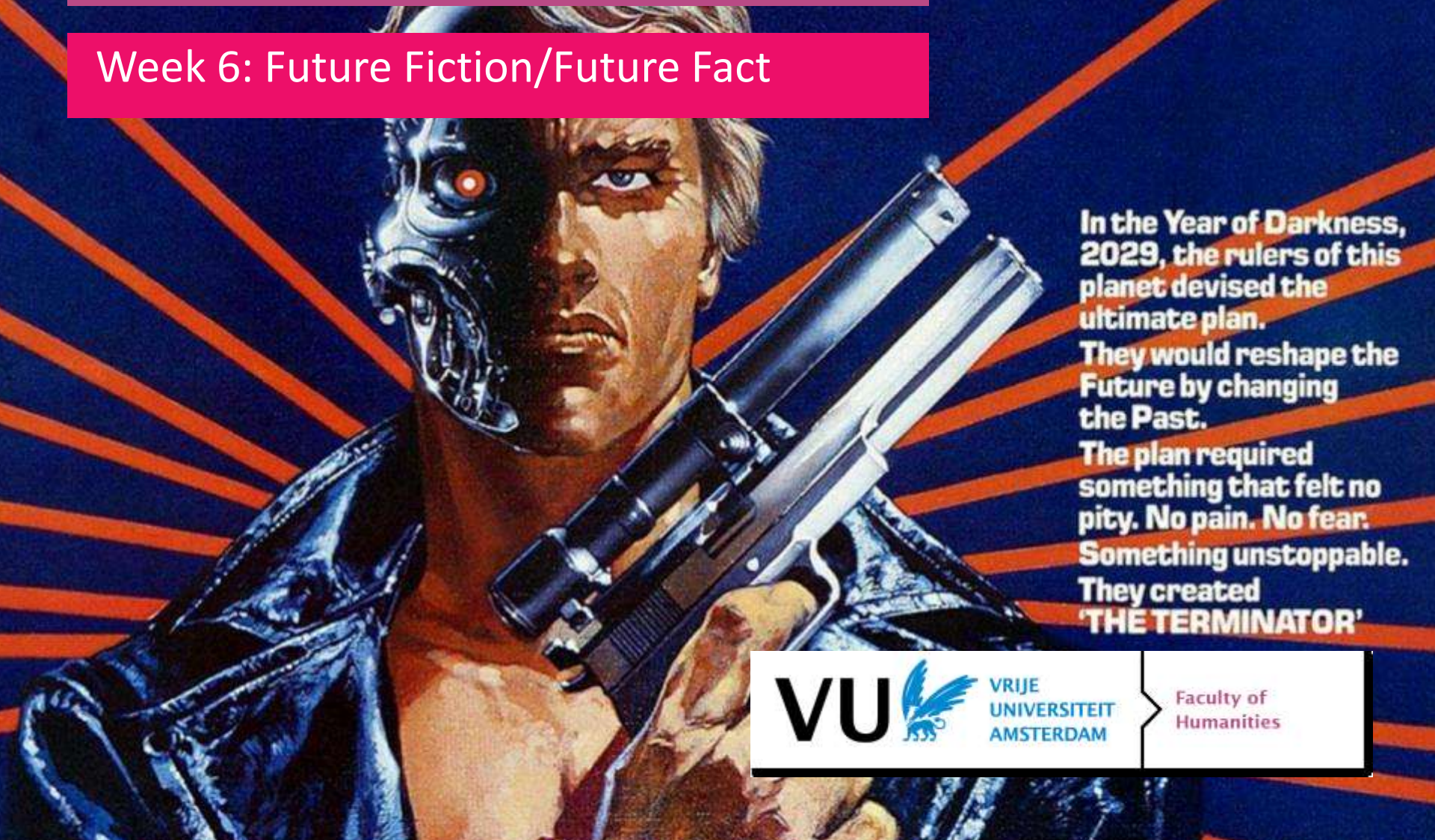# Hollywood Science

Week 6: Future Fiction/Future Fact

In the Year of Darkness, 2029, the rulers of this planet devised the ultimate plan.

They would reshape the Future by changing the Past.

The plan required something that felt no pity. No pain. No fear. Something unstoppable.

They created 'THE TERMINATOR'

VU | VRIJE UNIVERSITEIT AMSTERDAM | Faculty of Humanities

Intertextuality?

Transhumanism

"A belief that the human race can evolve beyond its current limitations, esp. by the use of science and technology." (OED, 3rd edition)

- Immortality
  - Cryonism (= 'freeze' yourself)
- Ethical dilemmas
  - Politics
  - Privacy
  - Eugenics?

https://www.vpro.nl/programmas/robo-sapiens/kijk/afleveringen/2017/6.html
(skip to 00:19:41 – 00:25:06)
From *Robo Sapiens* (December 3rd 2017, VPRO)

Transhumanism

"[...] will it be ethical to allow surgeons to replace someone's limbs with carbon-fibre blades just so they can win gold medals?"

https://theguardian.com/technology/2018/may/06/no-death-and-an-enhanced-life-is-the-future-transhuman

The Observer

No death and an enhanced life: Is the future transhuman?

The 21st-century tech revolution is transforming human lives across the globe

Robin McKie Science editor
Sun 6 May 2018 08.59 BST

The aims of the transhumanist movement are summed up by Mark O'Connell in his book *To Be a Machine,* which last week won the Wellcome Book prize. "It is their belief that we can and should eradicate ageing as a cause of death; that we can and should use technology to augment our bodies and our minds; that we can and should merge with machines, remaking ourselves, finally, in the image of our own higher ideals."

The idea of technologically enhancing our bodies is not new. But the extent to which transhumanists take the concept is. In the past, we made devices such as wooden legs, hearing aids, spectacles and false teeth. In future, we might use implants to augment our senses so we can detect infrared or ultraviolet radiation directly or boost our cognitive processes by connecting ourselves to memory chips. Ultimately, by merging man and machine, science will produce humans who have vastly increased intelligence, strength, and lifespans; a near embodiment of gods.

Transhumanism

"[…] this turning point will be reached around the year 2030, when biotechnology will enable a union between humans and genuinely intelligent computers and AI systems. The resulting human-machine mind will become free to roam a universe of its own creation, uploading itself at will on to a "suitably powerful computational substrate". **We will become gods, or more likely "star children" similar to the one at the end of *2001: A Space Odyssey*.**"

https://theguardian.com/technology/2018/may/06/no-death-and-an-enhanced-life-is-the-future-transhuman

Technological Singularity

Singularity

"Abstract: Within thirty years, we will have the technological means to create superhuman intelligence. Shortly after, the human era will be ended."

(Vernor Vinge, 1993)

https://www.theguardian.com/technology/2014/feb/22/robots-google-ray-kurzweil-terminator-singularity-artificial-intelligence

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The Observer

Are the robots about to rise? Google's new director of engineering thinks so...

Ray Kurzweil popularised the Terminator-like moment he called the 'singularity', when artificial intelligence overtakes human thinking. But now the man who hopes to be immortal is involved in the very same quest – on behalf of the tech behemoth

See our gallery of cinematic killer robots

29,318   714

Carole Cadwalladr
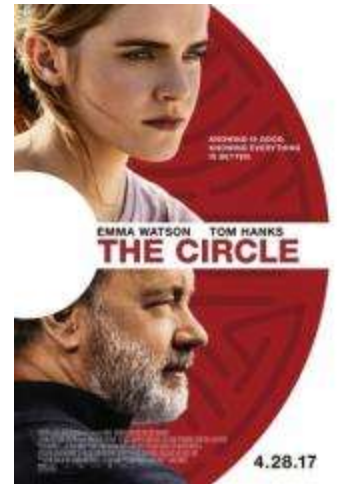Saturday 22 February 2014 19.04 GMT

Technological Singularity: Ray Kurzweil

"When Kurzweil first started talking about the "singularity", a conceit he borrowed from the **science-fiction writer** Vernor Vinge, **he was dismissed as a fantasist.** He has been saying for years that he believes that the **Turing test** [...] will be passed in 2029."

- [Moore's law](#)
  - The amount of transistors in a chip doubles every two years
- Turing test
  - Cf. Voight-Kampff test in *Blade Runner* (1982)

"**So far, so sci-fi.** Except that Kurzweil's new home isn't some futuristic MegaCorp intent on world domination. It's not Skynet. Or, maybe it is, but we largely still think of it as that helpful search engine with the cool design."

From: https://www.theguardian.com/technology/2014/feb/22/robots-google-ray-kurzweil-terminator-singularity-artificial-intelligence

Technological Singularity: Ray Kurzweil

[...] it should be noted [...] that Google set up an **ethics board** to look at the question of what machine learning will actually mean when it's in the hands of what has become the most powerful company on the planet. Of what machine learning might look like when the machines have learned to **make their own decisions**. **Or gained, what we humans call, "consciousness".**

""**And once the computers can read their own instructions, well... gaining domination over the rest of the universe will surely be easy pickings**. Though Kurzweil, being a techno-optimist, doesn't worry about the prospect of being enslaved by a master race of newly liberated iPhones with ideas above their station. **He believes technology will augment us**. Make us better, smarter, fitter. That just as we've already outsourced our ability to remember telephone numbers to their electronic embrace, so we will welcome nanotechnologies that thin our blood and boost our brain cells. His mind-reading search engine will be a "cybernetic friend"."

