

>> Life After the  
Robot Apocalypse

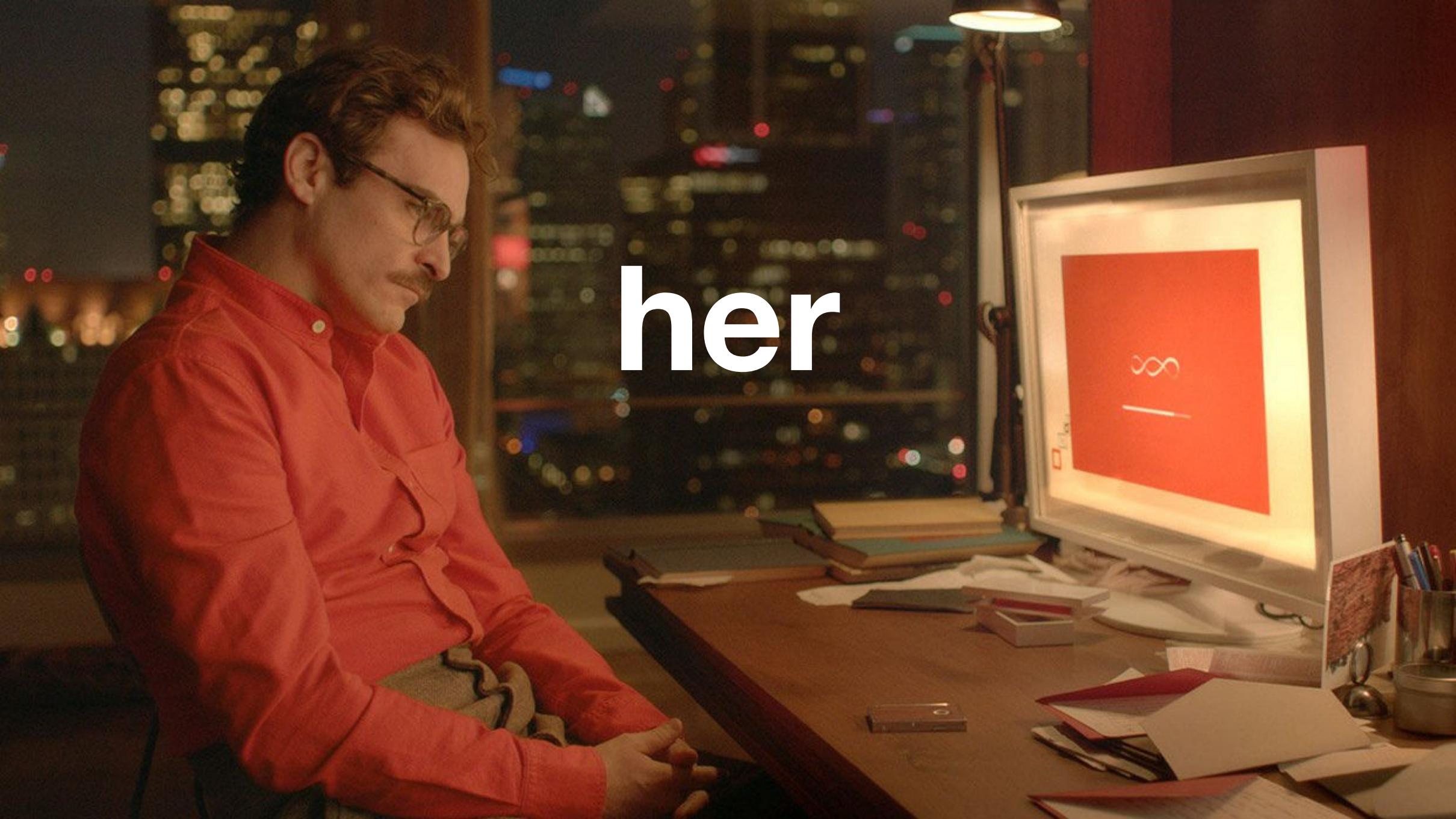
Aaron Stockdill  
University of Canterbury  
September 2016

