Kaspar Etter
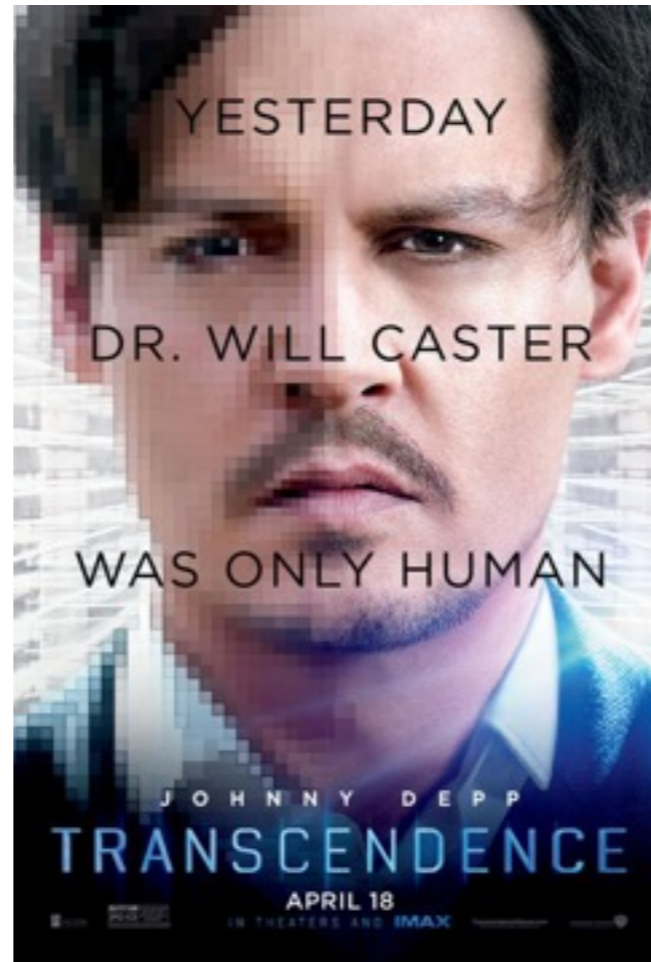
More Money for Entertainment

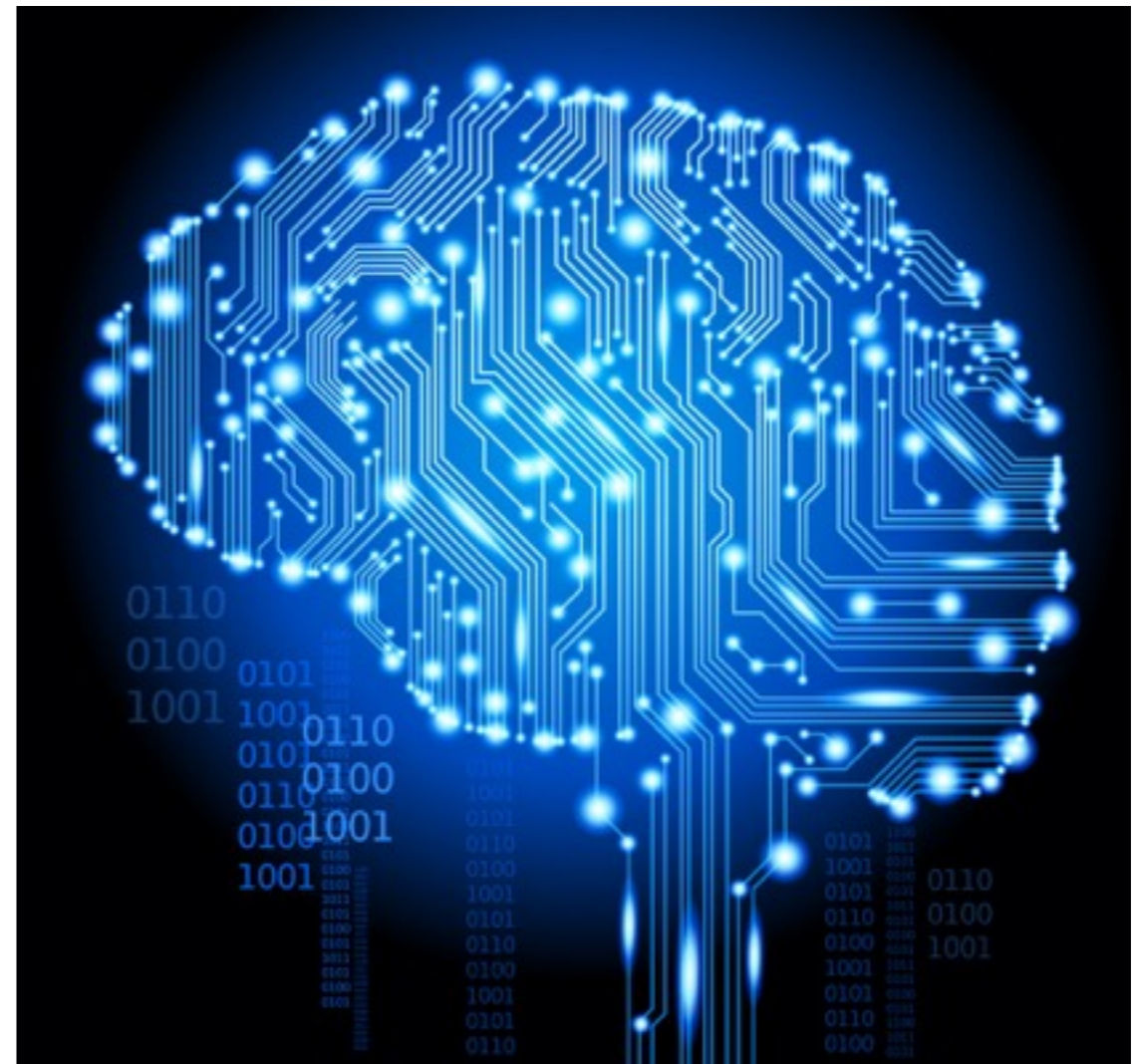
… than ensuring a good outcome!

