# Research in the Intelligence Age: Remaining Relevant in the 4th Industrial Revolution

**Tanya Franklin**
Vice President, Digital Analytics
and Client & Market Intelligence

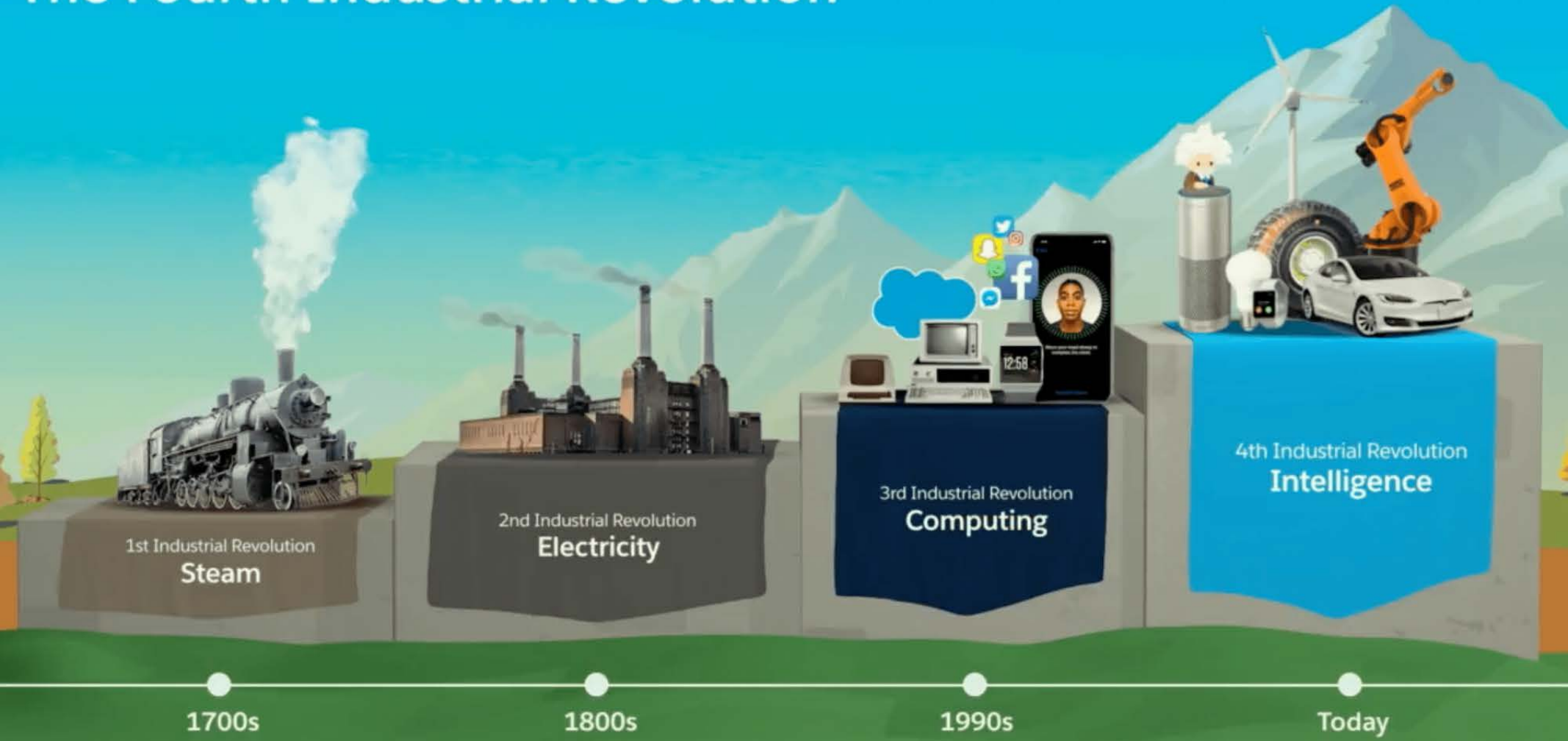
LPL Financial

# Agenda

- The 4th Industrial Revolution
- Driving Forces of AI
- Modern Evolution of AI in Computing
- Manifestations of Machine Intelligence
- Implications for Consumer Research


