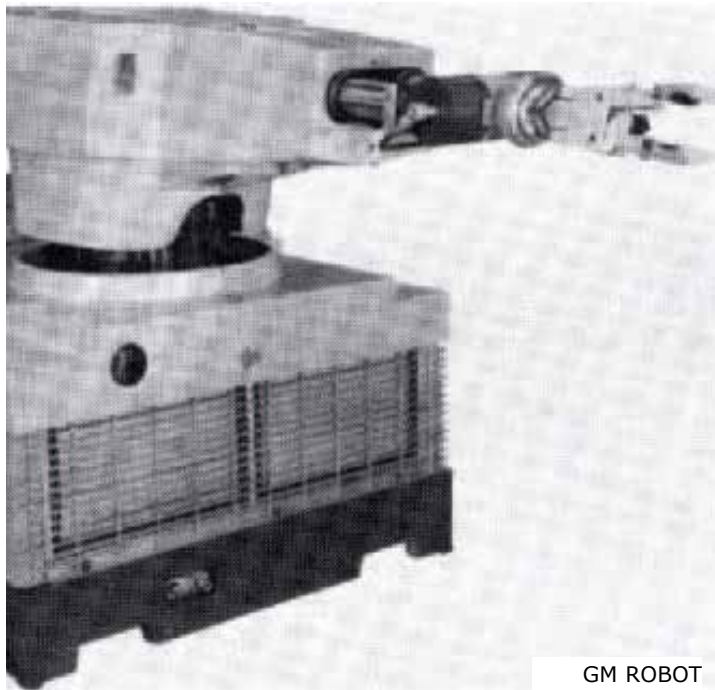
800 BC. - simple machines

1500 - Leonardo da Vinci's church clock – Piazza San Marco (Venice)

18. Century - Baron von Kempelen
- chessplaying turk

1922 - Karel Capeck´s „Rossums universale Roboter“
derived from the Czech
„robotnick“ - slave

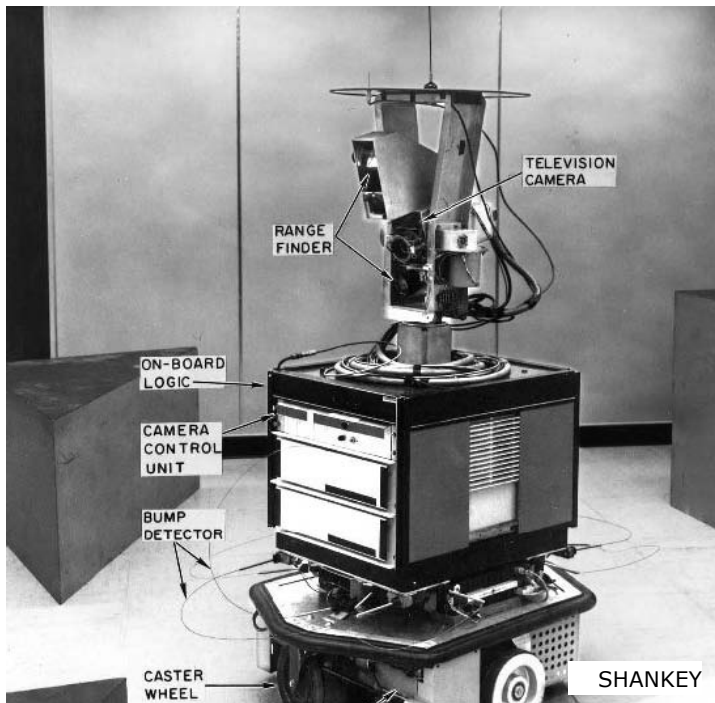
CHESSPLAYING TURK



GM ROBOT



WABOT



SHANKEY



ASIMO

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1962 General Motors first industrial robot. Move objects through grappler.

1968 Shakey - able to navigate inside buildings

1985 Wabot - able to walk, read notes and play organ

2001 ASIMO - Hondas walking robot. Able to shift weight from one leg to the other and plan ahead the route.



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TYPES OF ROBOTS TODAY

- industrial robots
- research robot
- supporting mechanics
- entertainment robot

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ROBOTS IN FICTION

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THE HELPFUL TYPE.

Even though robots usually are designed to help, most robots in fiction are not much of a help after all.