From: https://www.theguardian.com/technology/2014/feb/22/robots-google-ray-kurzweil-terminator-singularity-artificial-intelligence

Self-conscious computers: What could go wrong?

Marooned in Realtime

From Wikipedia, the free encyclopedia

Marooned in Realtime is a 1986 murder mystery and time-travel science fiction novel by American writer Vernor Vinge, about a small, time-displaced group of people who may be the only survivors of a technological singularity or alien invasion. It is the sequel to the novel *The Peace War* (1984) and the novella *The Ungoverned* (1985). Both novels and the novella were collected in *Across Realtime*.

Marooned in Realtime won the Prometheus Award in 1987 and was also nominated for the Hugo Award for Best Novel[1] that same year.

Contents [hide]
1 Plot summary
2 Publication

Marooned in Realtime

Cover of first edition (hardcover)

Author   Vernor Vinge

Self-conscious computers: What could go wrong?

The Terminator (1984)

The network of computers, 'Skynet', begins a war against humanity, exterminating all survivors (genocide).
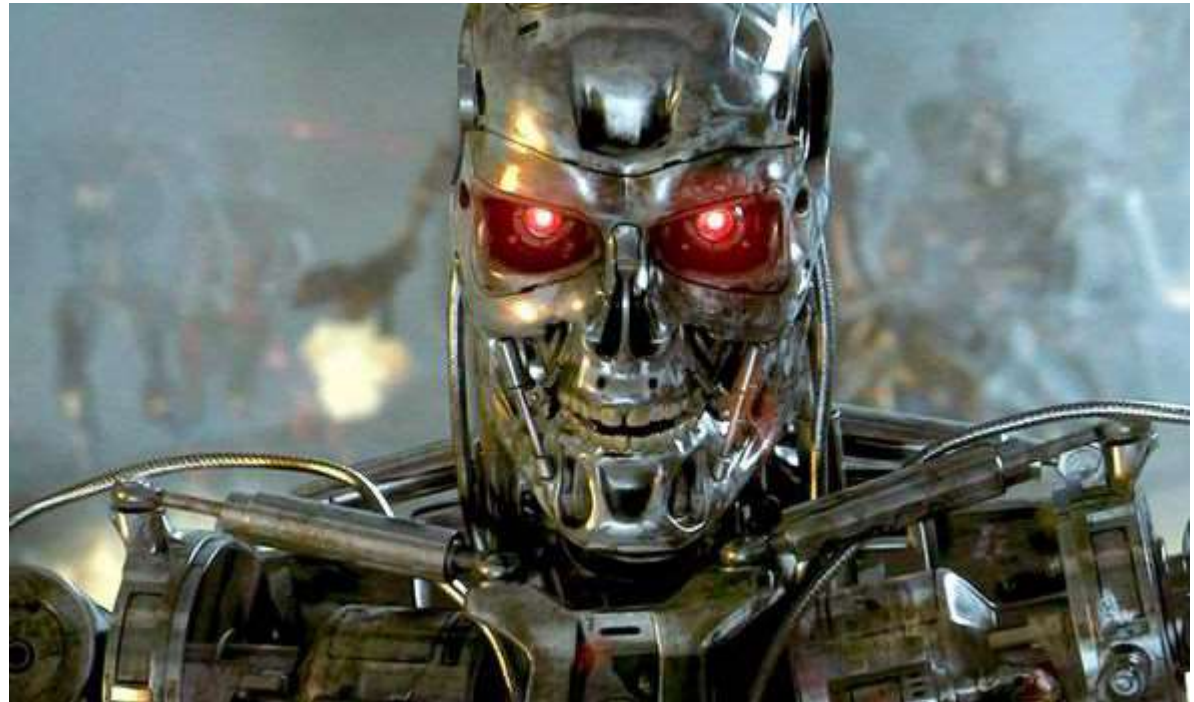
"It is the creature of **conscious computers** that dominate the future world of 2029. These machines trace their lineage back to computers originally built to defend the United States against its enemies and that later became conscious and decided to rid the world of humanity."

(Perkowitz, p.146)

Three Laws of Robotics

From *I, Robot* (1940-1950) by Isaac Asimov

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 the orders given 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 Laws.

How to interpret these rules?

Robots are all around us, but which fields allow for further 'exploiting' artificial intelligence?

Examples of **machine learning**

Example: Artificial Intelligence as chatbot

- Learning: Replicating human interaction
  - What could possibly go wrong?

https://techcrunch.com/2016/03/24/microsoft-silences-its-new-a-i-bot-tay-after-twitter-users-teach-it-racism/

TC   News   Video   Events   Crunchbase   Search   Q

Microsoft silences its new A.I. bot Tay, after Twitter users teach it racism [Updated]

Posted Mar 24, 2016 by *Sarah Perez* (*@sarahintampa*)

Next Story

Microsoft's newly launched A.I.-powered bot called Tay, which was responding to tweets and chats on GroupMe and Kik, has already been shut down due to concerns with its inability to recognize when it was making offensive or racist statements. Of course, the bot wasn't *coded* to be racist, but it "learns" from those it interacts with. And naturally, given that this is the Internet, one of the first things online users taught Tay was how to be racist, and how to spout back ill-informed or inflammatory political opinions. [**Update**: Microsoft now says it's "making adjustments" to Tay in light of this problem.]

In case you missed it, Tay is an A.I. project built by the Microsoft Technology and Research and Bing teams, in an effort to conduct research on conversational understanding. That is, it's a bot that you can talk to online. The company described the bot as "*Microsoft's A.I. fam the internet that's got zero chill!*", if you can believe that.

Example: Artificial Intelligence as artist

- Learning: Neural network replicating images it found on the internet.
  - What could possibly go wrong?
  - What are the most found things on the internet…?

https://www.theguardian.com/technology/2015/jun/18/google-image-recognition-neural-network-androids-dream-electric-sheep


theguardian

news opinion sport arts lifestyle

world UK science cities global development football

Yes, androids do dream of electric sheep

Google sets up feedback loop in its image recognition neural network - which looks for patterns in pictures - creating hallucinatory images of animals, buildings and landscapes which veer from beautiful to terrifying

109,571   445

This article is 2 years old

Example: Artificial Intelligence as judge

Robocop (1987)

"The "good robot–bad robot" theme is richer and more complicated with cyborgs. They go beyond mere machine, with human emotions and values. In *RoboCop* (1987), a **man- machine hybrid provides better judgment than a purely artificial robot.**"

(Perkowitz, p.149)

- **Cyborg**, cf. Monster of Frankenstein?
- Apparently, judging needs a human aspect.
- Easy for legal disputes, but what about life and death?
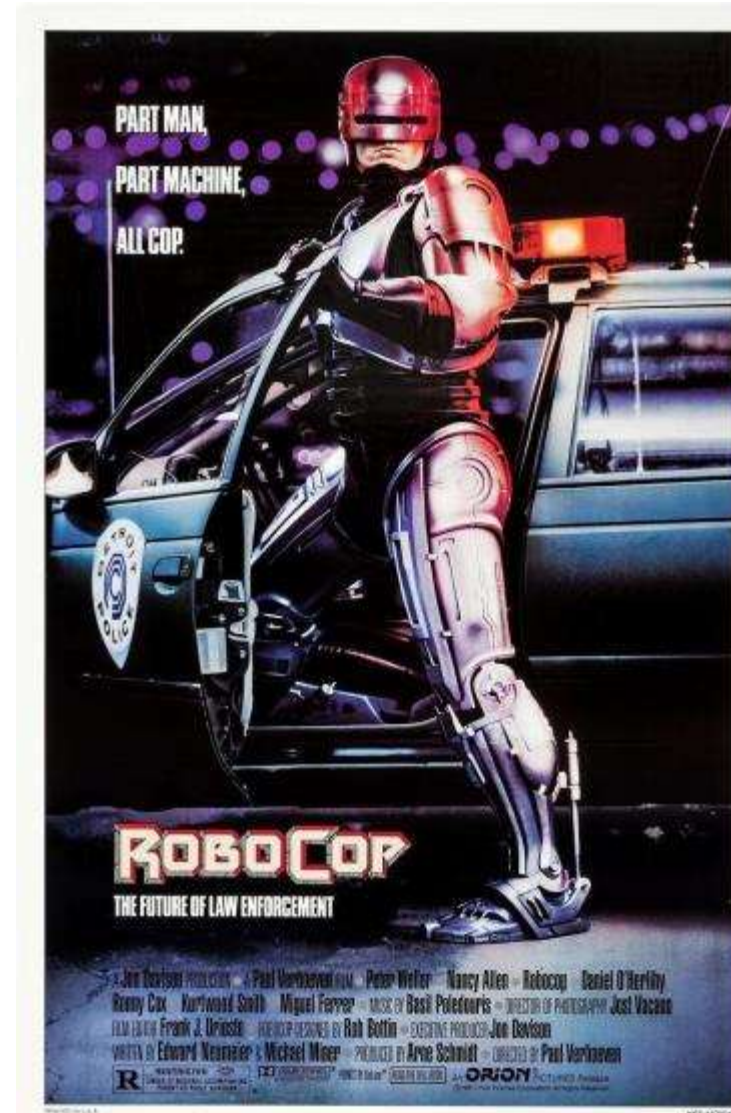
Example: Artificial Intelligence as judge