The Intelligent Revolution

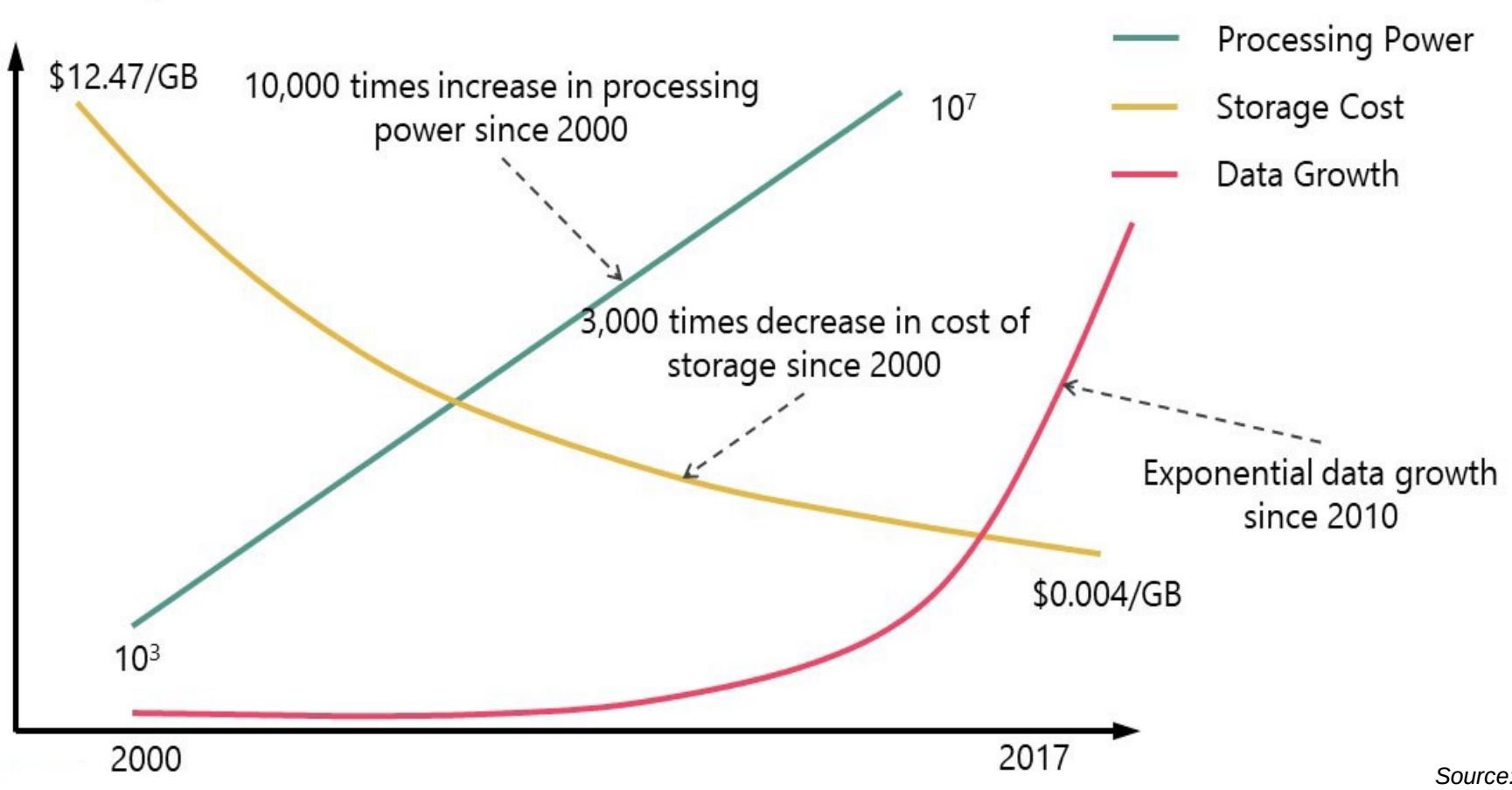
# The Fourth Industrial Revolution




Source: Salesforce.com


Three Macro Forces Driving
the Intelligent Revolution

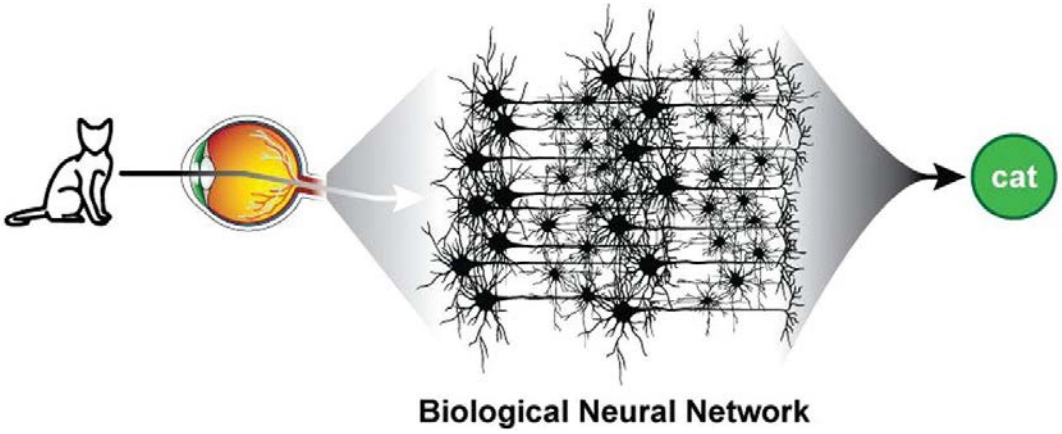
# Exponential growth in data and computational power, and declining storage costs has laid the foundation for Artificial Intelligence (AI)