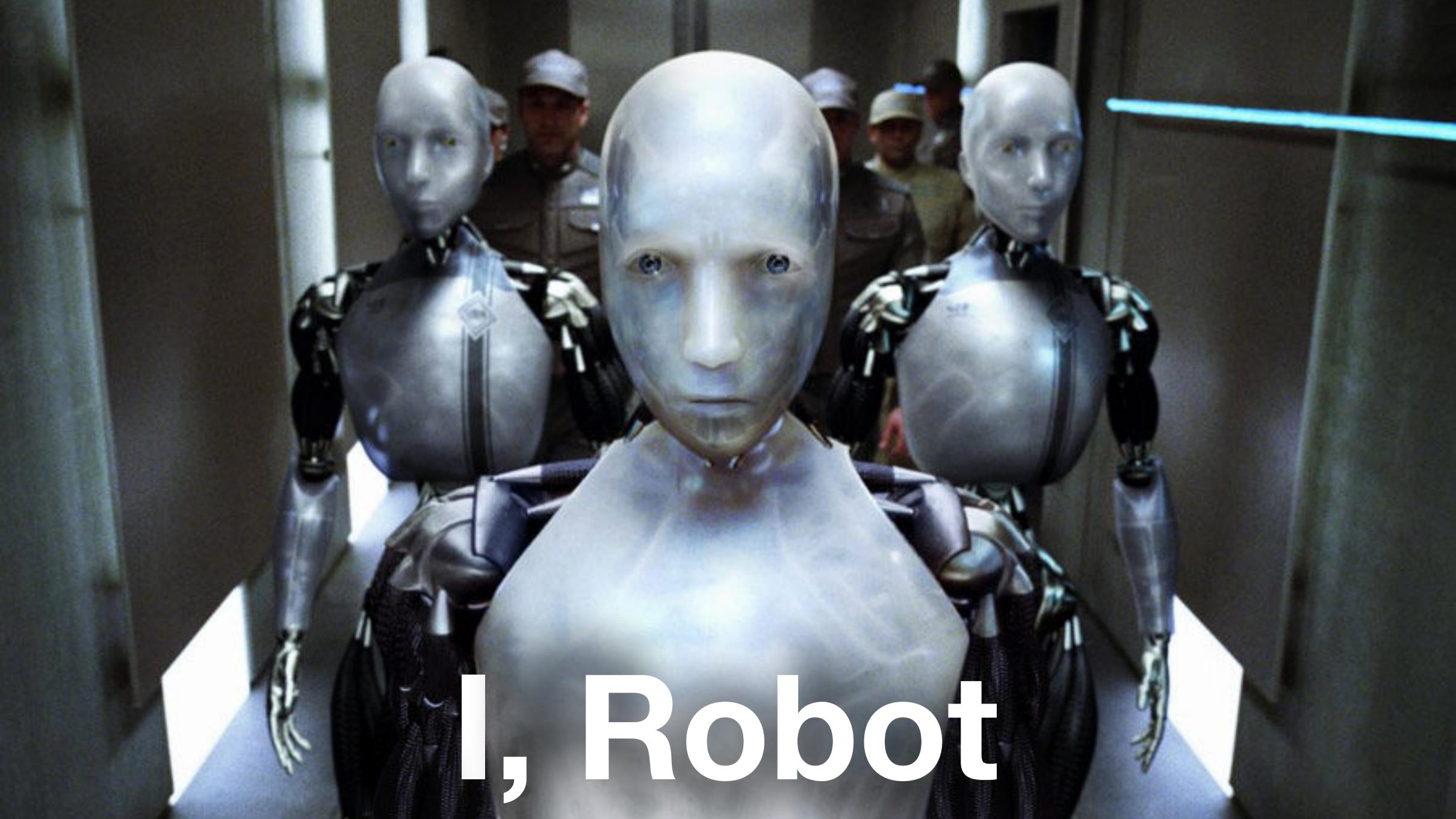


# AI

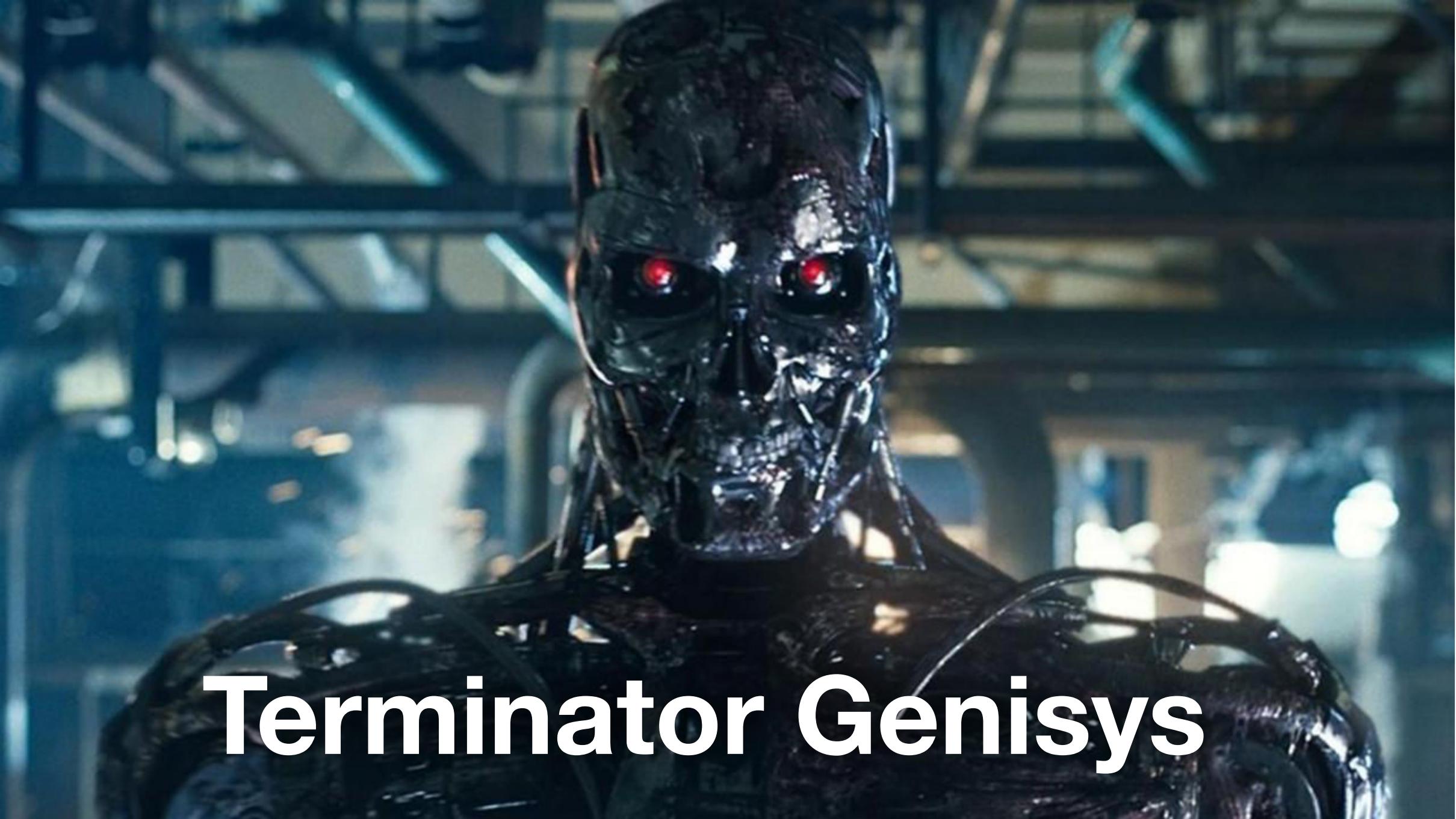
Artificial Intelligence

her



A group of silver robots in a hallway.