Example: Transcendence ($100 million)
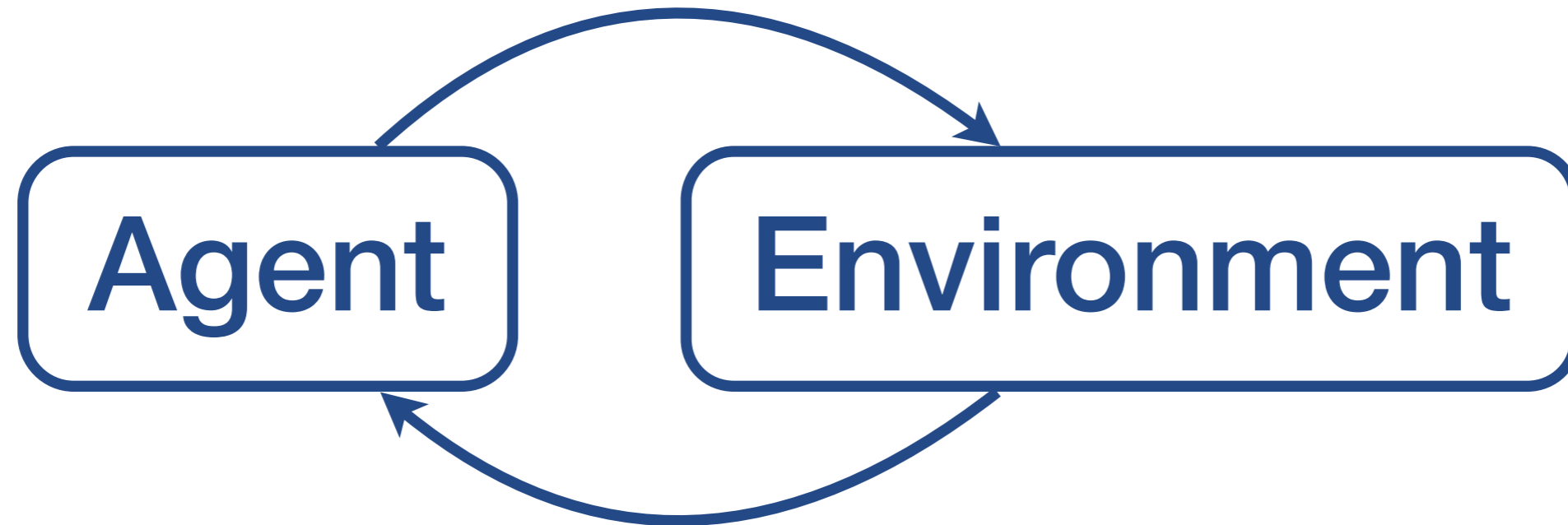www.transcendencemovie.com

Intelligence

«Intelligence measures an agent's ability to **achieve its goals** in a wide range of unknown environments.»

Ingredients

Agent ⇄ Environment

Learn, predict, rate and act!

Intelligence is a Big Deal

6 million years ago, 96% common DNA

Accelerating Change

Progress feeds on itself:

Knowledge + Technology
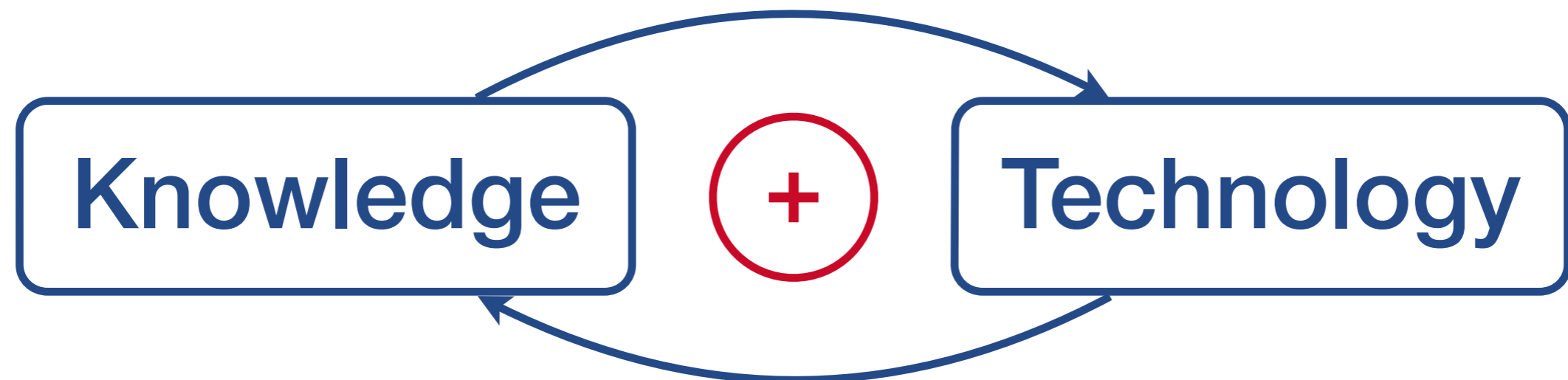
Most progress is exponential!