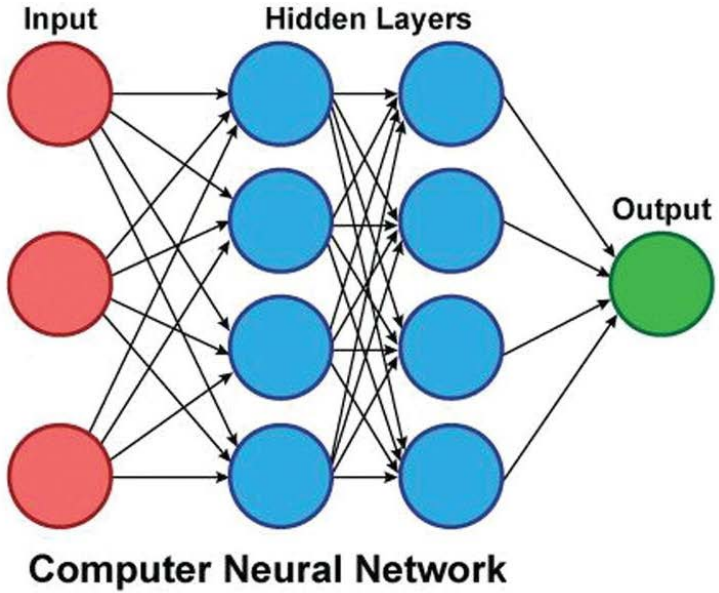



*Source: imgarit.pw*


#LOVE
IS POSTED
23,211
TIMES
GIPHY
SERVES UP
4,800,000
GIFS
NETFLIX
USERS STREAM
694,444 HRS
OF VIDEO
GRUBHUB
RECEIVES
8,683
ORDERS
INSTAGRAM
USERS POST
277,777
STORIES
TWITCH
USERS VIEW
1,000,000
VIDEOS
YOUTUBE
USERS WATCH
4,500,000
VIDEOS
TUMBLR
USERS PUBLISH
92,340
POSTS
TWITTER
USERS SEND
511,200
TWEETS
2019
every
MINUTE
390,030
APPS ARE DOWNLOADED
188,000,000
EMAILS ARE SENT
Source: domo.com

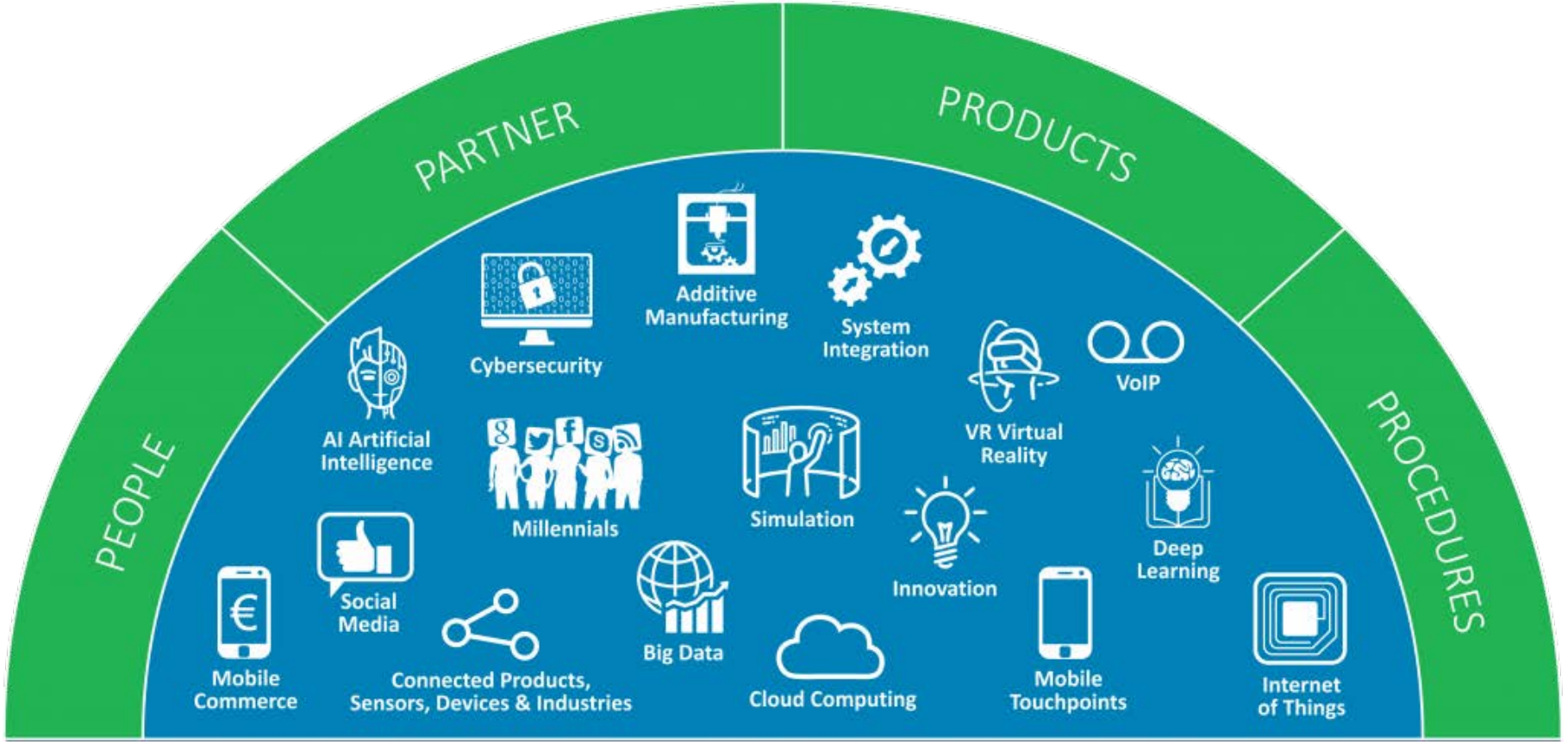
# The abundance and proliferation of computational power and data enable machines to mimic human intelligence




*Source: ajnr.org*

# The Innovation Revolution has an enormous impact on the development of disruptive technologies, and human and business productivity