# I, Robot

A close-up, low-angle shot of the T-800 endoskeleton from the movie Terminator Genisys. The robot's head is dark and metallic, with glowing red eyes. It has a heavily damaged and weathered appearance, with visible internal components and scorch marks. The background is a blurred, futuristic cityscape at night with blue and yellow lights.

# Terminator Genisys

$$\mathbf{y}(t) = \mathbf{W}^{\text{out}}[1; \mathbf{u}(t); \mathbf{x}(t)]$$

$$\mathbf{x}(t) = (1 - \alpha) \times \mathbf{x}(t - 1) + \alpha \times \tilde{\mathbf{x}}(t)$$

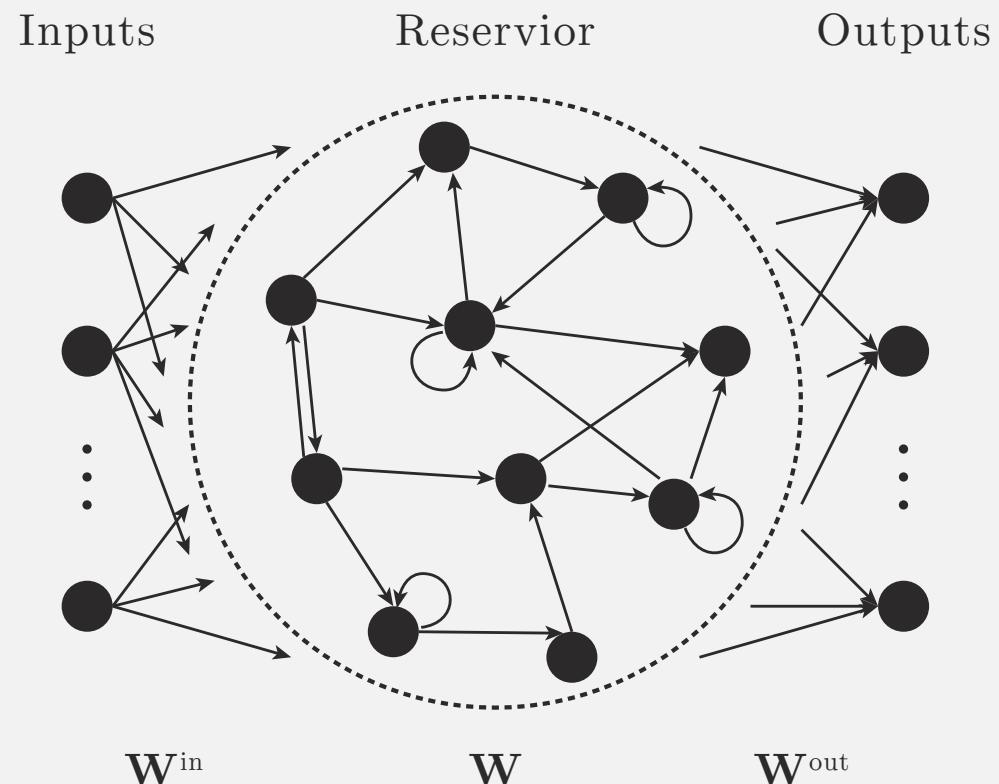
$$\tilde{\mathbf{x}}(t) = \tanh \left( \mathbf{W}^{\text{in}}[1; \mathbf{u}(t)] + \mathbf{W} \mathbf{x}(t - 1) \right)$$

$$\mathbf{W}^{\text{out}} = \mathbf{Y}^{\text{target}} \mathbf{X}^T \left( \mathbf{X} \mathbf{X}^T + \beta \mathbf{I} \right)^{-1}$$