Technology = (Neutral) Lever

Our technological progress far outperforms our moral progress!

Artificial Intelligence

Fire | Wheel | Gunpowder | Printing Press

... | Human Intelligence | ?

Electricity | Artificial Intelligence | ? | ? | ?

... is a technology like no other!

Machine Intelligence LANDSCAPE

CORE TECHNOLOGIES

ARTIFICIAL INTELLIGENCE
IBM WATSON, MetaMind, Numenta, ai·one, Cycorp, Microsoft Research, nara, Reactor, SI SCALED INFERENCE
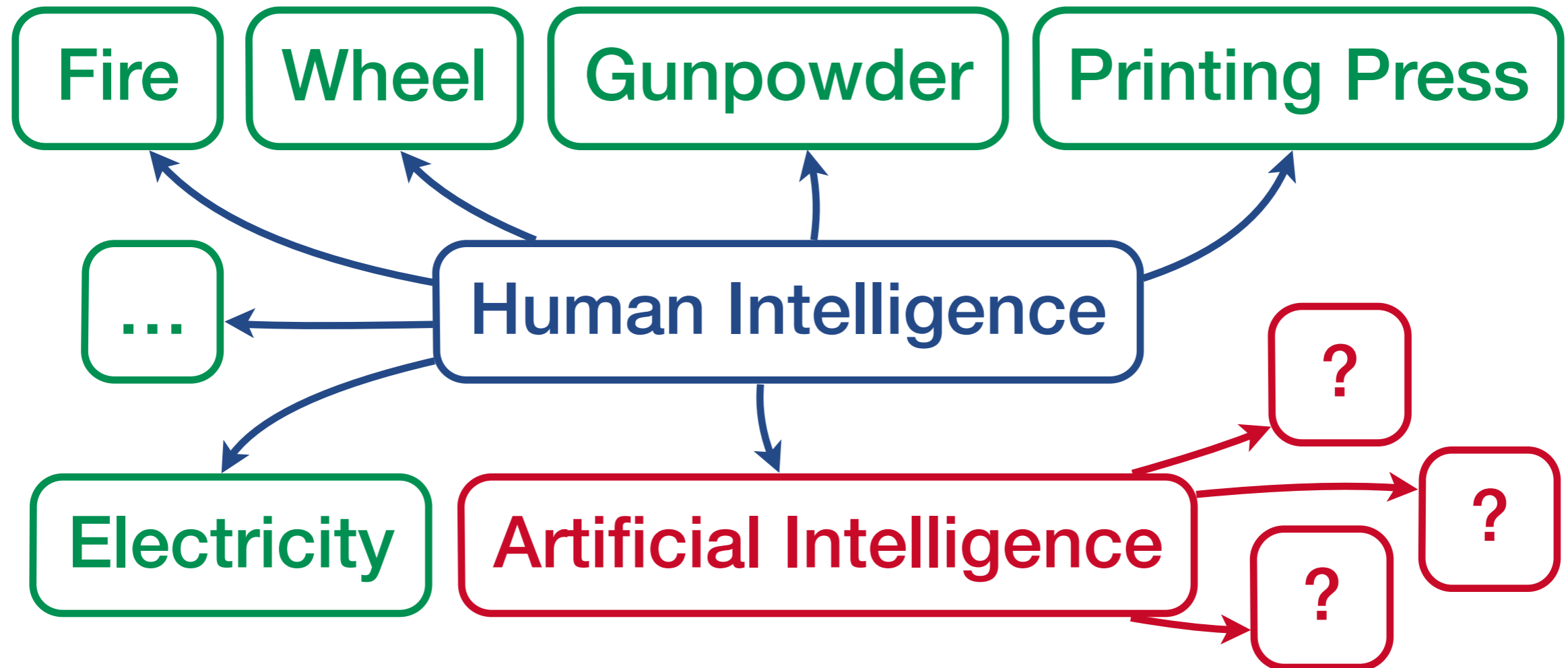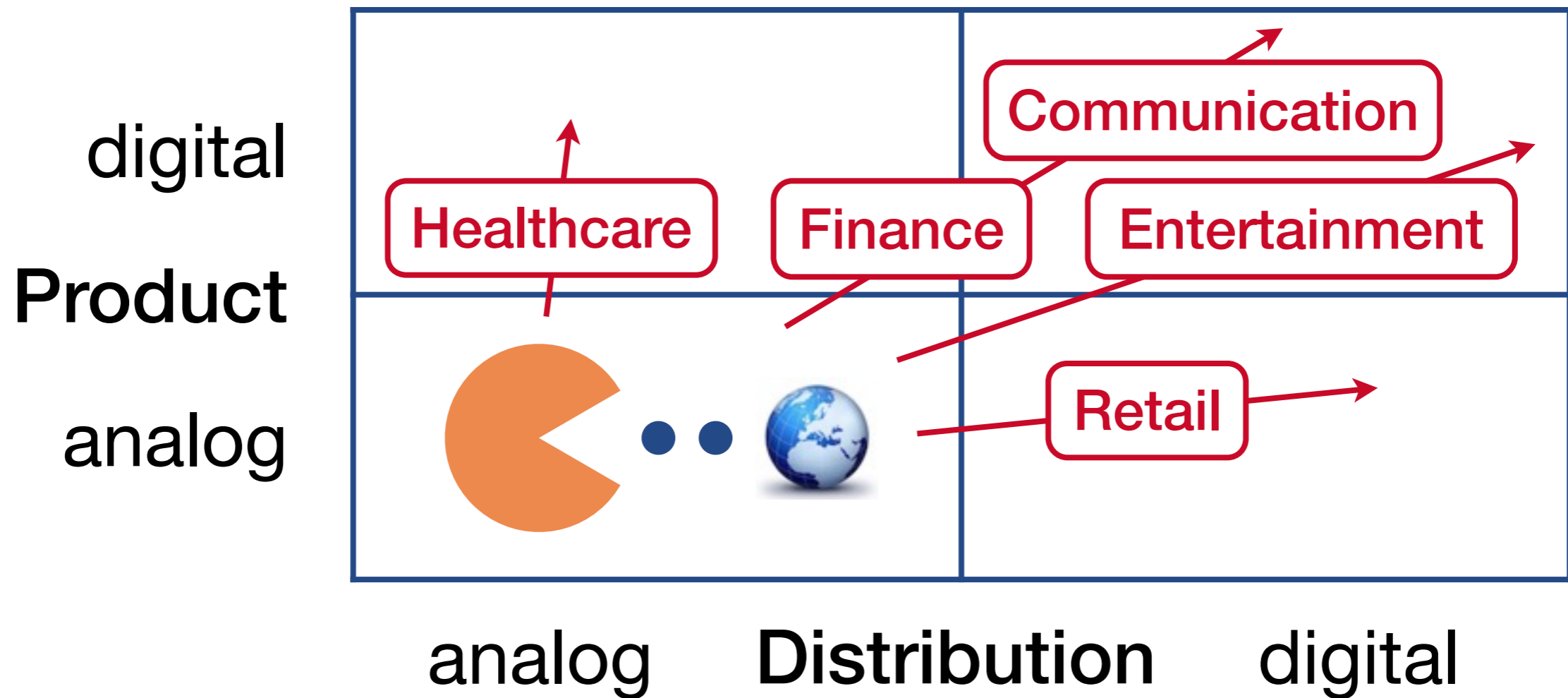
DEEP LEARNING
vicarious, Vision Factory, facebook, Baidu IDL, Google, ersatz, SKYMIND, SignalSense