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THE SELF COUNCIOUS TYPE

That robots develop an awareness is a very common theme in fiction. A emotional robots requires features to show emotions.

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THE COOL TYPE

Cool through beeing superior.

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THE DANGEROUS TYPE

There is a deep fear that the machines we created could turn against us.

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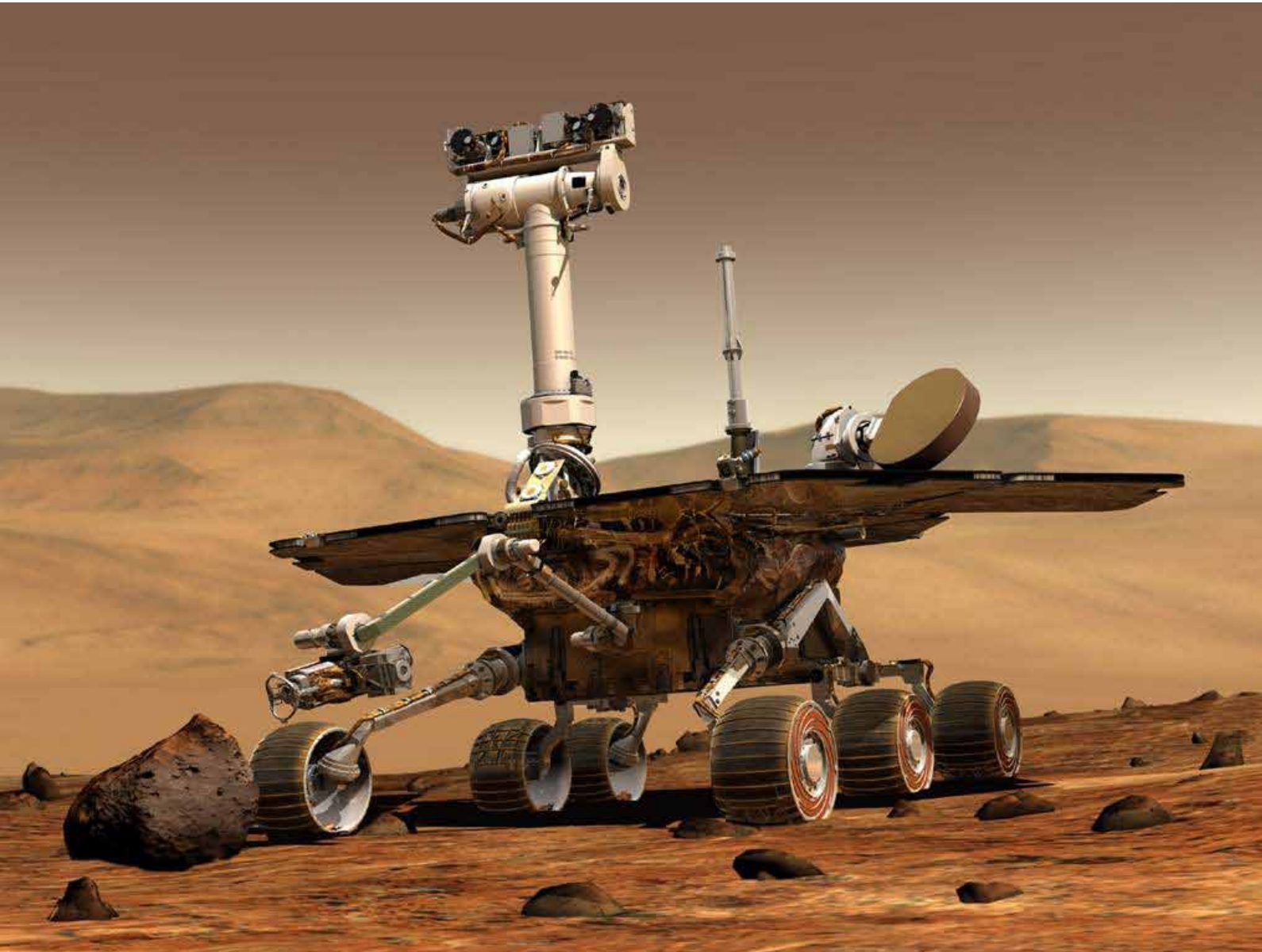