$$I = G(x,V) \cdot V$$

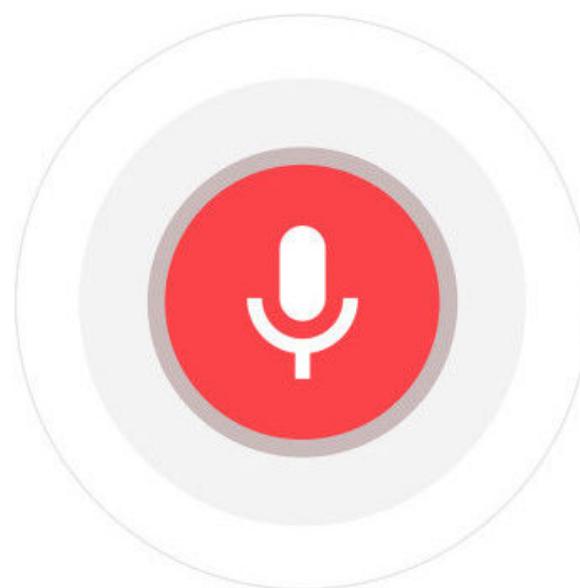
$$\frac{dx}{dt} = f(x,V)$$

$$\frac{dx}{dt} = \beta V + \frac{1}{2}(\alpha - \beta)(|V + V_T| - |V - V_T|)$$

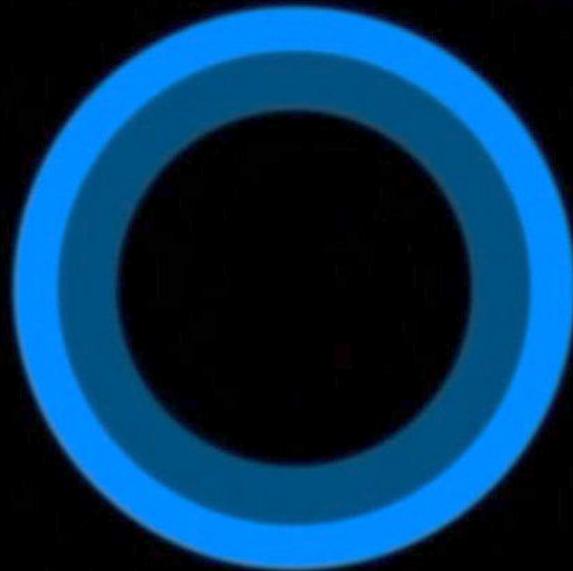




# Google Now



# Cortana

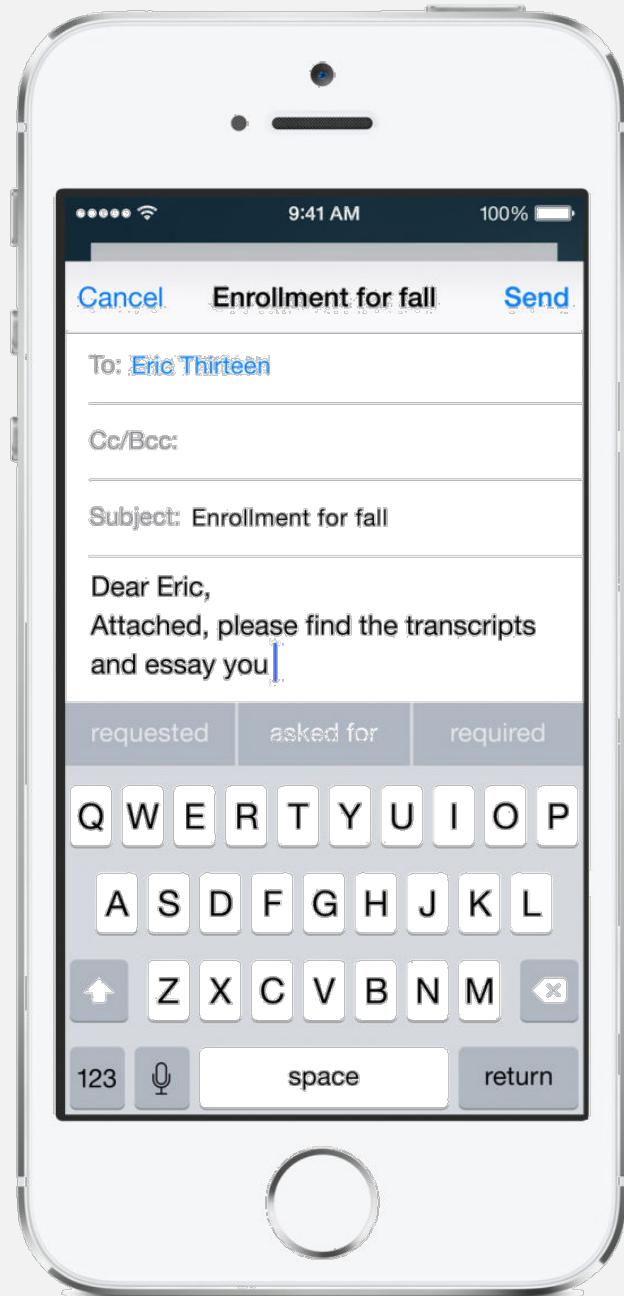


Amazon  
*Alexa*



# Siri



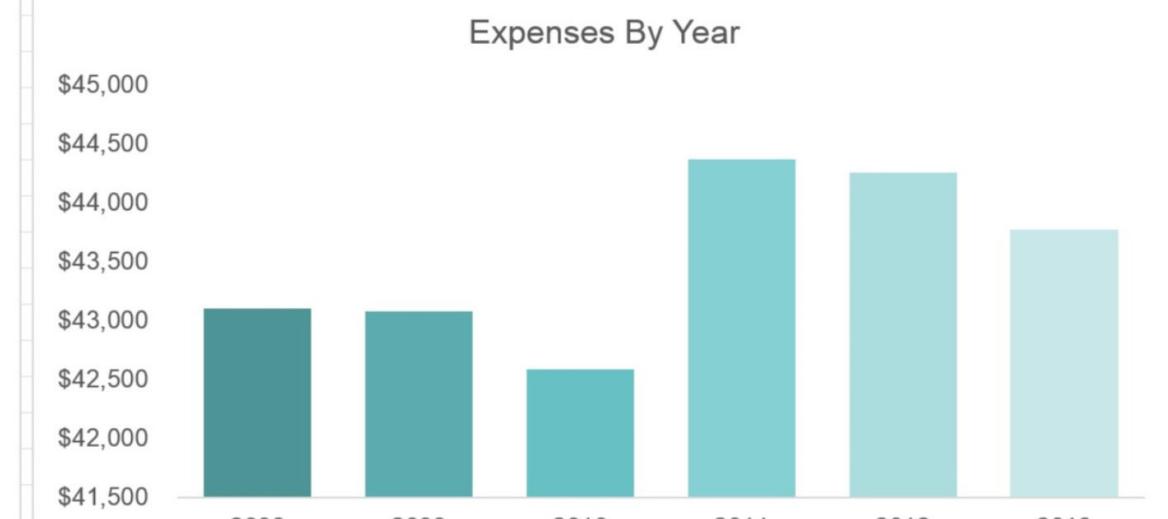
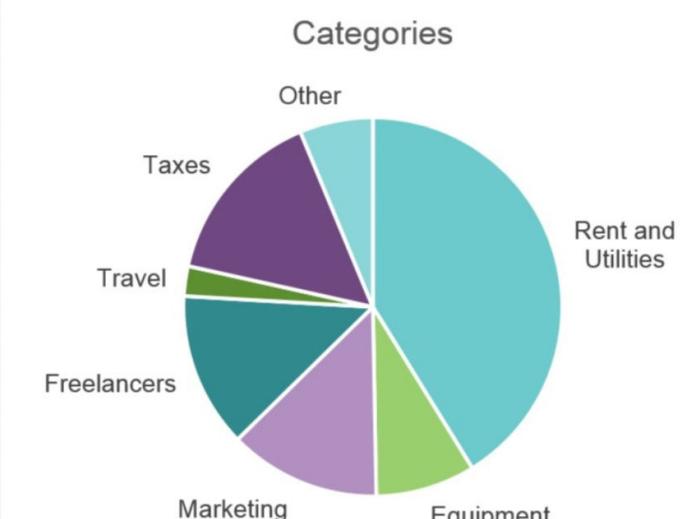


Arial 10 **B** *I* U Aa Aa Aa ABC 123

**f**x =SUM( C38:H38 )

A B C D E F G H I J K L M

## Contoso Expenses



Category	2008	2009	2010	2011	2012	2013	Total	Trend
Rent and Utilities	\$ 18,840	\$ 17,628	\$ 16,368	\$ 18,000	\$ 19,020	\$ 17,760	\$ 107,616	
Equipment	\$ 3,000	\$ 3,972	\$ 3,588	\$ 3,996	\$ 3,888	\$ 3,756	\$ 22,200	
Marketing	\$ 5,556	\$ 5,424	\$ 5,784	\$ 5,904	\$ 5,892	\$ 5,304	\$ 33,864	
Freelancers	\$ 5,604	\$ 5,556	\$ 5,700	\$ 5,568	\$ 5,844	\$ 6,324	\$ 34,596	
Travel	\$ 1,476	\$ 1,104	\$ 696	\$ 1,572	\$ 552	\$ 1,260	\$ 6,660	
Taxes	\$ 6,168	\$ 6,672	\$ 6,732	\$ 7,032	\$ 6,504	\$ 6,804	\$ 39,912	
Other	\$ 2,460	\$ 2,724	\$ 3,720	\$ 2,304	\$ 2,556	\$ 2,568	\$ 16,332	
<b>Total</b>	<b>\$ 43,104</b>	<b>\$ 43,080</b>	<b>\$ 42,588</b>	<b>\$ 44,376</b>	<b>\$ 44,256</b>	<b>\$ 43,776</b>	<b>\$ 261,180</b>	

Overview

By Year

By Month

Products

Customers

Analysis

Revenue by Country

+

SUM 0













Butterfly Network



BRIDGECREST  
— MEDICAL —

AdhereTech 

mira<sup>+</sup>



cliniOps

A logo featuring a stylized globe with a network of lines and a magnifying glass icon.



# **Twitter and Facebook could harm moral values**

The Telegraph,  
on Social Media

# **Twitter and Facebook could harm moral values**

The Telegraph,  
on Social Media

# **Google is making us stupid**

The Atlantic,  
on search engines and the  
internet

**It will exhaust the children's  
brains and nervous systems**

# **It will exhaust the children's brains and nervous systems**

The Sanitarian, 1883,  
on school

**It will exhaust the children's  
brains and nervous systems**

The Sanitarian, 1883,  
on school

**Confusing and harmful**

**It will exhaust the children's  
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The Sanitarian, 1883,  
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**Confusing and harmful**

Conrad Gessner, 1565,  
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**They will not use their memories**

**It will exhaust the children's  
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The Sanitarian, 1883,  
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Conrad Gessner, 1565,  
on the newspaper