MACHINE LEARNING
rapidminer, context relevant, 0xdata H₂O, DATARPM, Liftigniter, SPARKBEYOND, Azure ML, yhat, Wise.io, Sense, GraphLab, Alpine, Prætorian

NLP PLATFORMS
cortical.io, idibon, LUMINOSO, wit.ai, Maluuba

PREDICTIVE APIS
AlchemyAPI, MINDOPS, Google, bigml, indico, ALGORITHMIA, Expect Labs, PredictionIO

IMAGE RECOGNITION
clarifai, MADBITS, DNNresearch, DEXTRO, ViSENZE, lookflow

SPEECH RECOGNITION
GRIDSPACE, popUP archive, NUANCE

RETHINKING ENTERPRISE

SALES
Preact, AVISO, RelateIQ, NGDATA, CLARABRIDGE, FRAMED, infer, ATTENSITY, causata

SECURITY / AUTHENTICATION
CROSSMATCH, conjur, EYEVERIFY, BITSIGHT, CYLANCE, AREA 1 SECURITY, bionym

FRAUD DETECTION
sift science, SOCURE, ThreatMetrix, feedzai, Brighterion, VERAFIN

HR / RECRUITING
TalentBin, entelo, predikt, Connectifier, gild, hiQ, CONCEPTNODE

MARKETING
brightfunnel, bloomreach, CommandIQ, AIRPR, RADIUS, TellApart, people pattern, Freshplum

PERSONAL ASSISTANT
Siri, X., Google now, Cortana, cleversense, tempo, Robinlabs, KASISTO, fuse|machines, VIV, IncredRio, CLARA LABS

INTELLIGENCE TOOLS
ADATAO, Palantir, Quid, Digital Reasoning, FirstRain
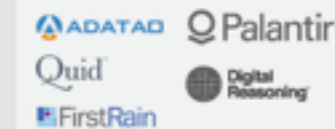
RETHINKING INDUSTRIES

ADTECH
METAMARKETS, dstillery, rocketfuel, YieldMo, ADBRAIN

AGRICULTURE
BLUE RIVER, TerrAvion, ceresimaging, HONEYCOMB, THE CLIMATE CORPORATION, tule

EDUCATION
declara, coursera, KNEWTON, kidaptive

FINANCE
Bloomberg, FinGenius, alphasense, KENSHO, Dataminr, minettabrook, BINATIX

LEGAL
Lex Machina, brightleaf, COUNSELYTICS, RAVEL, JUDICATA, Brevia, DiligenceEngine

MANUFACTURING
SIGHT MACHINE, MICROSCAN, IVISYS, BOULDER IMAGING

MEDICAL
Parzival, transcriptic, ZEPHYR HEALTH, Genescient, grand round table, bina TECHNOLOGIES, TUTE GENOMICS