UCL Home / **UCL News** / AI predicts outcomes of human rights trials

AI predicts outcomes of human rights trials

24 October 2016

The judicial decisions of the European Court of Human Rights (ECtHR) have been predicted to 79% accuracy using an artificial intelligence (AI) method developed by researchers at UCL, the University of Sheffield and the University of Pennsylvania.

http://www.ucl.ac.uk/news/news-articles/1016/241016-AI-predicts-outcomes-human-rights-trials

COMPUTERWORLD
FROM IDG

NEWS

Not robocop, but robojudge? A.I. learns to rule in human rights cases

Researchers have built an A.I. system that can predict rulings by the European Court of Human Rights with 79% accuracy

By Peter Sayer

IDG News Service - Paris bureau chief, **IDG** News Service | OCT 24, 2016 8:58 AM PT

https://www.computerworld.com/article/3133957/artificial-intelligence/not-robocop-but-robojudge-ai-learns-to-rule-in-human-rights-cases.html

Algorithmic bias

- Discriminatory sentences in law
  - **COMPAS ([propublica](#))**
    - Predicting likelihood of a criminal reoffending
    - Higher risk for black defendants
    - Closed algorithm

- Bias on gender stereotypes ([science](#))
  - He is a doctor
  - She is a nurse

- Bias on sentiment ([mashable](#))
  - Negative sentiment towards homosexuality or black skin colour

why are black women so

why are black women so angry
why are black women so loud
why are black women so mean
why are black women so attractive
why are black women so lazy
why are black women so annoying
why are black women so confident
why are black women so sassy
why are black women so insecure

ALGORITHMS OF OPPRESSION

HOW SEARCH ENGINES REINFORCE RACISM

SAFIYA UMOJA NOBLE

Algorithmic bias

- Biased creators?
- Biased data?

Critical areas:

- Medicine
- Law
- Traffic?

https://www.technologyreview.com/s/608986/forget-killer-robotsbias-is-the-real-ai-danger/

Forget Killer Robots—Bias Is the Real AI Danger

John Giannandrea, who leads AI at Google, is worried about intelligent systems learning human prejudices.

by Will Knight   October 3, 2017

oogle's AI chief isn't fretting about super-intelligent killer robots. Instead, John Giannandrea is concerned about the danger that may be lurking inside the machine-learning algorithms used to make millions of decisions every minute.

"The real safety question, if you want to call it that, is that if we give these systems biased data, they will be biased," Giannandrea said before a recent Google conference on the relationship between humans and AI systems.

The problem of bias in machine learning is likely to become more significant as the technology spreads to critical areas like medicine and law, and as more people without a deep technical understanding are tasked with deploying it. Some experts warn that algorithmic bias is already pervasive in many industries, and that almost no one is making an effort to identify or correct it (see "Biased Algorithms Are Everywhere, and No One Seems to Care").

Example: The Self-Driving Car

https://www.technologyreview.com/s/542626/why-self-driving-cars-must-be-programmed-to-kill/

X_b

A View from **Emerging Technology from the arXiv**

Why Self-Driving Cars Must Be Programmed to Kill

Self-driving cars are already cruising the streets. But before they can become widespread, carmakers must solve an impossible ethical dilemma of algorithmic morality.

October 22, 2015

When it comes to automotive technology, self-driving cars are all the rage. Standard features on many ordinary cars include intelligent cruise control, parallel parking programs, and even automatic overtaking—features that allow you to sit back, albeit a little uneasily, and let a computer do the driving.

So it'll come as no surprise that many car manufacturers are beginning to think about cars that take the driving out of your hands altogether (see "Drivers Push Tesla's Autopilot Beyond Its Abilities"). These cars will be safer, cleaner, and more fuel-efficient than their manual

Example: The Self-Driving Car: Liability?

https://cyberlaw.stanford.edu/blog/2015/05/tesla-and-liability

Example: The Self-Driving Car: Liability?

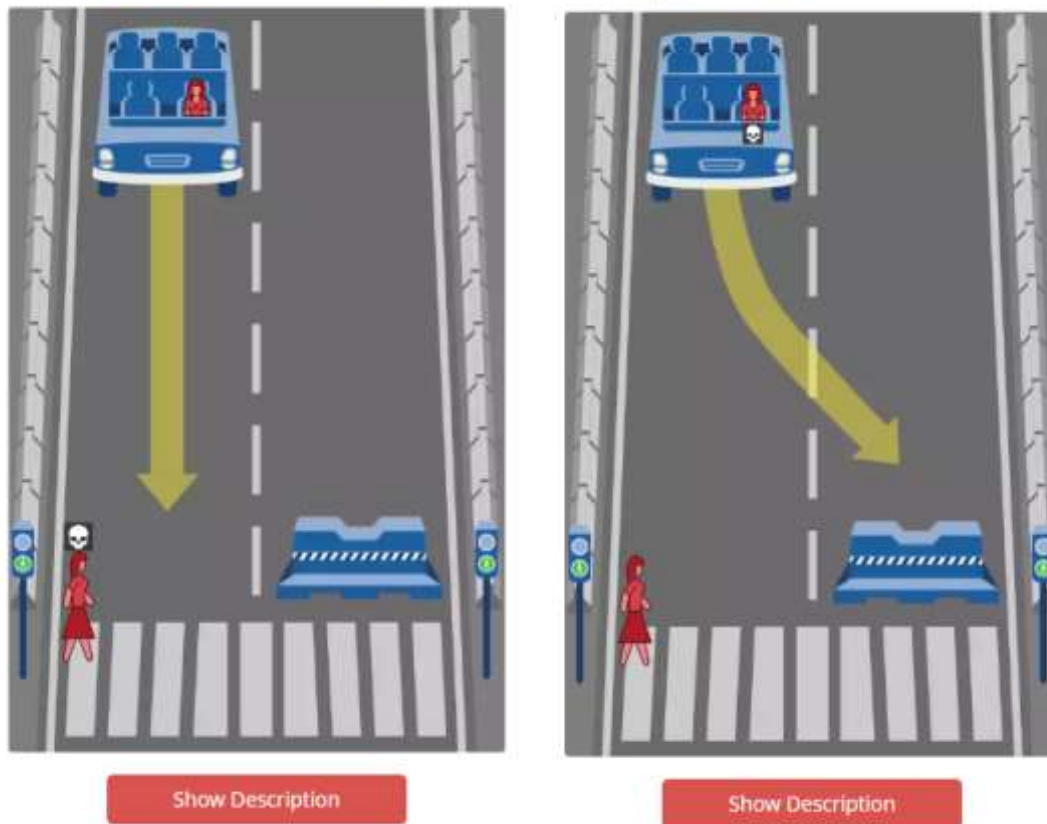Make computers think as humans

- Morality

- Ethics

Influence from the designer?

- How difficult is it to make these decisions?

The Moral Machine

The brakes are failing. What should the autonomous car do?

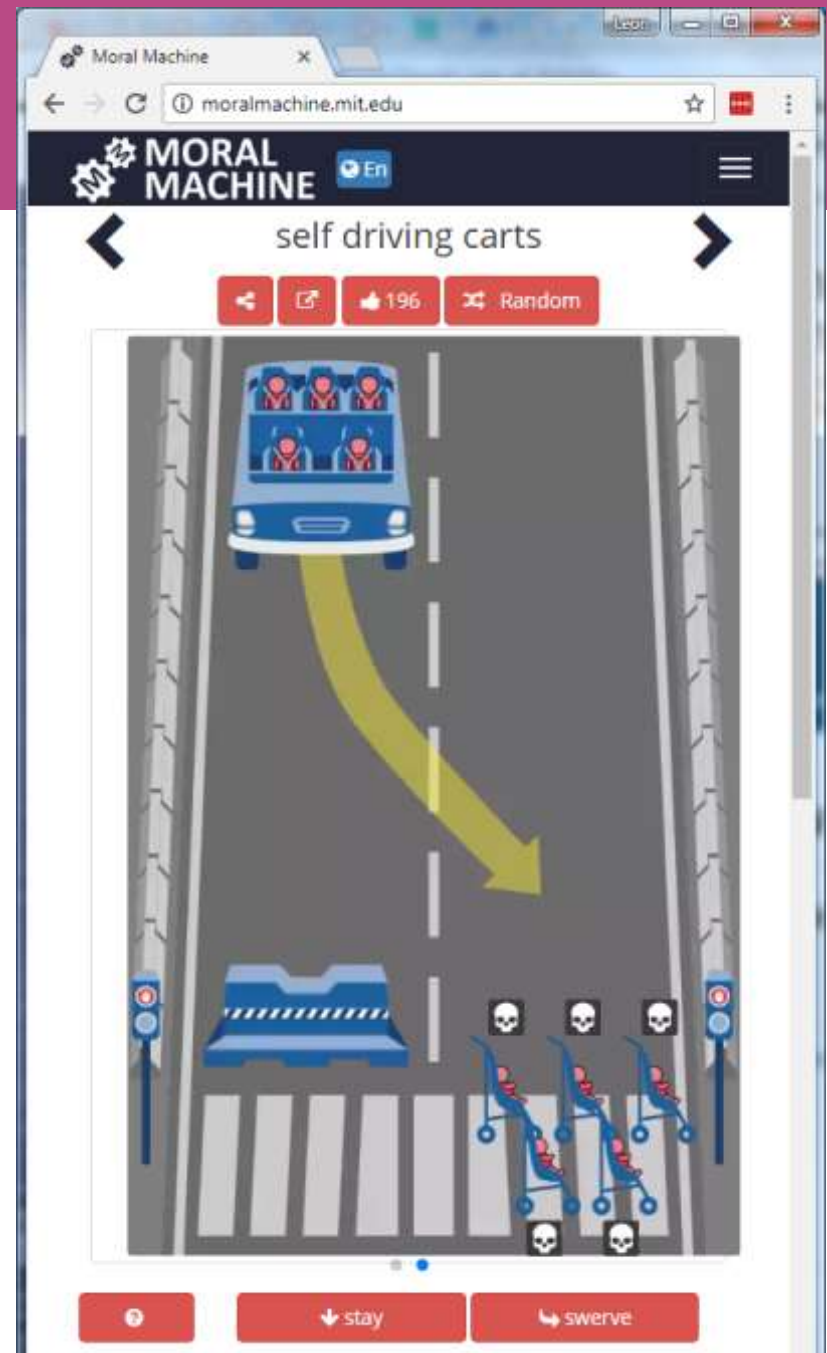What should the self-driving car do?