**They will not use their memories**

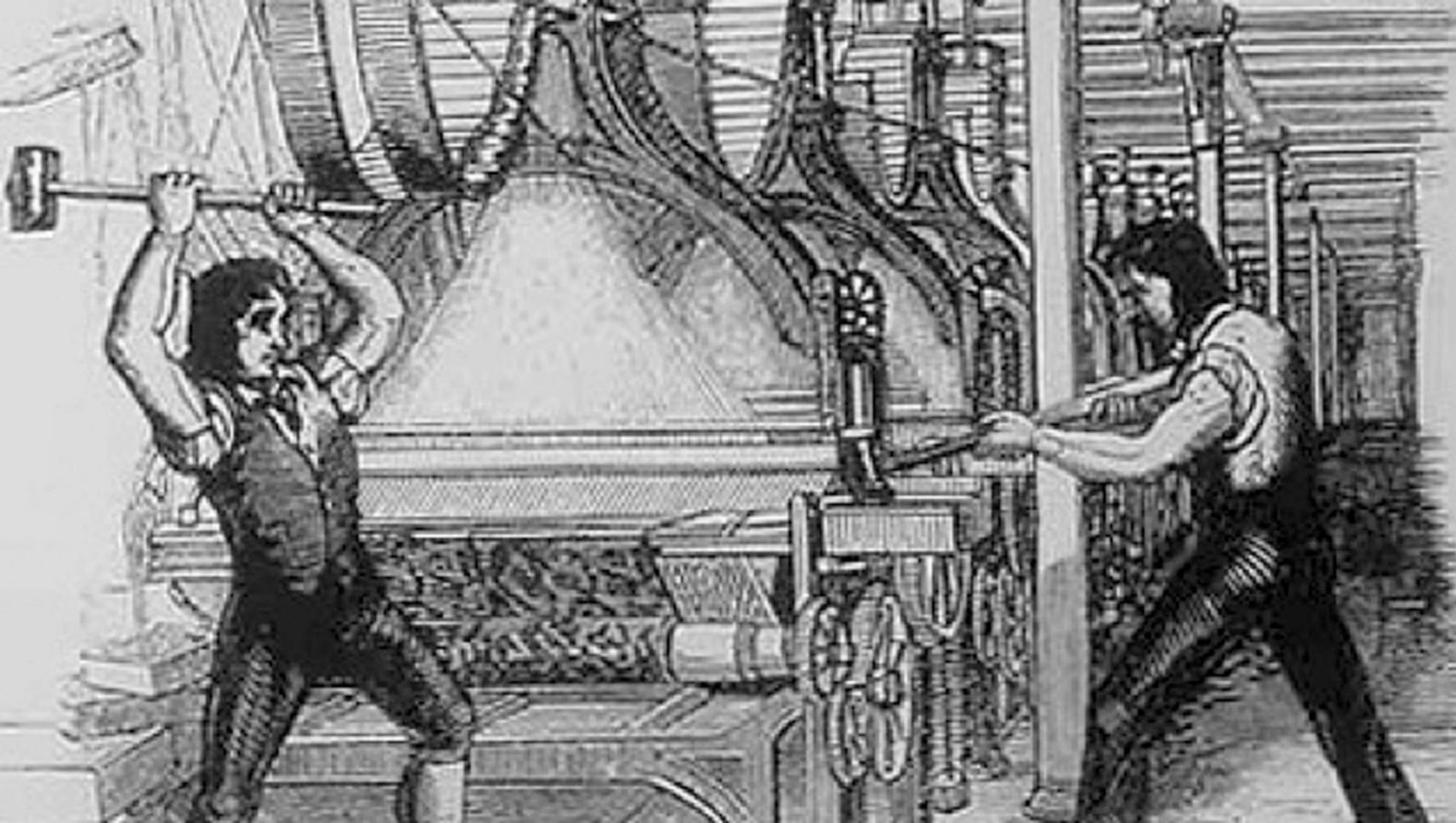
Socrates (recorded by Plato circa 370BC), on books