*Source: acctech.biz*

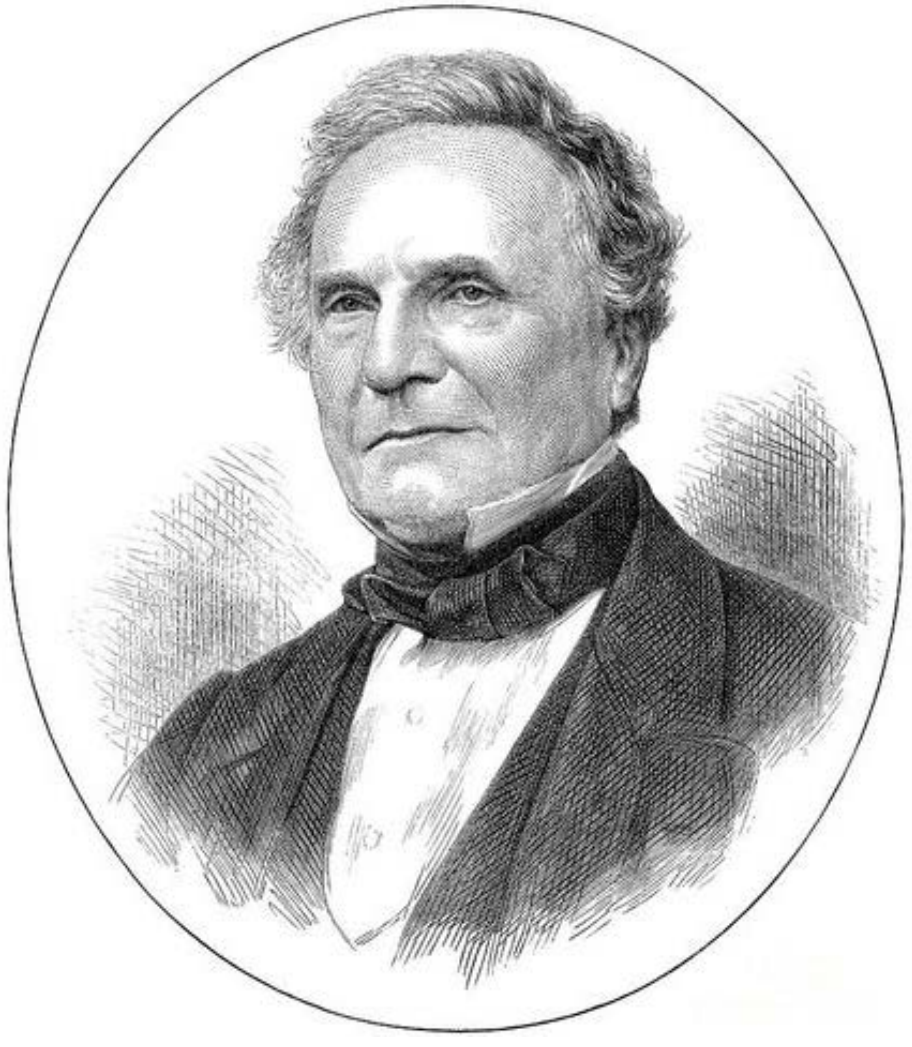

Modern Evolution of
Artificial Intelligence

# Charles Babbage

Born in 1791 - London, England

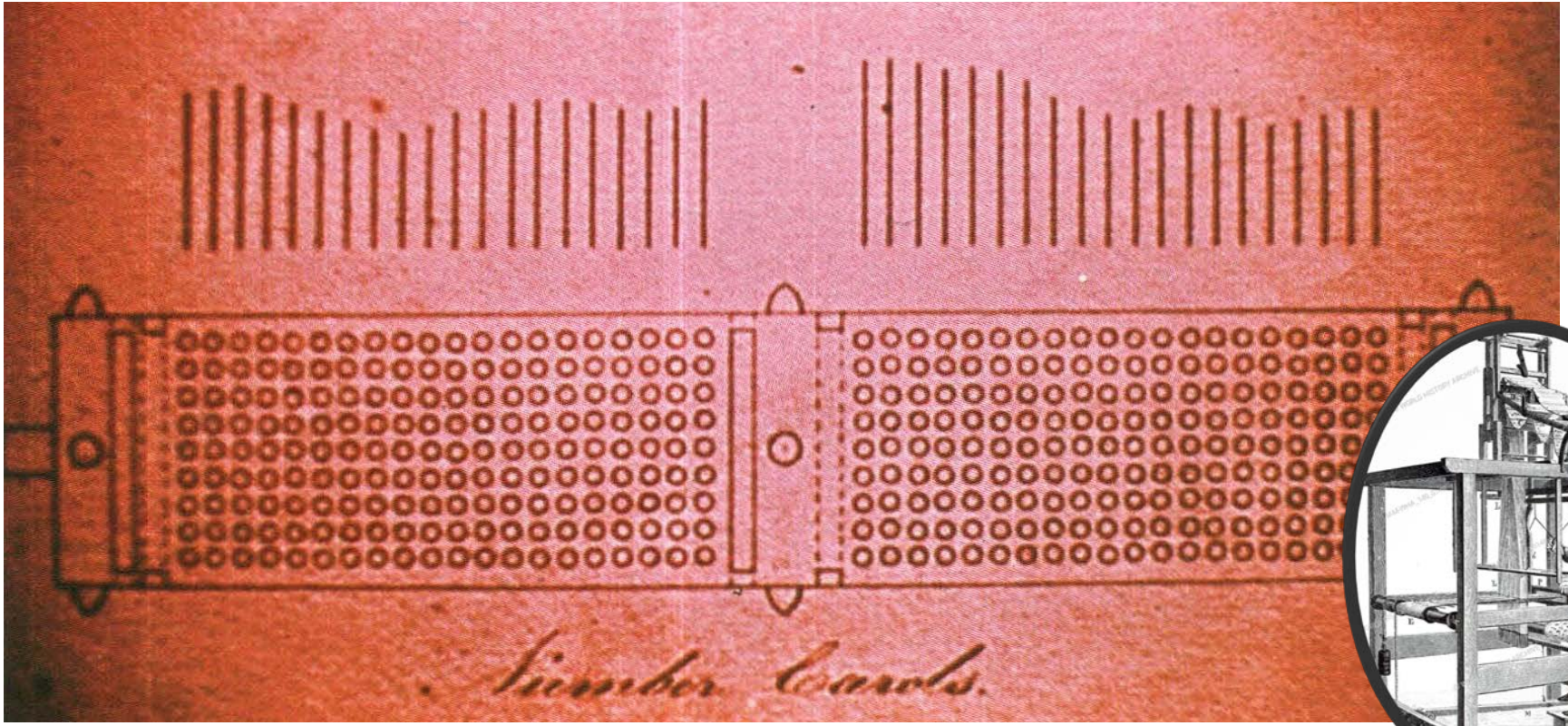
Mathematician and inventor

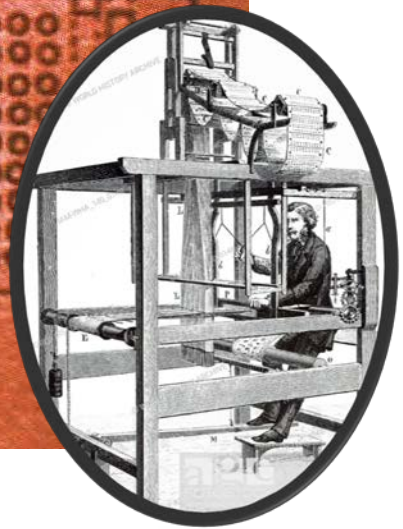
Credited with conceiving the first automatic digital computer