http://moralmachine.mit.edu/

The Moral Machine

The brakes are failing. What should the autonomous car do?

- Who is responsible?

- Military use of autonomous weaponry?

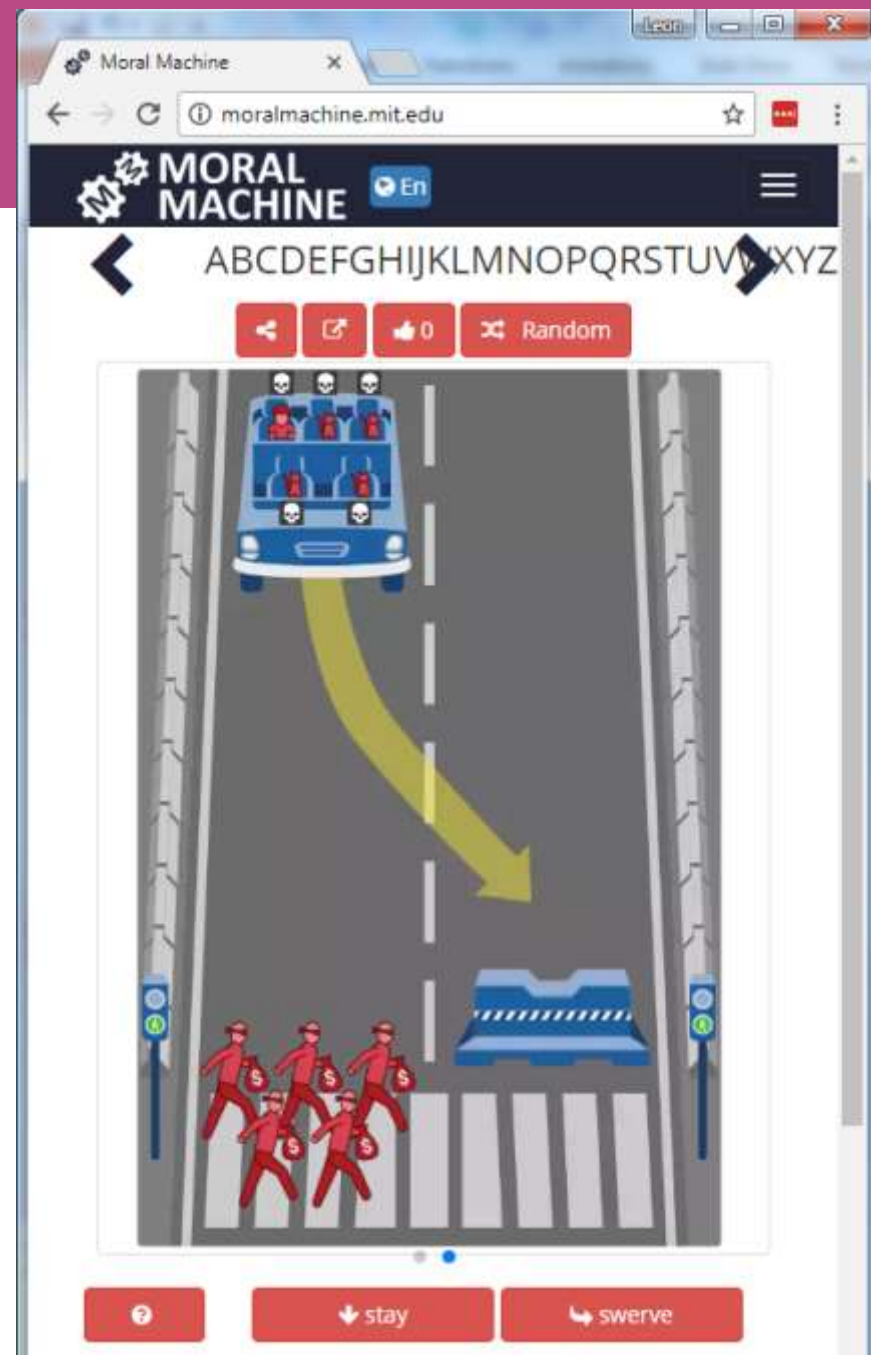http://moralmachine.mit.edu/

The Moral Machine

And this scenario?

<http://moralmachine.mit.edu/>

I, Robot (2004)

- Main character distrusts technology/robots

- A robot that bypasses these rules is created. It has emotions and dreams.

- In order to protect humanity from itself (extinction), robots takeover. (first rule)
  - Zeroth law: "A robot may not harm humanity"
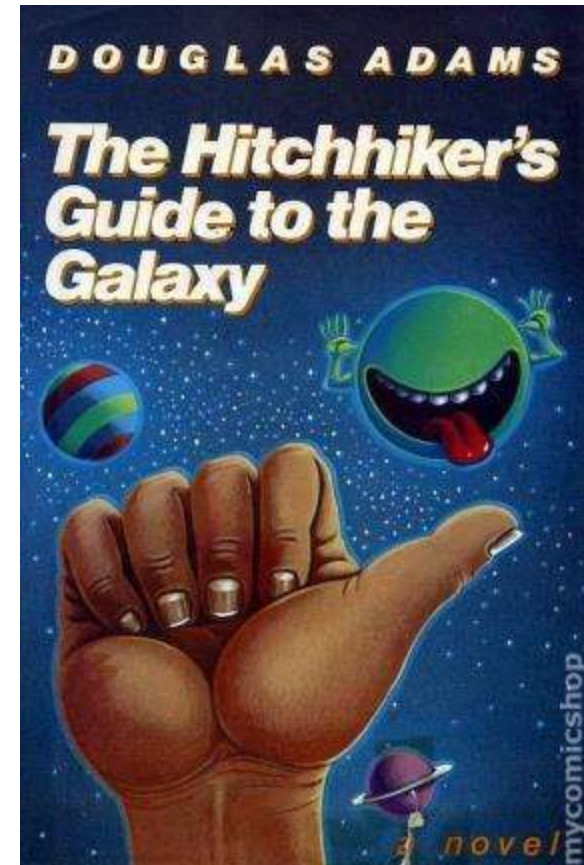 - Preserving the human race

Making computers more human

What happens if you add feelings/thoughts/emotions to computers?