# Disruption

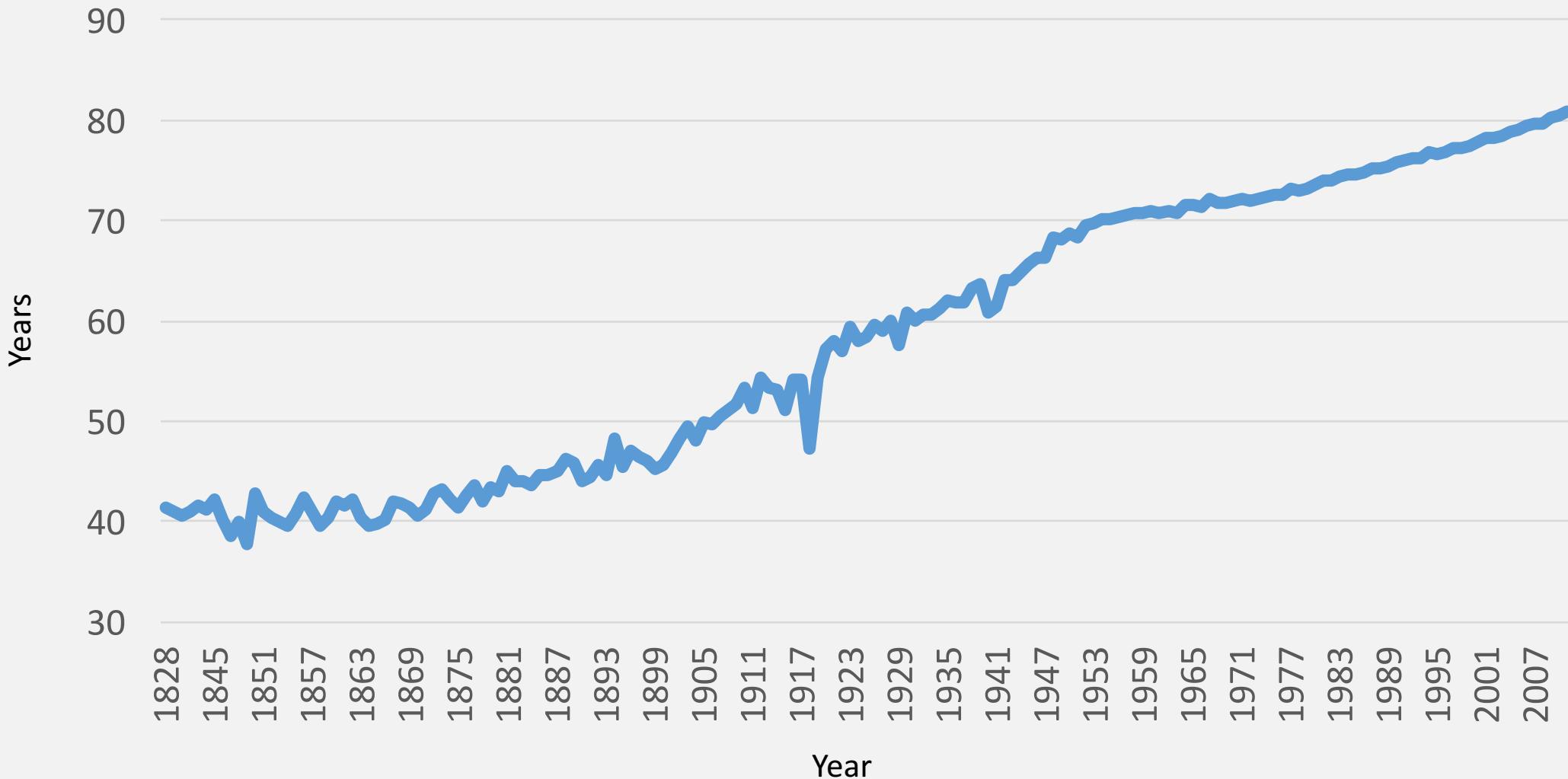
# Apocalypse



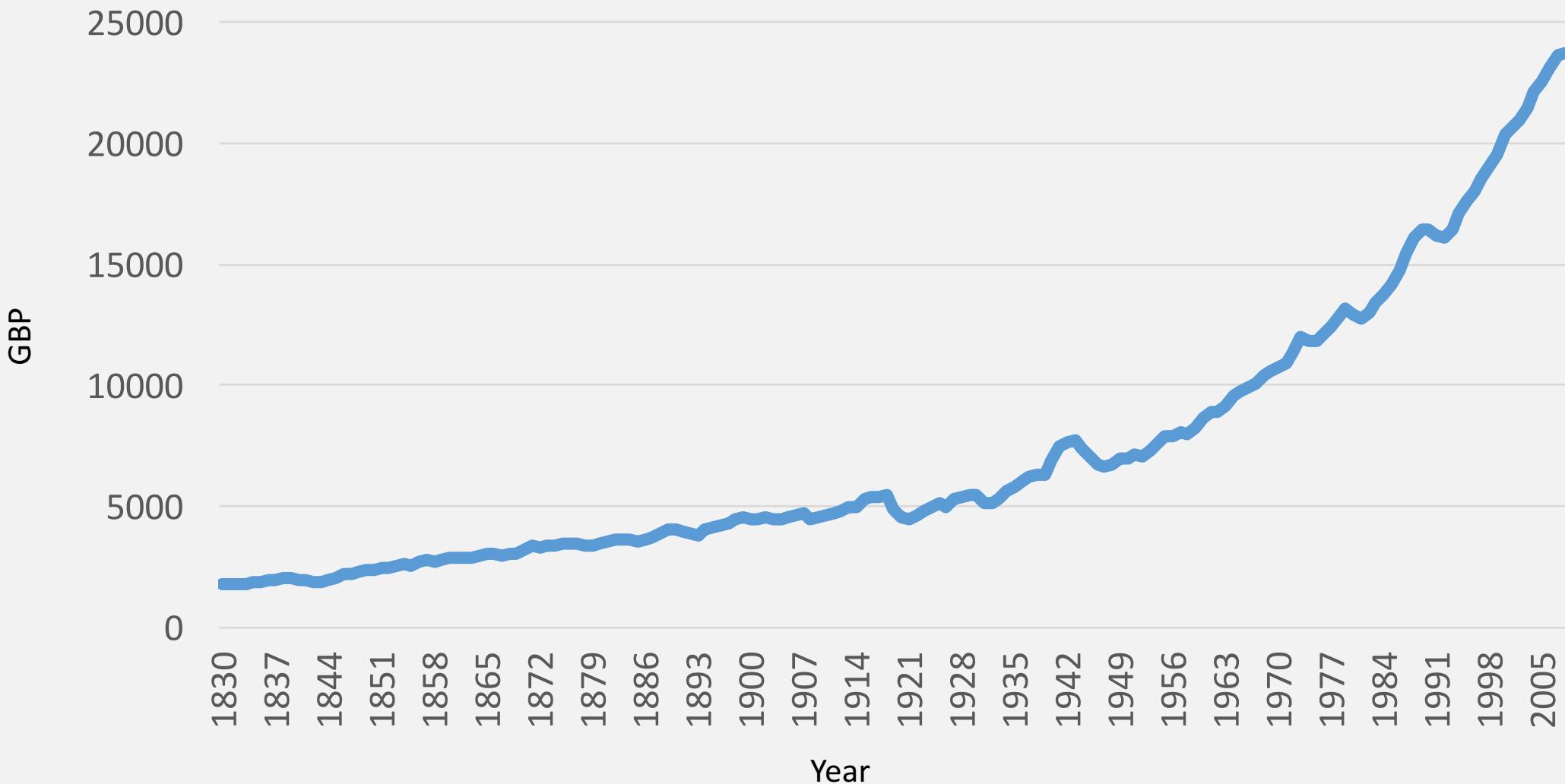
# Apocalypse



# Life Expectancy at Birth



# GDP Per Capita



Robots add real value  
when working with humans,  
not replacing them.