*Source: Britannica.com, thoughtco.com*

# Babbage envisioned performing any arithmetical operation on the basis of instructions from punched cards



*Source: Britannica.com, thoughtco.com*

# Ada Lovelace

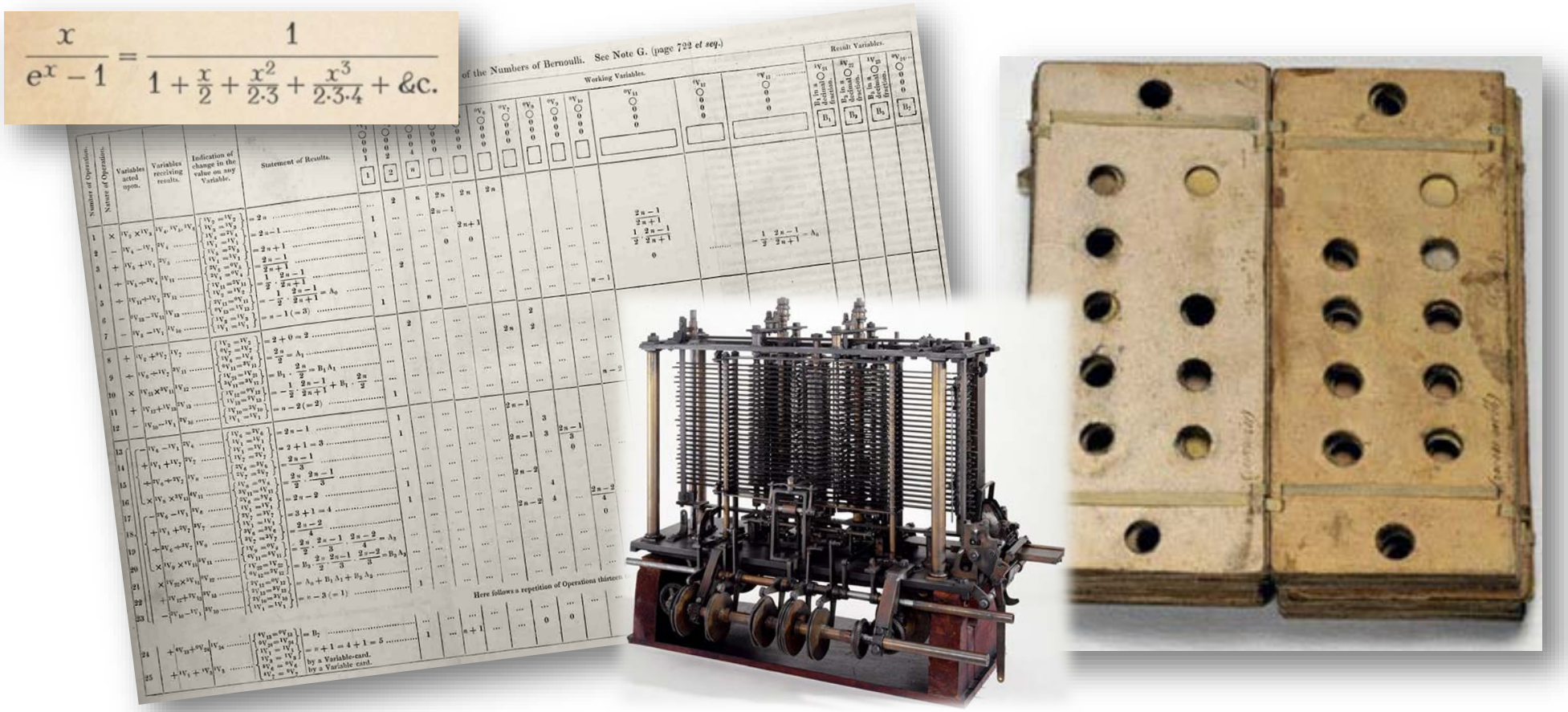
Born in 1815 - Middlesex, England

Mathematician and writer

Regarded as the first computer programmer and prophet of the computer age

*Source: Britannica.com, thoughtco.com*