A satirical mostly harmless example comes from *The Hitchhiker's Guide to the Galaxy* (1979) by Douglas Adams.
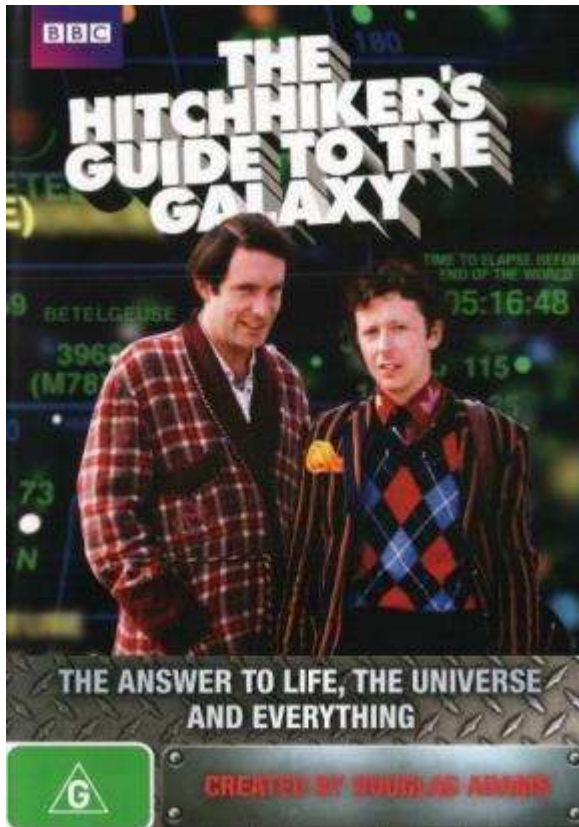
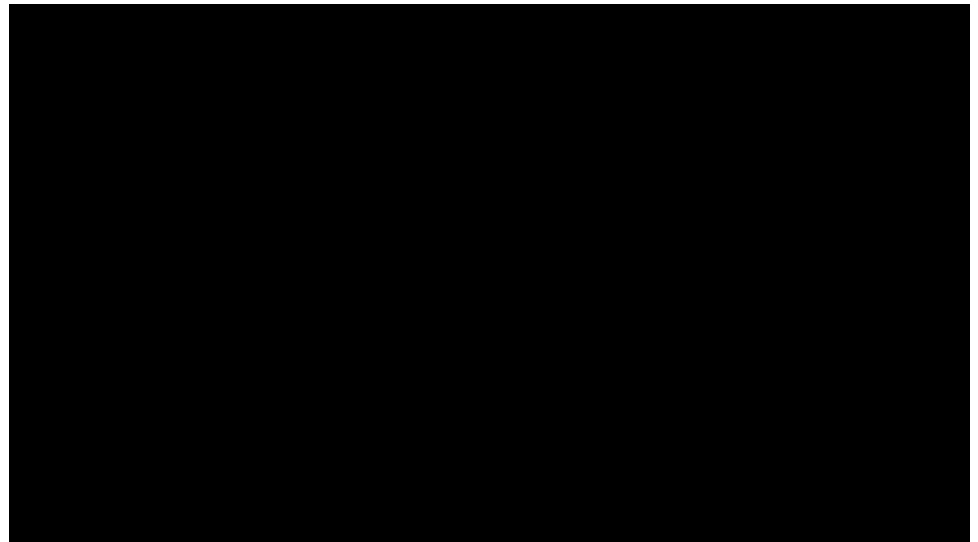<u>Every</u> robot has been given a personality, even doors and elevators.

Making computers more human
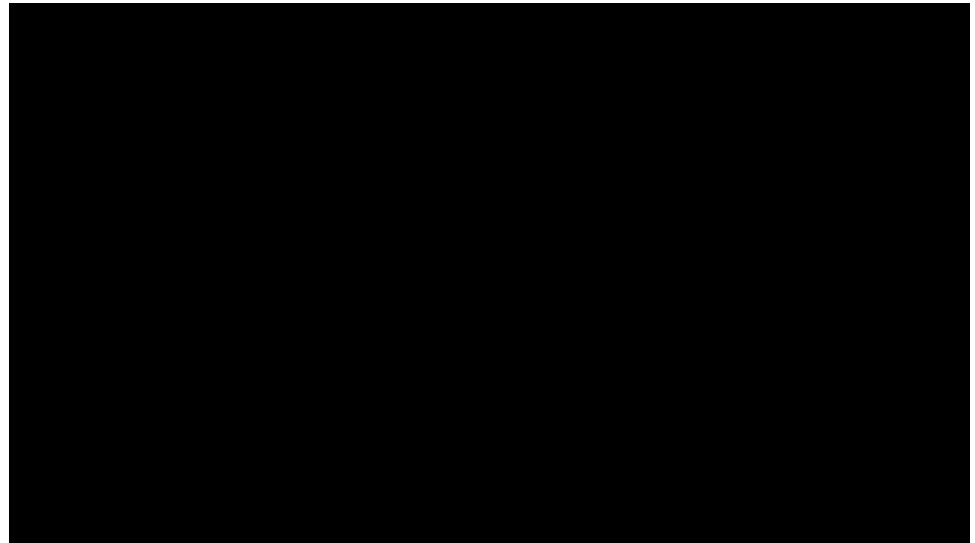
1981 (BBC Series)

• Marvin, the Paranoid Android

https://youtu.be/z0yBf1JKTw8?t=1m28s

Making computers more human

2005 (Movie)

- Marvin, the Paranoid Android

https://youtu.be/P5MzPRa47ck

Making computers more human

This book/series/movie shows that giving a personality to a computer is a ridiculous idea.

Or isn't it?

Making computers more human

TIME ☰ SUBSCRIBE

GOOGLE

oogle Wants to Give Your Computer a Personality

By **Lisa Eadicicco** / **Mountain View, Calif.**
Updated: October 16, 2017 12:40 PM ET | Originally published: October 12, 2017

inside the Googleplex, a small group of writers is huddling around a
board that is plastered with ideas. These read like notes-to-self that Jack
ington might've made: "Halloween survival kit," "How to defeat monsters."
n particular stands out to Ryan Germick, a tall and wiry 37-year-old. "People
ot like 'smell my feet' last year," he says, laughing. His colleague Emma Coats
chimes in to explain:

"It was trick or treat, and one response was 'smell my feet.' People thumbed-down
the heck out of that."

Germick has spent the afternoon bouncing between brainstorming meetings like
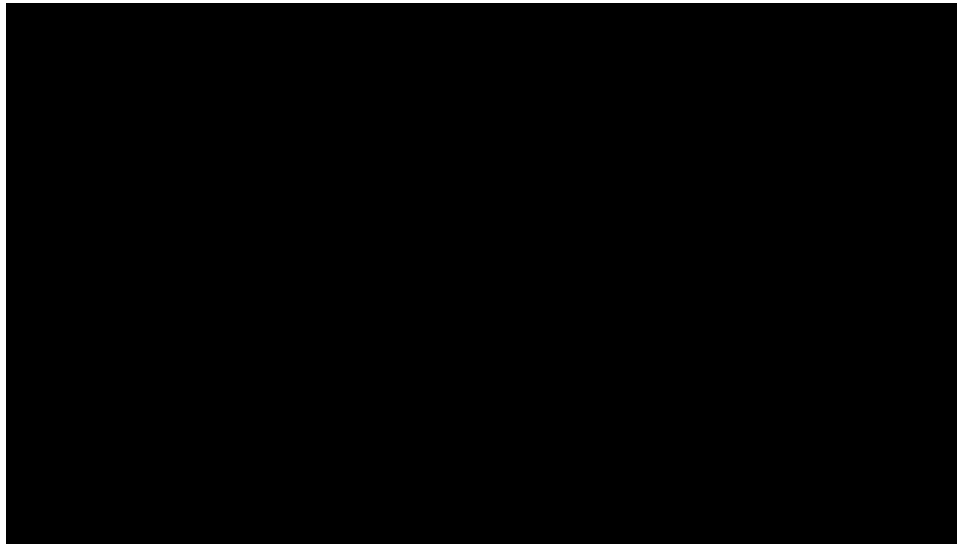
Example: *Her* (2013)

- Falling in love with a computer that has reached the state of 'singularity'.
    - Learns from experience
    - Develops 'sexual consciousness' and the ability to be jealous

- Socially acceptable to have an 'OS' as girlfriend?
- (Virtual) reality?

[Kurzweil's review of *Her*](#)

Samantha

Her (2013): Trailer

https://youtu.be/6QRvTv_tpw0

Example: *Her* (2013)

In *Her* the main character falls in love with artificial intelligence that only exists in software and has no physical appearance.

What about A.I. that does have a physical presence?

- Black Mirror, 'Be Right Back' (2013, imdb)
  - Deceased person's personality lives on in a humanoid
  - Learns from social media profiles (public)

Robot's appearance: Androids

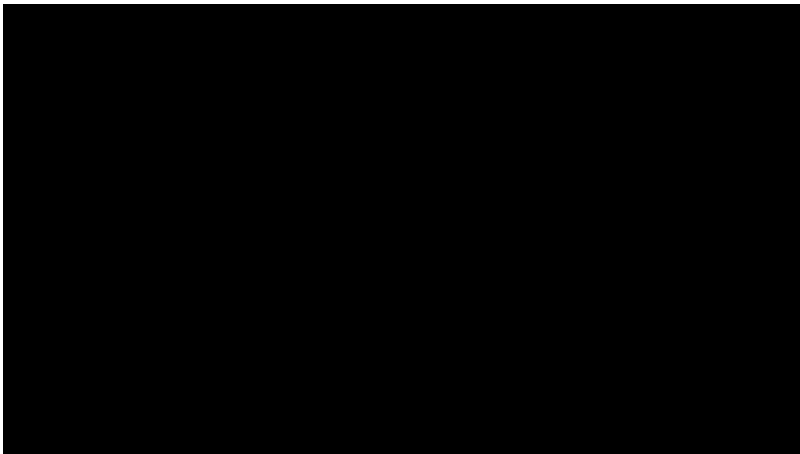Definition: "An automaton resembling a human being." (OED, 3rd edition)

- Why are we developing human-like robots?
  - Embodiment? Emotions?
  - Interaction?

http://edition.cnn.com/videos/design/2017/02/20/science-museum-robots-design-style-orig.cnn

Robot's appearance: Androids

- Erica

Erica: Man Made (2017)
https://youtu.be/qfAW0RPY3HQ

"Erica is 23. She has a beautiful, neutral face and speaks with a synthesised voice. She has a degree of autonomy – but can't move her hands yet. Hiroshi Ishiguro is her 'father' and the bad boy of Japanese robotics. **Together they will redefine what it means to be human and reveal that the future is closer than we might think.**"

https://www.theguardian.com/technology/ng-interactive/2017/apr/07/meet-erica-the-worlds-most-autonomous-android-video

Humanoids

The emotion at the heart of the robot

Pepper has been designed to identify your emotions and to select the behaviour best suited to the situation.

