
AI Immersion

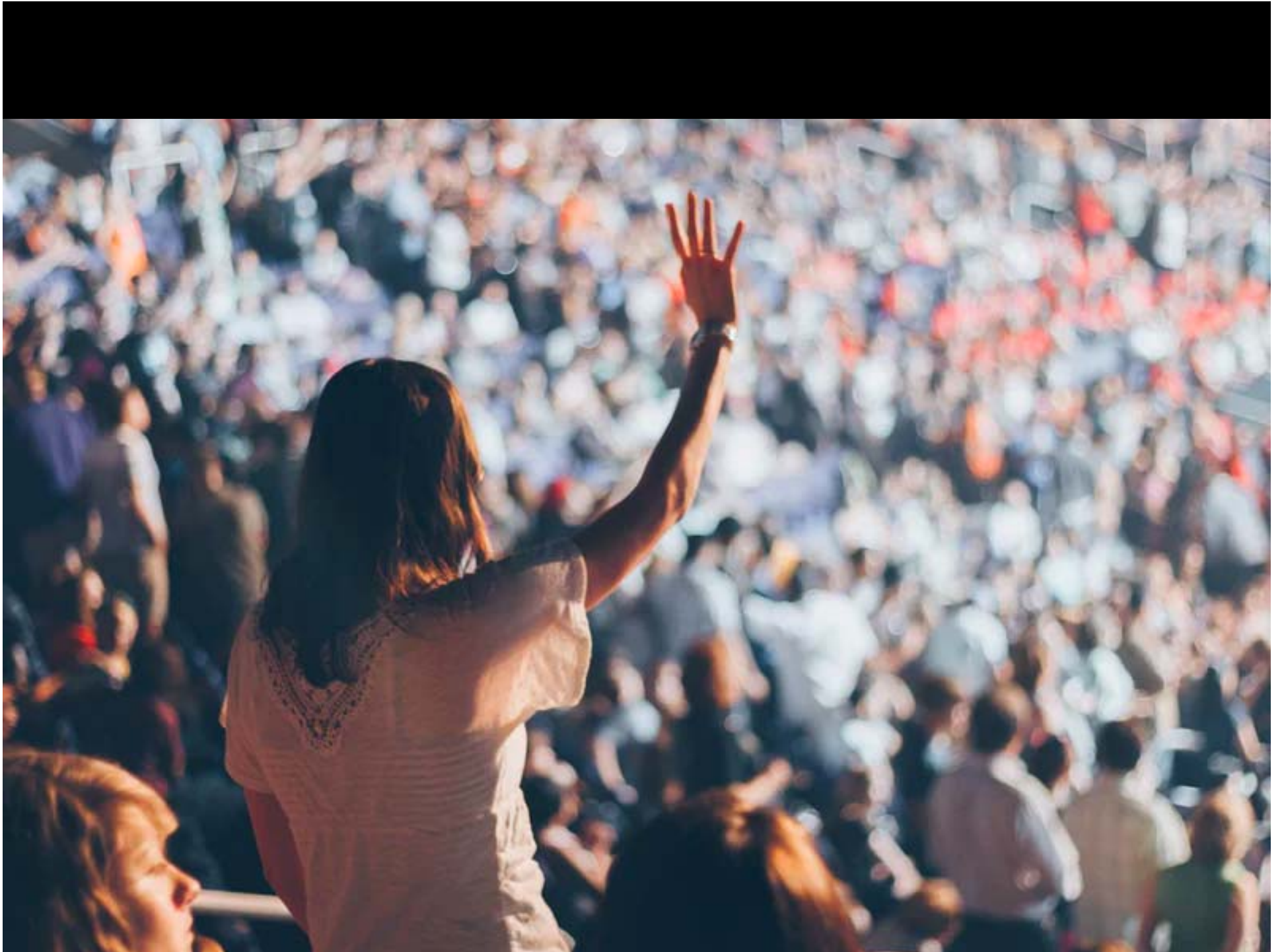
Ashley AuBuchon-Arcand
Executive Program Manager
Global Technology Services, IBM