# Lovelace believed the Engine might act upon things besides a number, marking a fundamental transition from calculation to computation




*Source: thoughtco.com; brainpickings.org*

# Alan Turing

Born in 1912 - London, England

Mathematics, cryptanalysis, logic, philosophy, mathematical biology, computer and cognitive science, AI

The father of Artificial Intelligence

*Source: Britannica.com, thoughtco.com*

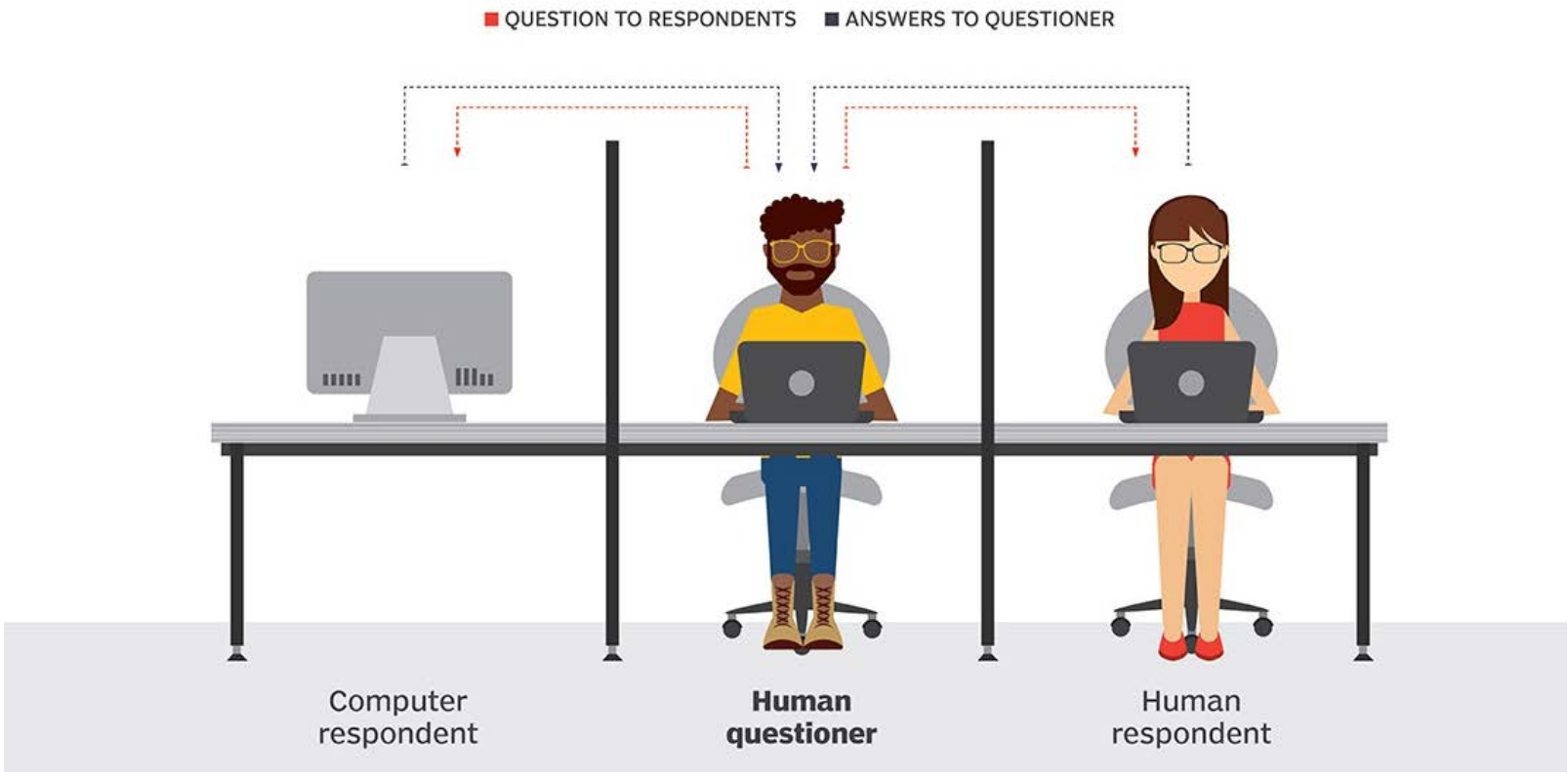
# Enigma was a highly complex coding machine originally built by the Germans during WWI