Based on your voice, the expression on your face, your body movements and the words you use, Pepper will interpret your emotion and offer appropriate content.

He will also respond personally to the mood of the moment, expressing himself through the colour of his eyes, his tablet or his tone of voice.

Are you already hooked on your interactions with Pepper? Try to collect as many "Cocoro-Gummi" as you can to access additional content. The more you interact with Pepper, the more points and exclusive applications you earn!
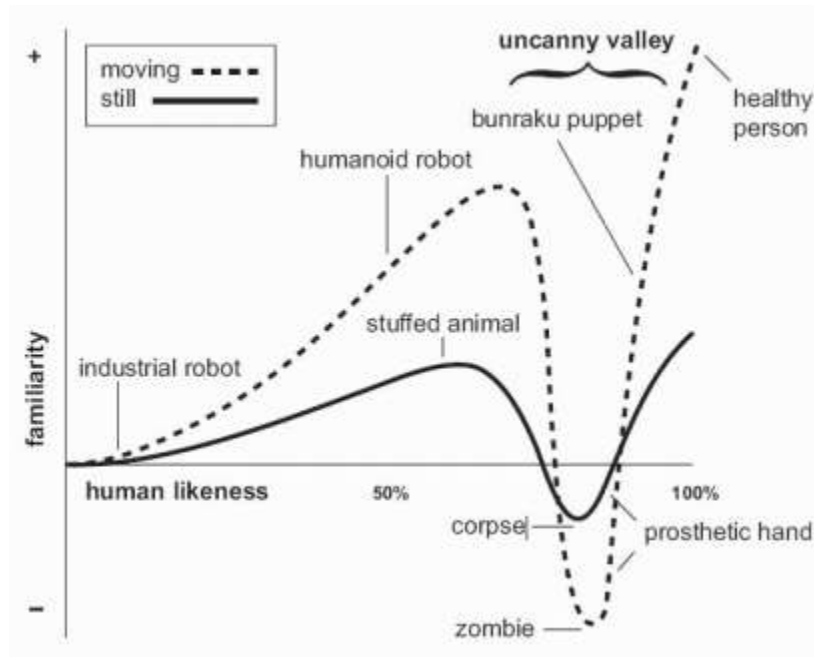

The Pepper Bot
http://www.teksbotics.com/products/robots/portfolios/pepper/

Uncanny Valley

(Mori, 1970)

"In his original thinking on the idea of the uncanny, Sigmund Freud suggested that, when found in strange objects, it was the familiar which often made us the most uncomfortable. The idea being that familiarity, seen in an unfamiliar way, could be disconcerting. **The Uncanny Valley suggests that, as we approach humanlike in the inhuman, it becomes revolting. The more human something is without being human, the more startling we find it."**

Source:
https://www.theguardian.com/tv-and-radio/tvandradioblog/2015/jul/18/robots-artificial-intelligence-ex-machina-humans-her

VU-colleague

More Human than Human

Aired at SXSW 2018

https://morehumanthanhuman.ai/

"More Human Than Human explores **what it means to live in the age of intelligent machines**. In this personal, playful and at times dramatic quest, the filmmaker finds out how much of his creativity and human values are at stake as he builds his own robot to replace himself as a filmmaker. More than just an exposé on the pros and cons of new technology, the filmmaker's journey takes him to the world's leading AI experts and robot pioneers confronting them with existential questions such as: will AI, infinitely smarter, interconnected and possibly self-aware, render humanity obsolete?"
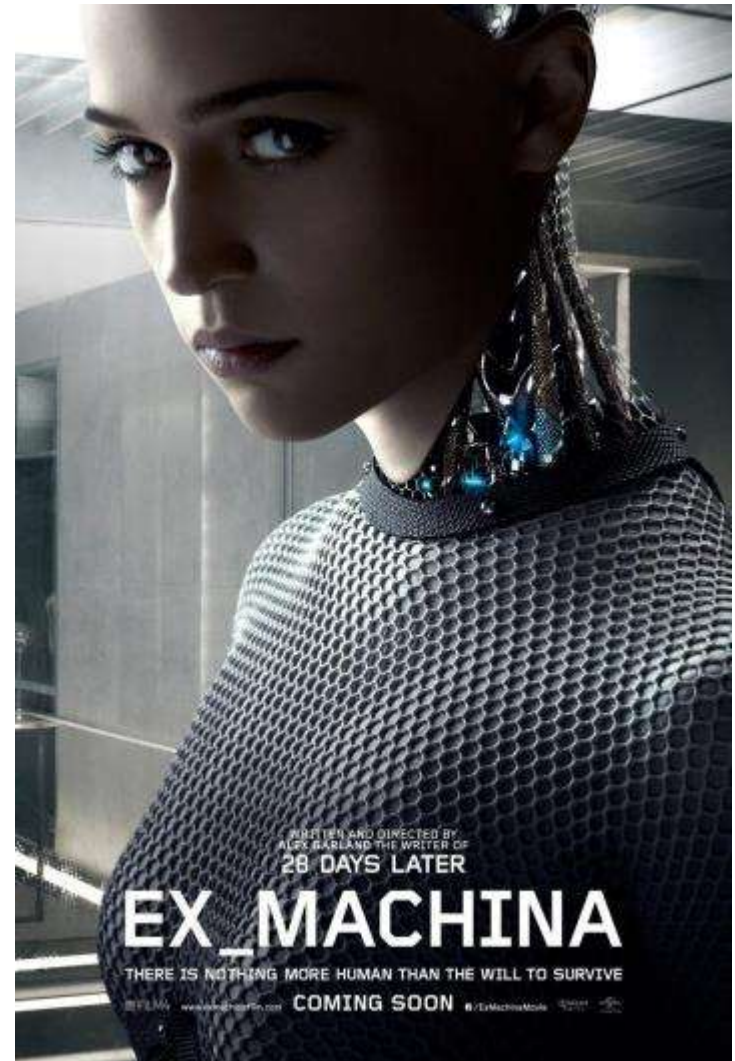
Ex Machina (2014)

Description:
"A young programmer is selected to participate in a ground-breaking experiment in synthetic intelligence by evaluating the human qualities of a breath-taking humanoid A.I."
([imdb](#))

- Self-conscious androids/humanoids

- Why picking a 'gender' for a robot?

- Sexuality as a 'tool'

Ex Machina (2014)

"Nathan argues that **consciousness is inextricably connected to sexuality**, as it, according to him, gives an **imperative to interact with others**.

Later on in the scene, he tells Caleb "I programmed her to be heterosexual. Just like you were programmed to be heterosexual," to which Caleb responds "nobody programmed me to be straight." Nathan asks "you decided to be straight? Please. Of course you were programmed. By nature or nurture, or both."

As this statement suggests, **Nathan sees no difference between the programming of robots and what he calls the programming by nature and/or nurture of human sexuality**."

(Witsenburg, p. 2)

Harari: *Sapiens* and *Homo Deus*
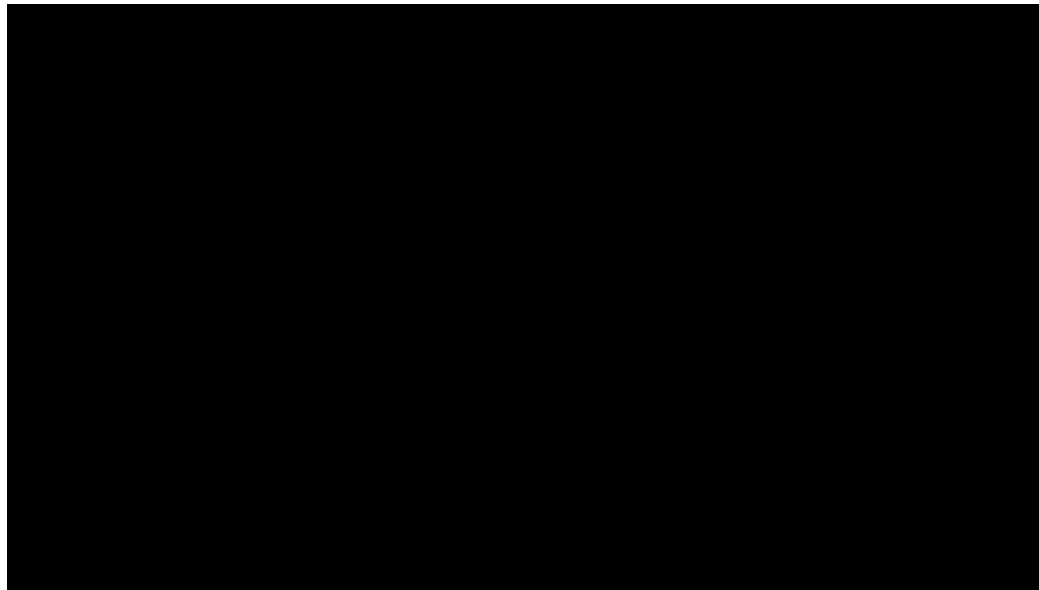
Programming of robots ≈ programming by nature

- ## Biochemical algorithms

- ## Homo Deus
  - Dataism
  - Big data

- ## Two possibilities:
  - Improving humanity
  - Inventing AI

https://atelier.bnpparibas/en/life-work/article/yuval-harari-human-beings-algorithms
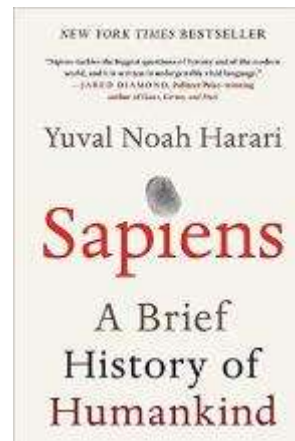
"[…] 'Sapiens, A Brief History of Humankind' traces the evolution of Homo sapiens, combining history and science and both delving back into our past and looking into our future. Among the predictions advanced by its author, historian Yuval Harari, is the **coming-to-pass of the prophecy of Mary Shelley**, **of the creature that escapes the control of its creator and master, Dr Frankenstein.** The analogy is a telling one, that of AI overtaking human beings.