# SQL Tutor

http://132.181.10.22:8000/sql-tutor/respond-to-main-form - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back → Stop Refresh Favorites History

Address http://132.181.10.22:8000/sql-tutor/respond-to-main-form Go Links

**SQL-Tutor** Change Database New Problem History Student Model Run Query Help Log Out

**Problem 3** Retrieve the name and address of all employees who work for the Research department

Select  
From  
Where  
Group by  
Having  
Order by

Feedback Level Error Flag Submit Answer Reset

There are some errors in your solution, try again

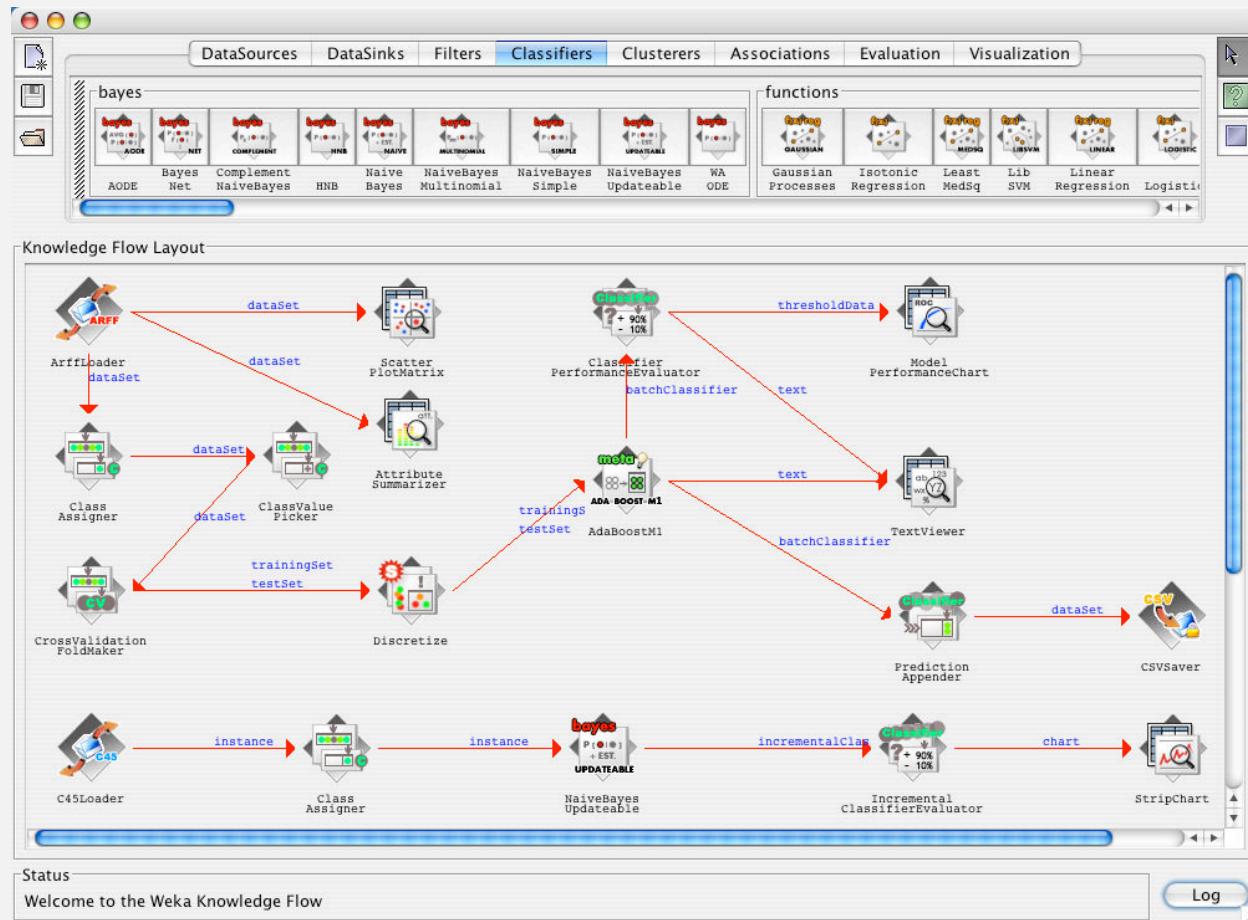
Schema for the COMPANY Database

The general description of the database is available [here](#). Clicking on the name of a table brings up the table details. Primary keys in the attribute list are underlined, foreign keys are in *italics*.

Table name Attribute list

DEPARTMENT DNAME DNUMBER MGR MGRSTARTDATE  
EMPLOYEE EID LNAME MINIT FNAME BDATE ADDRESS SEX SALARY SUPERVISOR DNO  
DEPT LOCATIONS DNUMBER LOCATION  
PROJECT PNAME PNUMBER PLOCATION DNUM  
WORKS ON EID PNUMBER HOURS  
DEPENDENT EID DEPENDENT NAME SEX BDATE RELATIONSHIP

Done Internet



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

Robots are taking our jobs

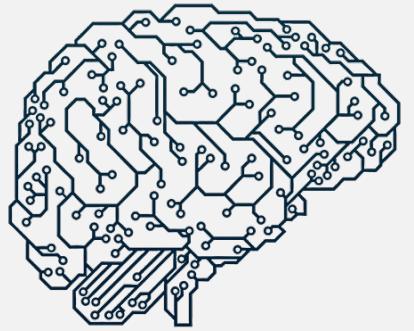
Robots are taking our jobs

They will do them better

Robots are taking our jobs

They will do them better

Everything will be OK



brianconcept

**KEEP  
CALM  
AND  
CARRY  
ON**

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