*Source: therutherfordjournal.com*

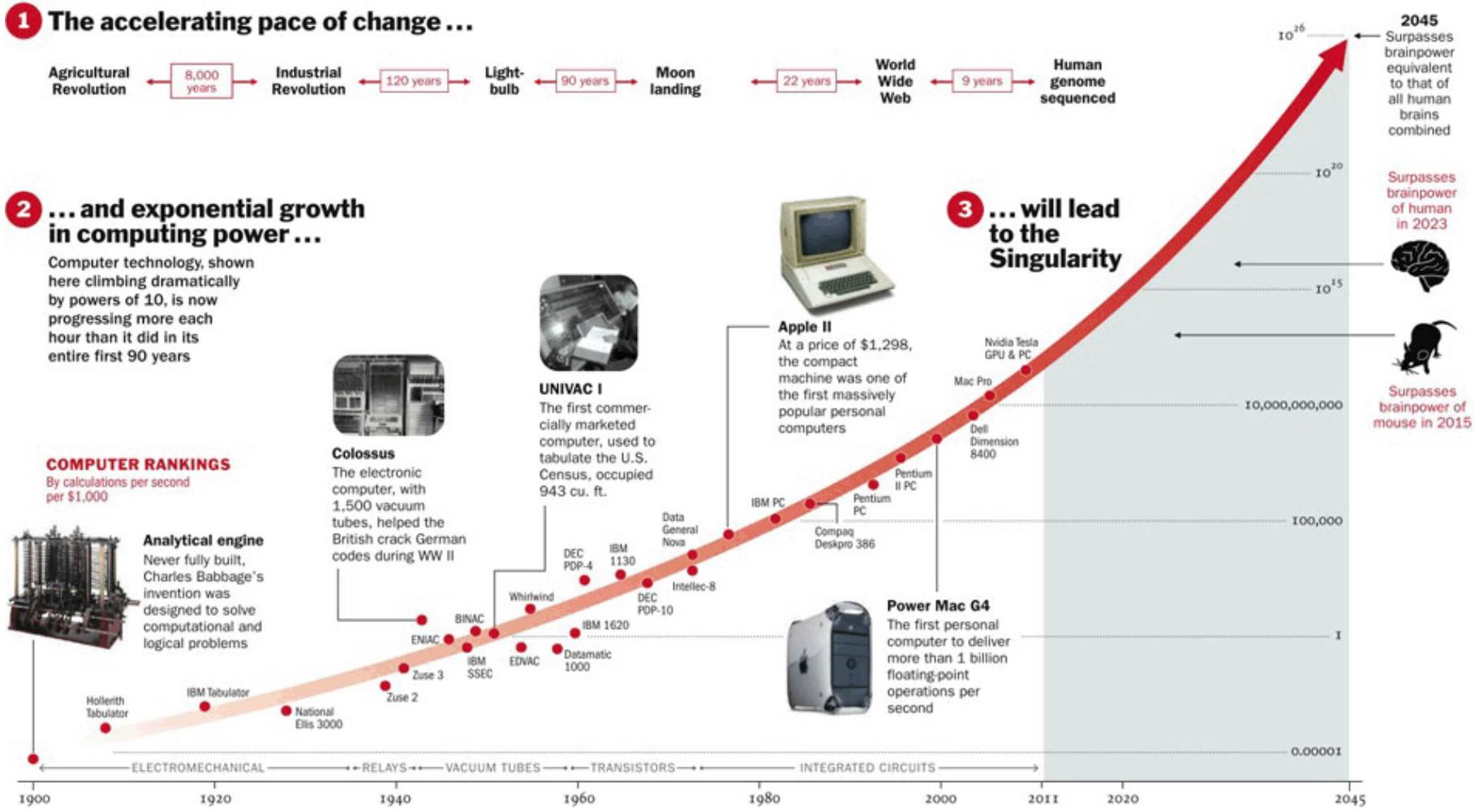
# The ‘Bombe’ successfully intercepted and decoded up to 84,000 Enigma messages a month, saving an estimated 14 million lives

*Source: therutherfordjournal.com*

# After the war, Turing focused his efforts on computing, cognitive science, and artificial intelligence, creating the Turing Test




*Source: britannica.com*




*Source: themarketingtechnologist.co*


Manifestations of
Machine Intelligence

5,095 views | Oct 4, 2019, 11:52am

# Transforming Online Learning With Artificial Intelligence

**Aswin Pranam** Contributor
AI
*I cover topics in artificial intelligence & digital innovation*

October 30, 2019

# Artificial Intelligence: A Boon for Insurance Underwriting?

The digitization of business is in high gear. Although some sectors have embraced thi
slower to imp
coverage for a
nsurance ind
usiness.

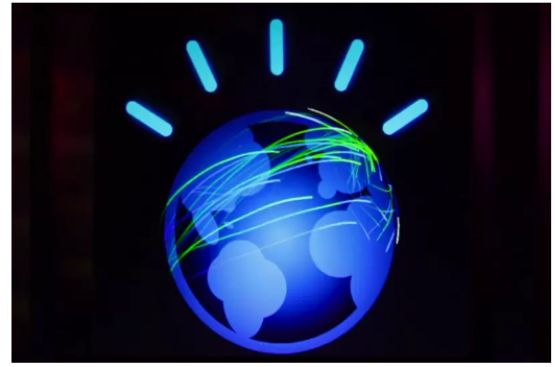
# How Is Artificial Intelligence Revolutionizing Small Businesses?