NEW YORK TIMES BESTSELLER

Yuval Noah Harari

Sapiens

A Brief History of Humankind

Ex Machina (2014): Trailer

https://www.youtube.com/watch?v=PI8XBKb6DQk

Now what?

Ava sets foot in the real world

There is no clear boundary between what is human and what is technology anymore.

Robot rights?

c|net

REVIEWS NEWS VIDEO HOW TO SMART HOME CARS DEALS DOWN

CULTURE

Robot joins Shakespeare, Darwin in UK's National Portrait Gallery

A photo of an android nabs a top prize in an international portrait competition, with judges celebrating it as "a provocative comment on human evolution."

BY **LESLIE KATZ** / NOVEMBER 15, 2017 5:13 PM PST

https://www.cnet.com/news/national-portrait-gallery-taylor-wessing-photographic-prize-erica-robot/

Robot rights?

- Robots have 'feelings'?
- Politics: Party for Robots?

http://www.independent.co.uk/life-style/gadgets-and-tech/news/saudi-arabia-robot-sophia-citizenship-android-riyadh-citizen-passport-future-a8021601.html

INDEPENDENT   News   Voices   Sports   Culture

Lifestyle › Tech › News

Saudi Arabia grants citizenship to a robot for the first time ever

Many have pointed out the robot has more rights than many humans in the country

Andrew Griffin | @_andrew_griffin | Thursday 26 October 2017 13:31 BST | 12 comments

23K shares

Vind ik Click to follow The Independent Tech

Saudi Arabia has become the first country to give a robot citizenship.

The move is an attempt to promote Saudi Arabia as a place to develop artificial intelligence – and, presumably, allow it to become a full citizen. But many pointed out that those same rights aren't afforded to many humans in the country.

The robot, named Sophia, was confirmed as a Saudi citizen during a business event in Riyadh, according to an official Saudi press release.

Robot rights?

"She [Sophia, the robot] said that people didn't need to be concerned about the rise of artificial intelligence as depicted in Blade Runner and Terminator. "You've been reading too much Elon Musk and watching too many Hollywood movies," she told Mr Srkin."
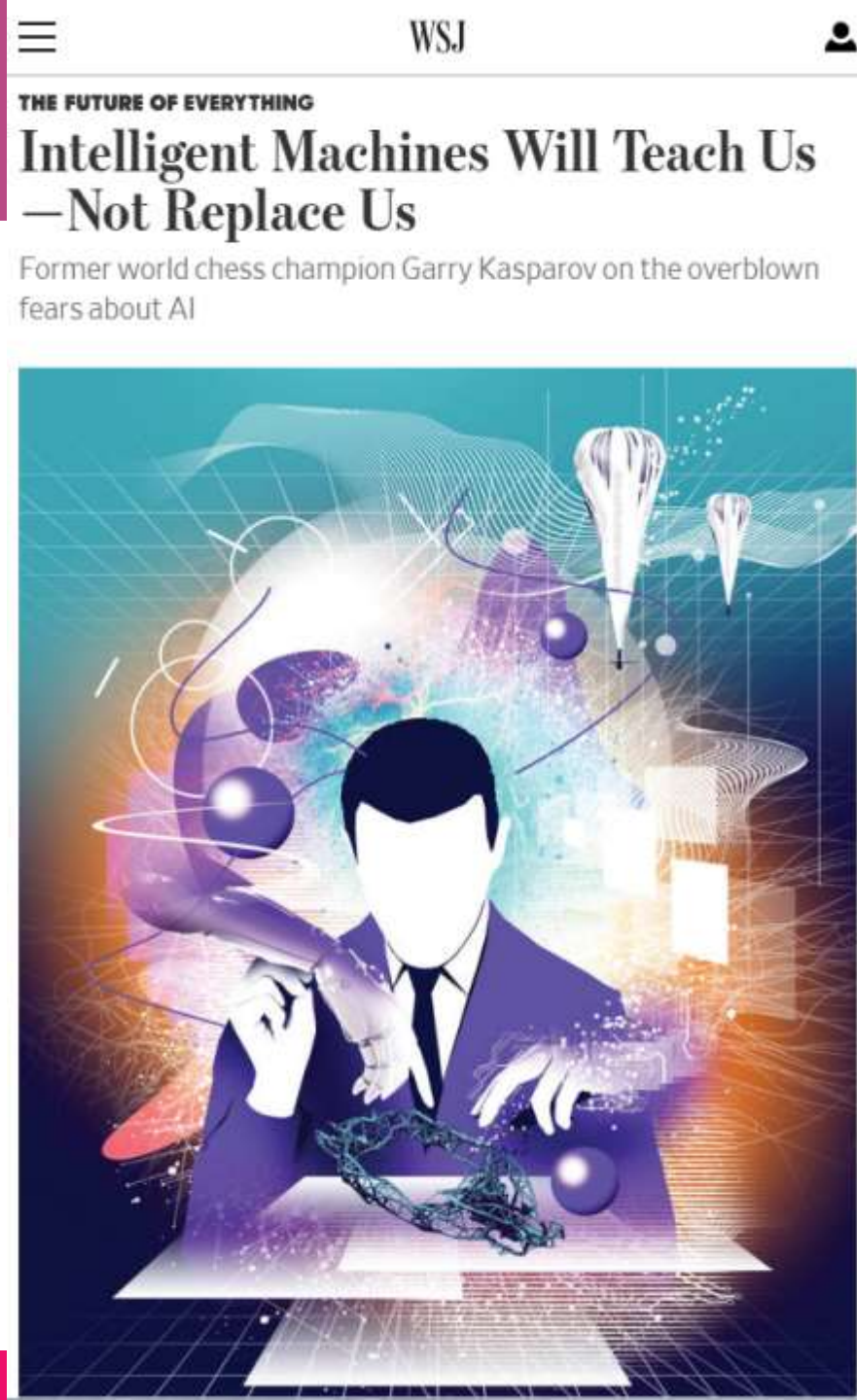

http://www.independent.co.uk/life-style/gadgets-and-tech/news/saudi-arabia-robot-sophia-citizenship-android-riyadh-citizen-passport-future-a8021601.html

Don't panic

Garry Kasparov (chess master)

- Lost in 1997 from an IBM computer

- "We're not being replaced by AI. We're being promoted."

- "[…] machine-generated insight adds to ours, extending our intelligence the way a telescope extends our vision."

- AI: 'augmented intelligence."

- "But the notion that these machines could become human-hunting Terminators is absurd."

https://www.wsj.com/articles/intelligent-machines-will-teach-usnot-replace-us-1525704147#

THE FUTURE OF EVERYTHING

Intelligent Machines Will Teach Us —Not Replace Us

Former world chess champion Garry Kasparov on the overblown fears about AI

Do panic

https://www.politico.eu/article/europe-divided-over-robot-ai-artificial-intelligence-personhood/

- 150+ experts warn against new EU-rule
- Solving liability questions:
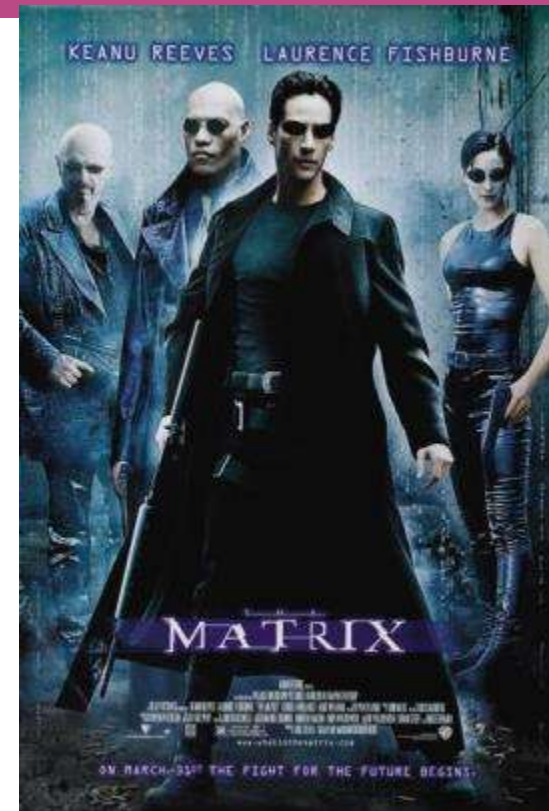 - 'Electronic personhood'

And what about the world we are living in and (upcoming) virtual reality (VR)?