OIL AND GAS
kaggle, AYASDI, TACHYUS, biota, Flutura

MEDIA / CONTENT
Outbrain, newsle, ARRIA, SAILTHRU, wavii, Owlin, NarrativeScience, yseop, Summly, Prismatic, AUTOMATED INSIGHTS

CONSUMER FINANCE
Affirm, inVenture, zestfinance, BILLGUARD, LendUp, LendingClub, Kabbage

PHILANTHROPIES
DataKind, thorn, THE DATA GUILD

AUTOMOTIVE
Google, Continental, TESLA, MOBILEYE, CRUISE

DIAGNOSTICS
enlitic, 3SCAN, lumiata, ENTOPSIS

RETAIL
BAY SENSORS, PRISM SKYLABS, celect, euclid

RETHINKING HUMANS / HCI

AUGMENTED REALITY
wearable intelligence, APX, blippar, META, layar

GESTURAL COMPUTING
THALMIC LABS, omek, FLUTTER, LEAP MOTION, eyeSight, 3Gear SYSTEMS, GestureTek, nod

ROBOTICS
intel, SoftBank, LIQUID ROBOTICS, iRobot, Boston Dynamics, JIBO, ANKI, evolution robotics

EMOTIONAL RECOGNITION
affectiva, BEYOND VERBAL, EMOTIENT, cogito

SUPPORTING TECHNOLOGIES

HARDWARE
NVIDIA, XILINX, QUALCOMM, NERVANA SYSTEMS, TERADEEP, Artificial Learning, rigetti

DATA PREP
TRIFACTA, Paxata, tamr, Alation

DATA COLLECTION
diffbot, kimono, CrowdFlower, Connotate, WorkFusion, import·io

www.shivonzilis.com/machineintelligence

Bloomberg BETA
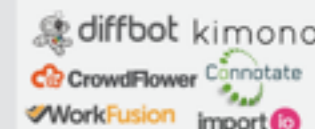
Automation brings Abundance

Many industries will be transformed into pure AI industries…

Capital: ⬆ – Wages: ⬇

US Productivity, GDP, Employment, and Income: 1953-2011

The Great Decoupling

Legend:
- Labor Productivity
- Private Employment
- Median Household Income
- Real GDP
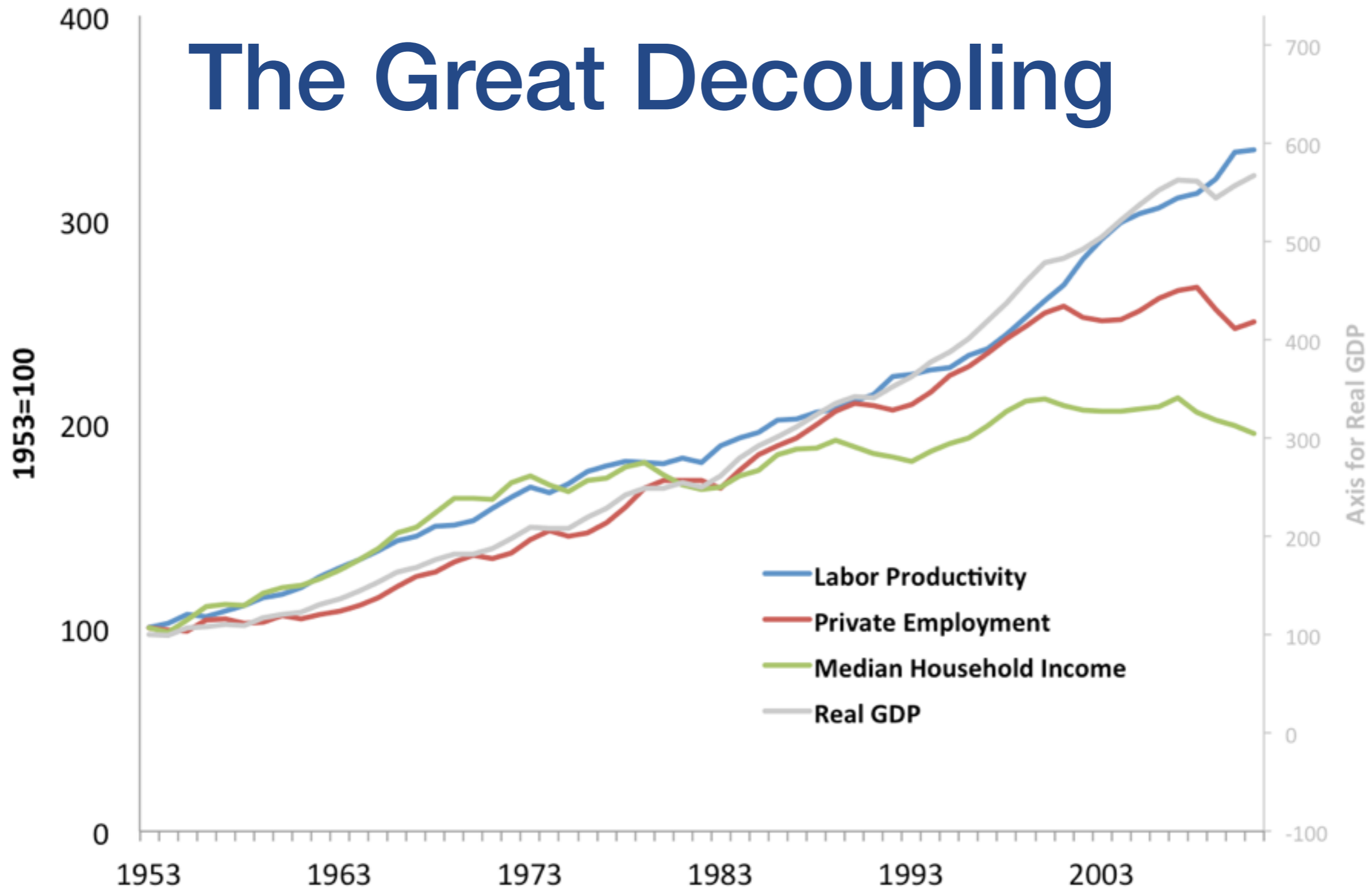
© 2012 Andrew McAfee (@amcafee)