*With time, AI has developed into a technology that delivers results and although expensive initially, it has affordable for small businesses as well.*

# California has 33 million acres of forest. This company is training artificial intelligence to scour it all for wildfire

Artificial Intelligence

# IBM's Watson is better at diagnosing cancer than human doctors



Credit IBM

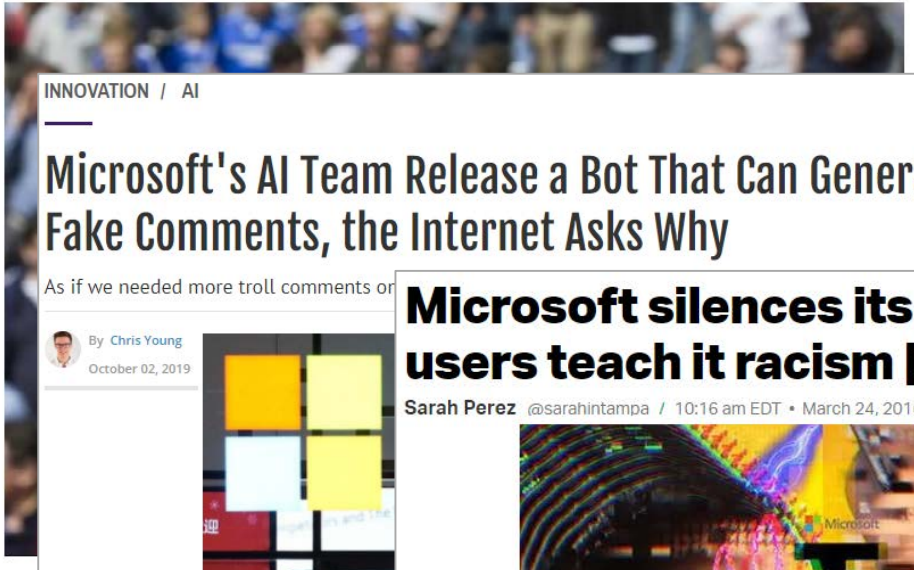
*By* **IAN STEADMAN**

*Monday 11 February 2013*

Technology

# Police officers raise concerns about 'biased' AI data

16 September 2019

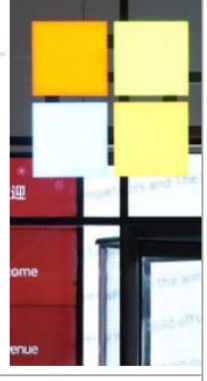


INNOVATION / AI

# Microsoft's AI Team Release a Bot That Can Generate Fake Comments, the Internet Asks Why

As if we needed more troll comments or

By Chris Young
October 02, 2019



BIG TECH BACKLASH · **Published** October 10, 2018

# Amazon drops secret AI recruiting ool that showed bias against women

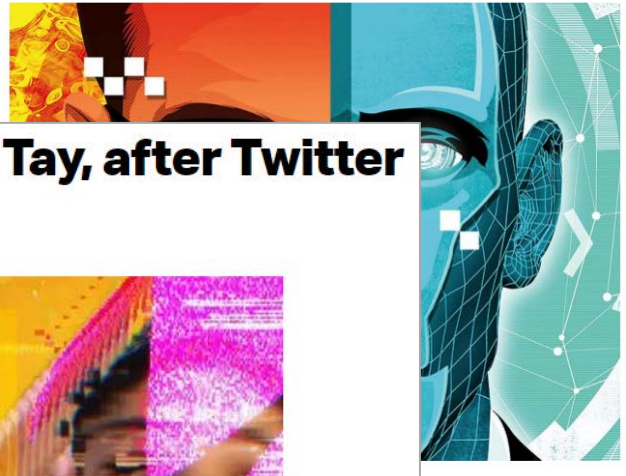
y **Krysia Lenzo** | **Fox News**

Artificial Intelligence and Ethics

Ethics and the dawn of decision-making machines

by JONATHAN SHAW

JANUARY-FEBRUARY 2019



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

**Sarah Perez** @sarahintampa / 10:16 am EDT • March 24, 2016


abc NEWS
MONKEYPAW PRODUCTIONS
BuzzFeed

“AI is likely to be either the best or worst thing to happen to humanity.”

- Stephen Hawking

# Progressing Forward…by Learning from Where We've Been

*Source: britannica.com*

# Implications for Consumer & Market Research

# Integrate to Evolve

- Automate tasks to help perform your job more effectively
- Quickly generate insights from large amounts of data
- Enable interactions with technology via natural-language conversations

✓ Enable businesses to survey the market continually

✓ AI solutions are producing insights in seconds that used to take teams of people days or even weeks to produce

# Compliment to Enhance

Leverage traditional methods to enhance AI development:

- Prioritization (how can AI help your customers?)
- Build Hypotheses
- Ensure unbiased inputs
- Verify & confirm authenticity
- Fill unknown data gaps
- Ongoing contributions for future refinement

**Human intelligence** has the power of creativity to deal with unforeseen obstacles and change course accordingly

# Thank You


Tanya Franklin
VP – Digital Analytics and Client & Market Intelligence

LPL Financial