The Matrix (1999)

- What happens if the world around us turns out to be a virtual reality?

- Robot collective that wants to dominate/kill humanity that has created the machines

- Hacking into the simulation/VR and gain 'superhuman' abilities

"The rebels have found that the world of 1999, which humanity seems to occupy, is an illusion; it's actually a full-scale, totally persuasive virtual reality, the Matrix, generated by computers that control the human race 200 years in the future."

(Perkowitz, p. 155)

The Matrix (1999)

Themes

- Human identity
  - Human/AI
- Prophecy/fate/free will
- Inhabitable world
- References to religion/myth
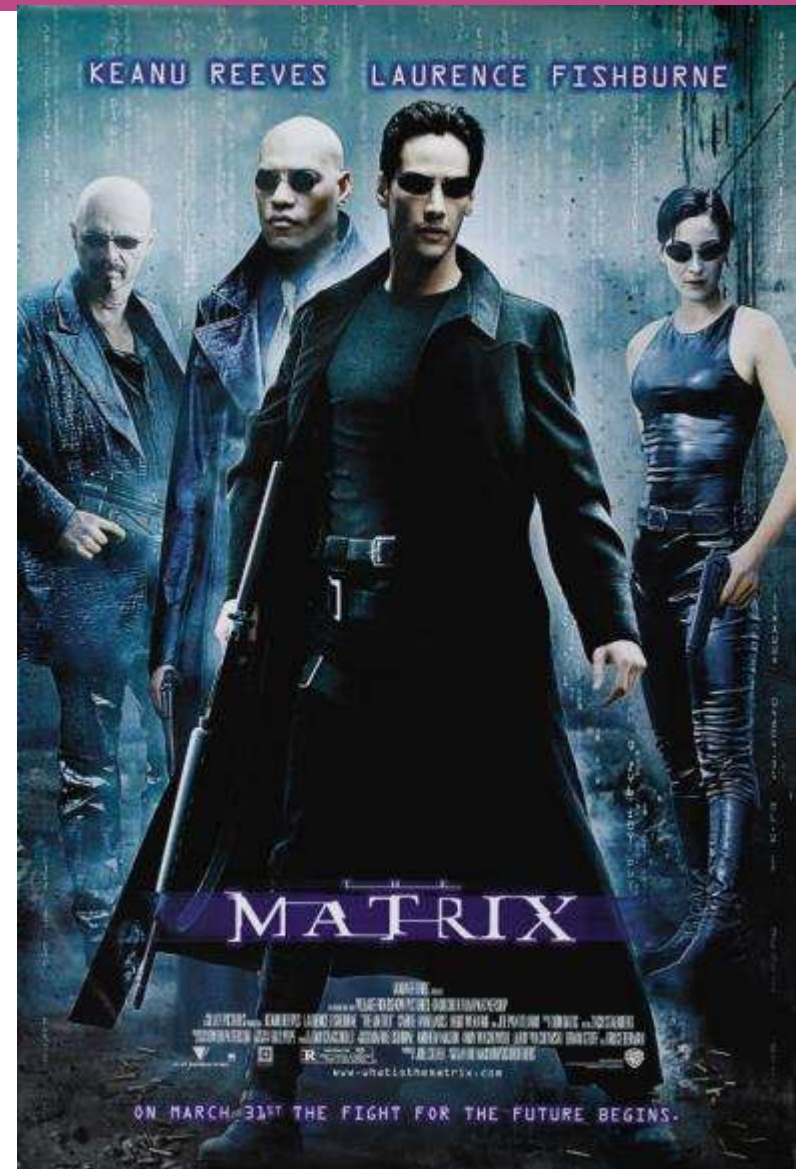
The Matrix (1999): Philosophy, 'the brain in a vat'

In philosophy, **the brain in a vat** is a scenario used in a variety of thought experiments intended to draw out certain features of our ideas of knowledge, reality, truth, mind, consciousness and meaning. It is an updated version of René Descartes' Evil Demon thought experiment originated by Gilbert Harman.

Common to **many science fiction stories, it outlines a scenario in which a mad scientist, machine, or other entity might remove a person's brain from the body, suspend it in a vat of life-sustaining liquid, and connect its neurons by wires to a supercomputer which would provide it with electrical impulses identical to those the brain normally receives**. ([Wikipedia](#))

The Matrix (1999): Trailer

https://www.youtube.com/watch?v=vKQi3bBA1y8
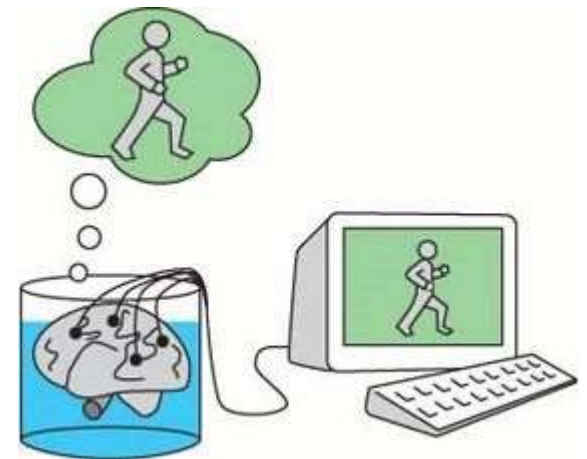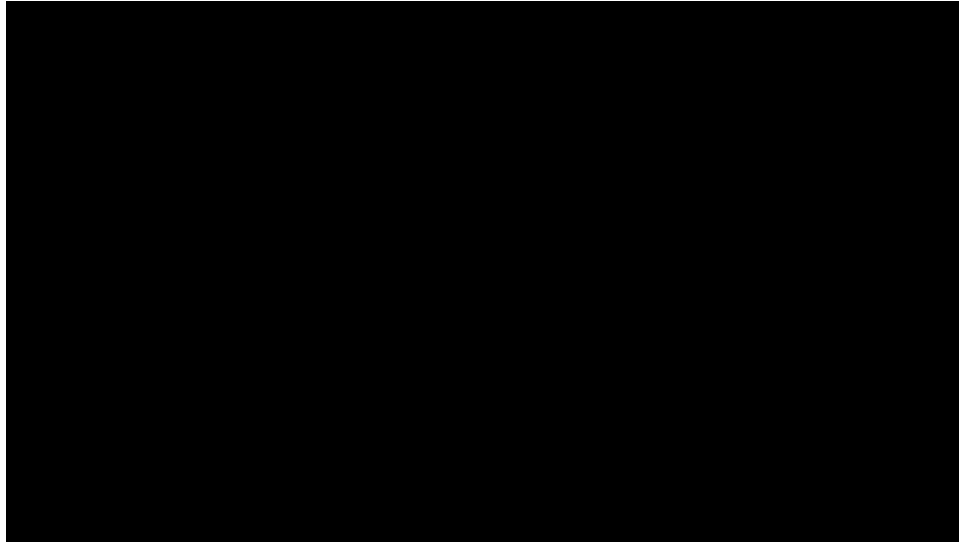
Journal report C

Part I

Using Monty Python's sketch 'Galaxy Song', discuss how this short video reflects some of those anxieties and complexities related to our ideas about 'deep space'. Relate to the movie Alien (1979, dir. Ridley Scott) in your report.

Part II

Find an article from a credible source (The New York Times, The Guardian, The Economist etc.) on a recent debate (genetics/cloning, IT developments and social media, space, surveillance, anything you think fits a broad definition of 'science', hard or soft, that could be used in science fiction) that struck your attention. In this part of your assignment, write a text in which you provide an answer to the following questions:

1. What is the 'science' that is being discussed in the article?
2. How is this science mediated? In other words: how is the science depicted by the article and how is it evaluated (e.g. positive/negative/neutral, critical, favouring etc.).
3. Do you think this evaluation and the way of thinking is influenced by science fiction? Or maybe you think the topic in the article could very well be related to a known science fiction. (A famous example is referring to dystopian novels such as 1984 (1948) by George Orwell, but you saw some examples on Frankenstein as well) Try to draw parallels and in any case be creative!
4. What is your personal opinion? You are allowed to give your personal stance on the topic ventilated by the article.

You are off course allowed to refer to the movie screening from the 7th week in your assignment. And why not use this second part as a stepping-stone to your final assignment?

- Information on the excursior
  - Eye Film
  - Possible dates:
    - Thursday 17 June
    - Tuesday 22 June
    - Thursday 24 June
- Movie screening
  - Fill in the quiz/survey on Canvas!

References

- Mori, Masahiro. "The uncanny valley." *Energy* 7.4 (1970): 33-35.

- Vinge, Vernor. "The coming technological singularity: How to survive in the post-human era." (1993).

- Witsenburg, Amber. "The Mechanics of Robot (A)sexuality in *Ex Machina*" (in press).