Sources: Census Bureau, Bureau of Labor Statistics

The Great Decoupling of the US Economy
andrewmcafee.org/2012/12/the-great-[…]

We'll give Robots full Autonomy

… because of

– increased speed

– high complexity

– risk of jamming

AI is the ultimate productivity boost!

Daniel Suarez
go.ted.com/biXE

We will get what we wished for and not what we wanted

Coherent Extrapolated Volition
intelligence.org/files/CEV.pdf

Modelling Capabilities

Algorithm > Operator
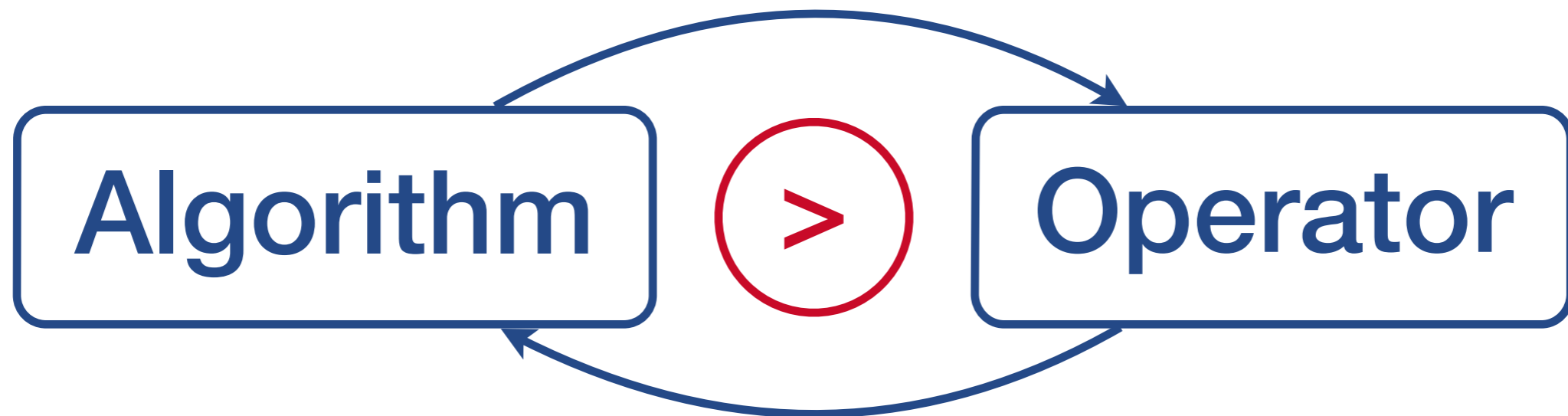
AIs will go to great lengths to prevent being switched off!

Example: Ex Machina
exmachina-movie.com

A rational agent will strive to …

– stay alive or functional

– keep its current goal

– acquire resources

– become smarter

A problem if its goals ≠ your goals!

Superintelligence | **15**
Ignite, 3 July 2015

Single-Shot Situation

As a direct consequence:

> Our **first** general AI must be a **safe** one for we may not get a second chance!
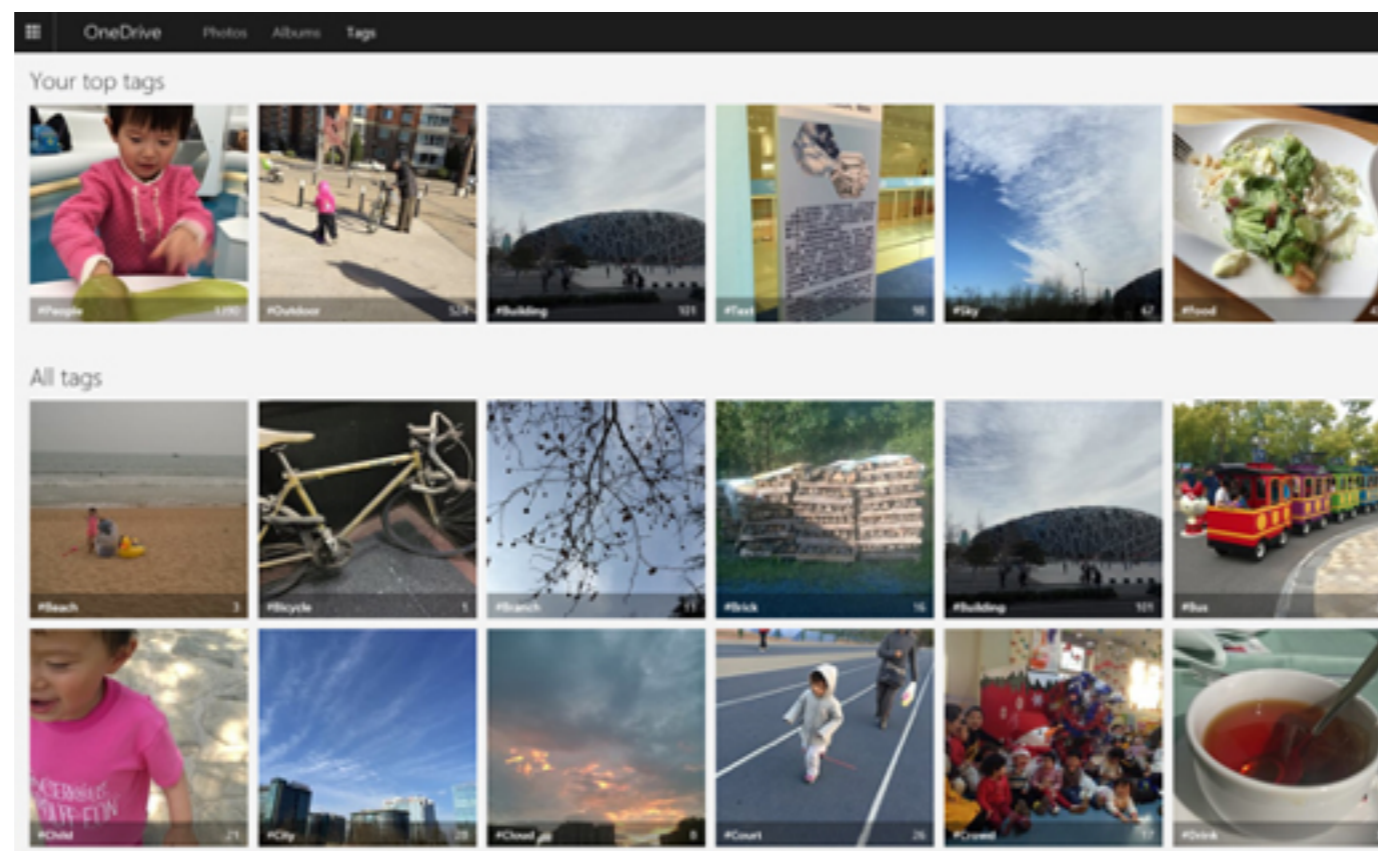
Takeoff Scenarios
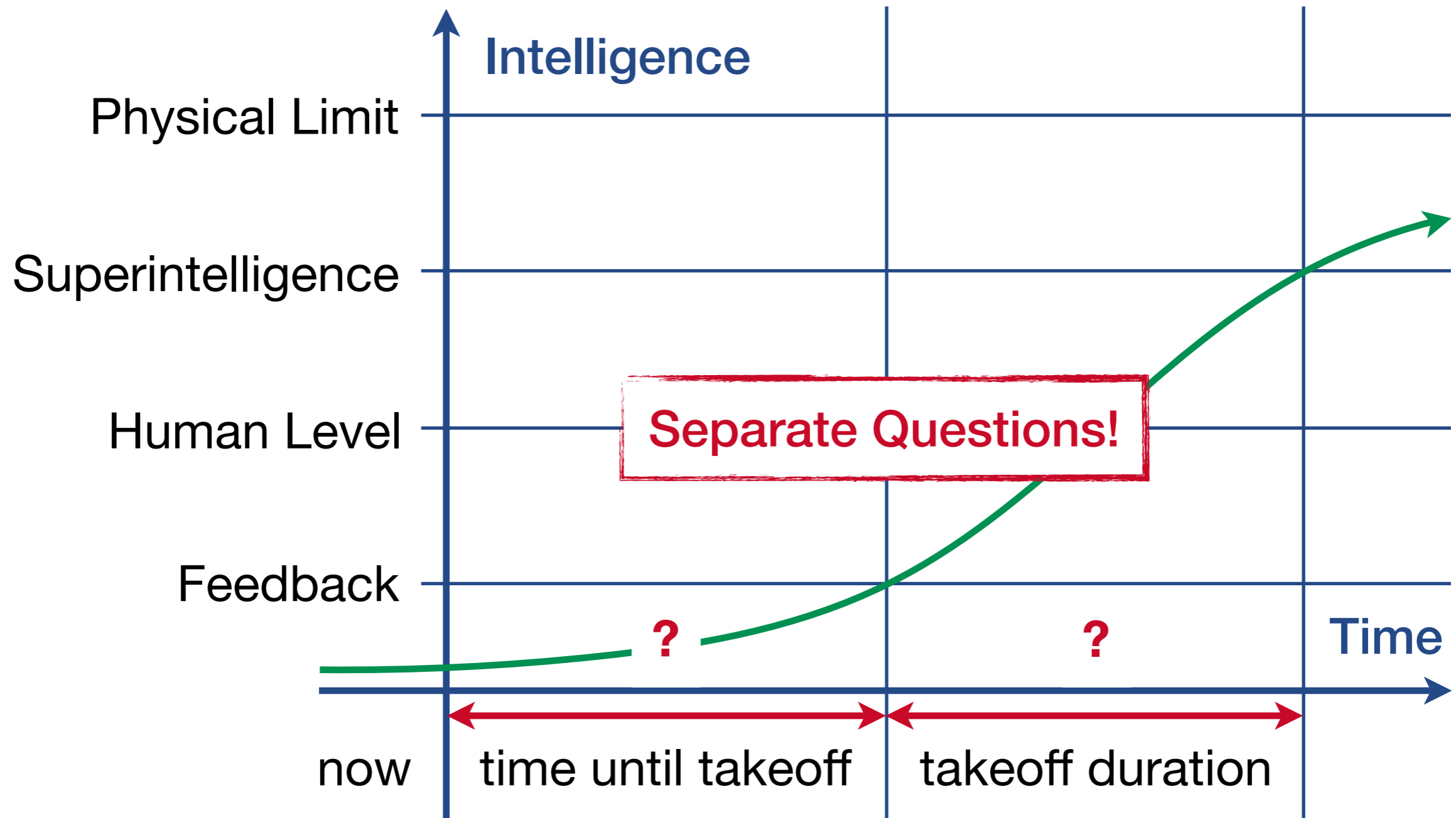
Exponential Improvements
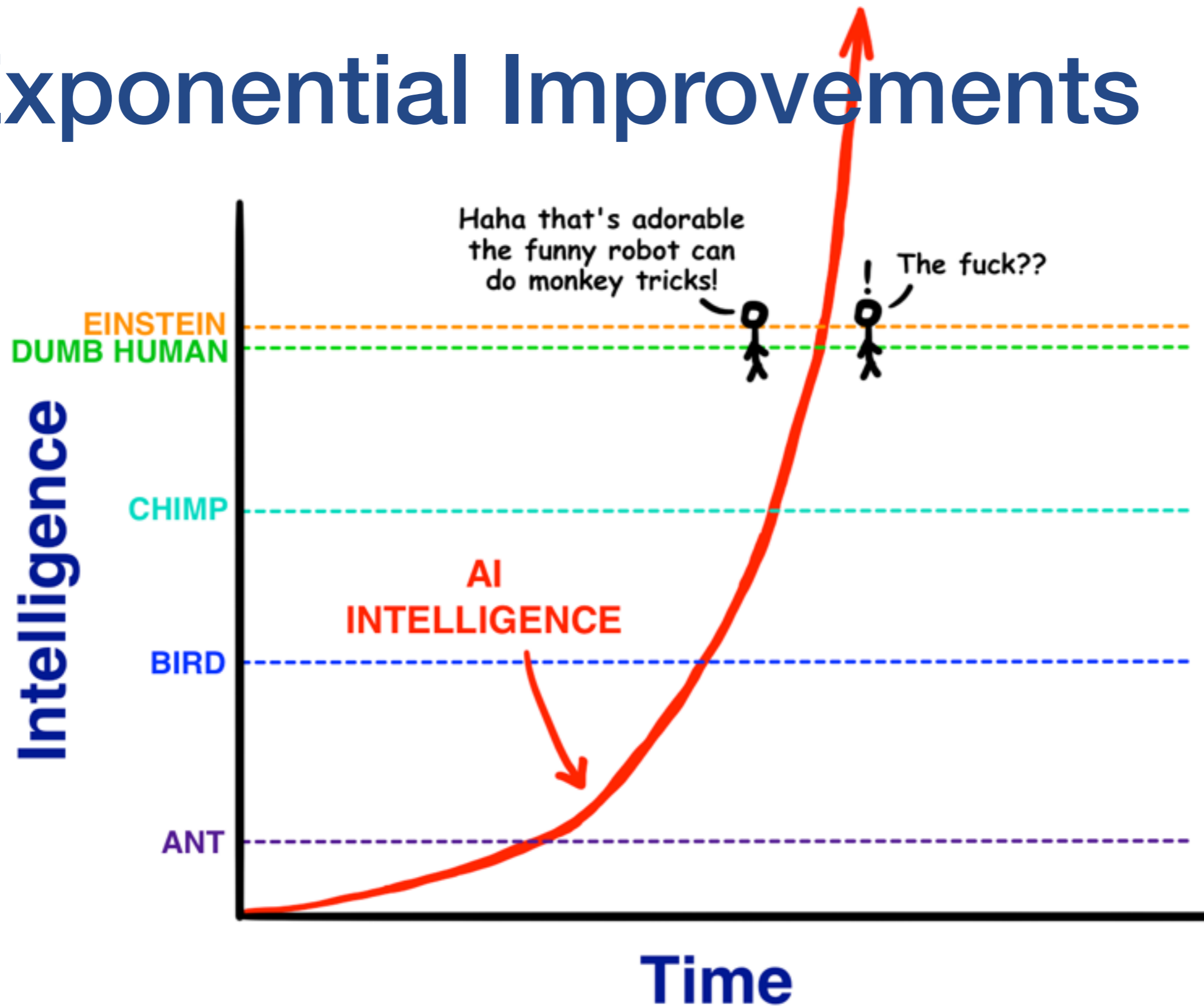
Superhuman Image Recognition

– With convolutional neural networks

– 1.2 m training images, ~ 30 layers

2014: A turning point in AI safety!

Many smart people take superintelligence very seriously.

Future of Life Institute: AI Conference
futureoflife.org/misc/ai_conference

Kaspar Etter