LOCOMOTION

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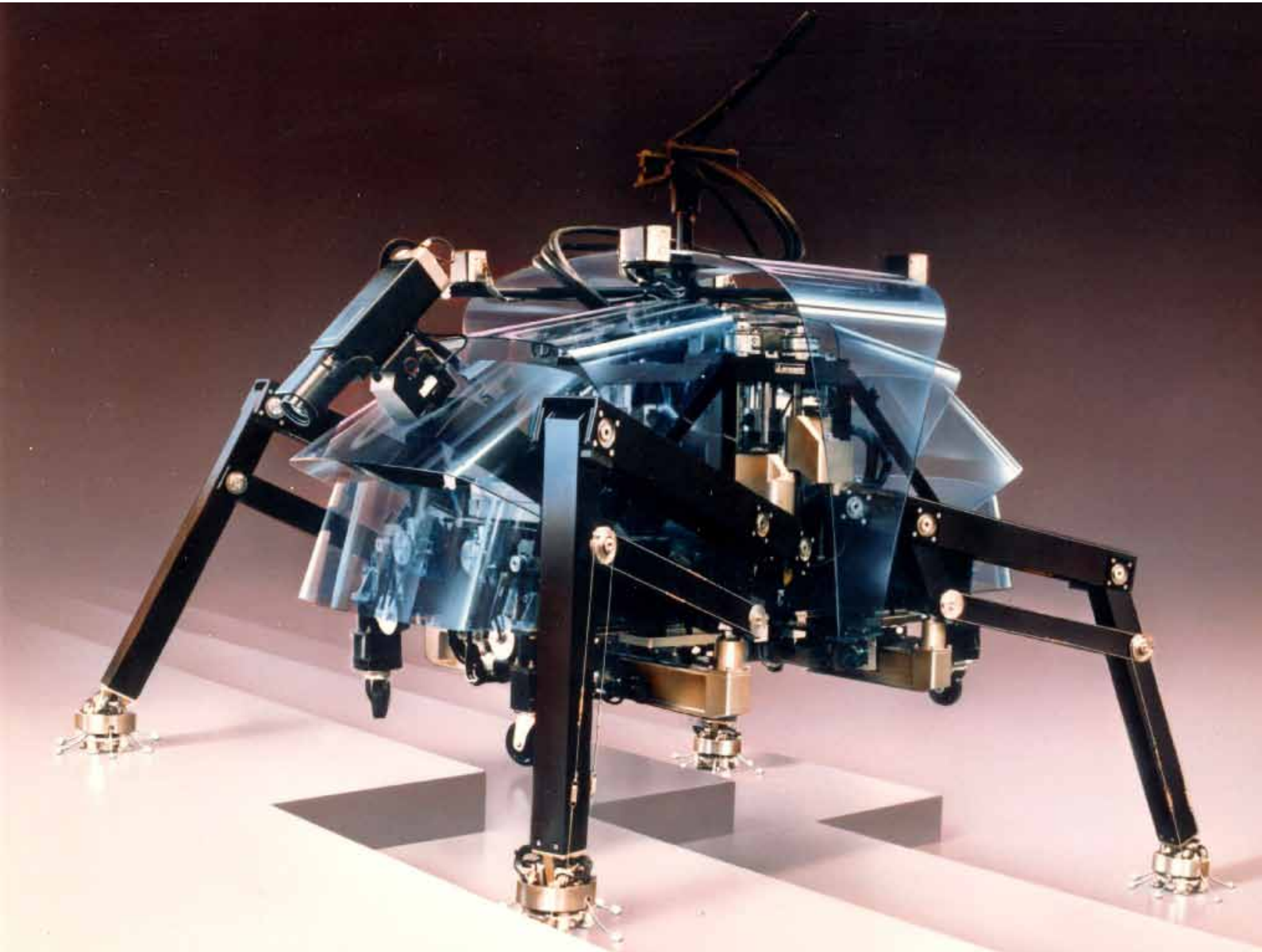
ROLLING

Fast, smooth. Needs to be combined with refined chassis to go all terrain.

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CRAWLING
Good stability.

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WALKING

Very human-like - easily acceptable by user.

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CLIMBING

Very human-like - easily acceptable by user.

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FLYING