AI Immersion

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Global Technology Services, IBM

IBM Services





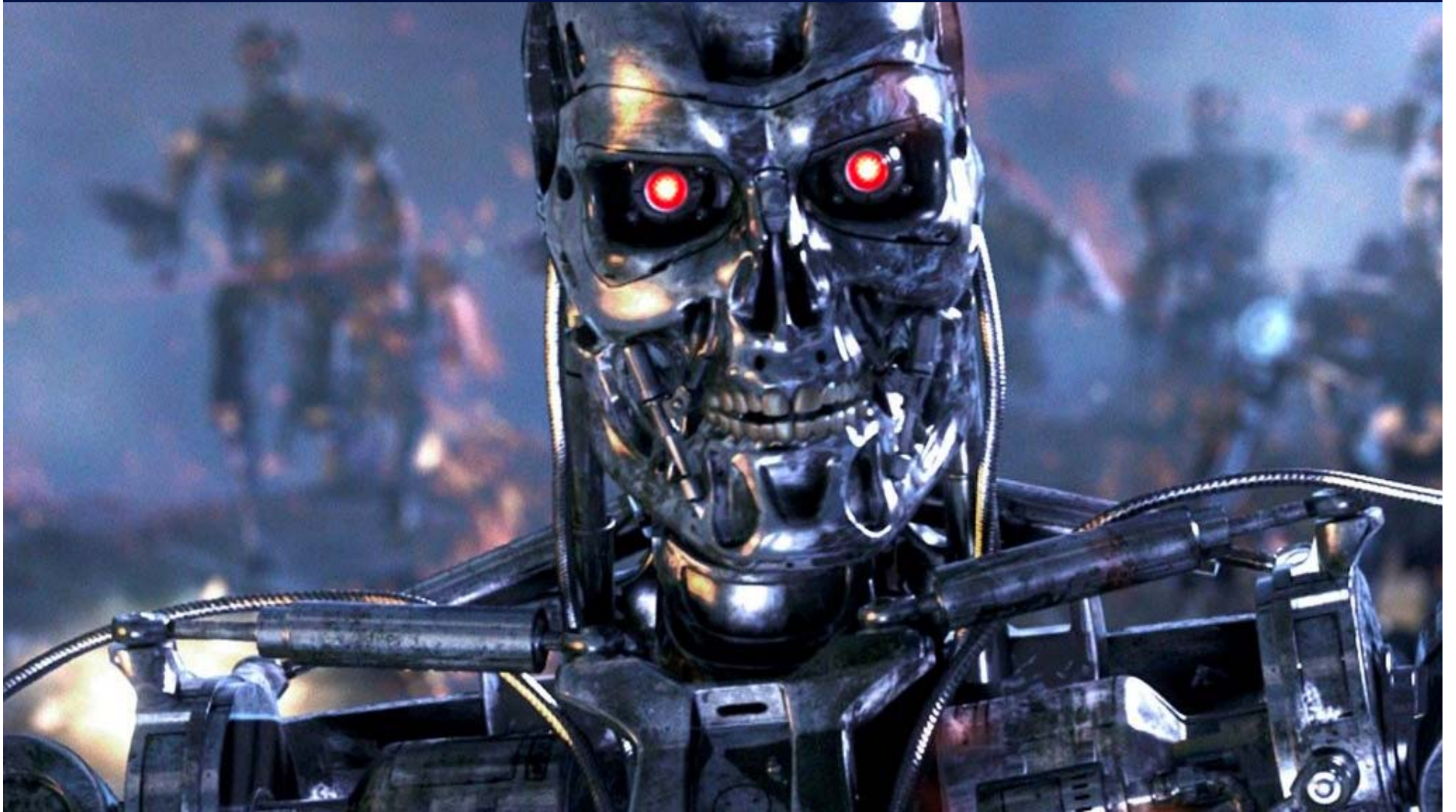
Let's play
some trivia.

What emotion do consumers most commonly cite when discussing AI?

70%

of people
are fearful of
AI

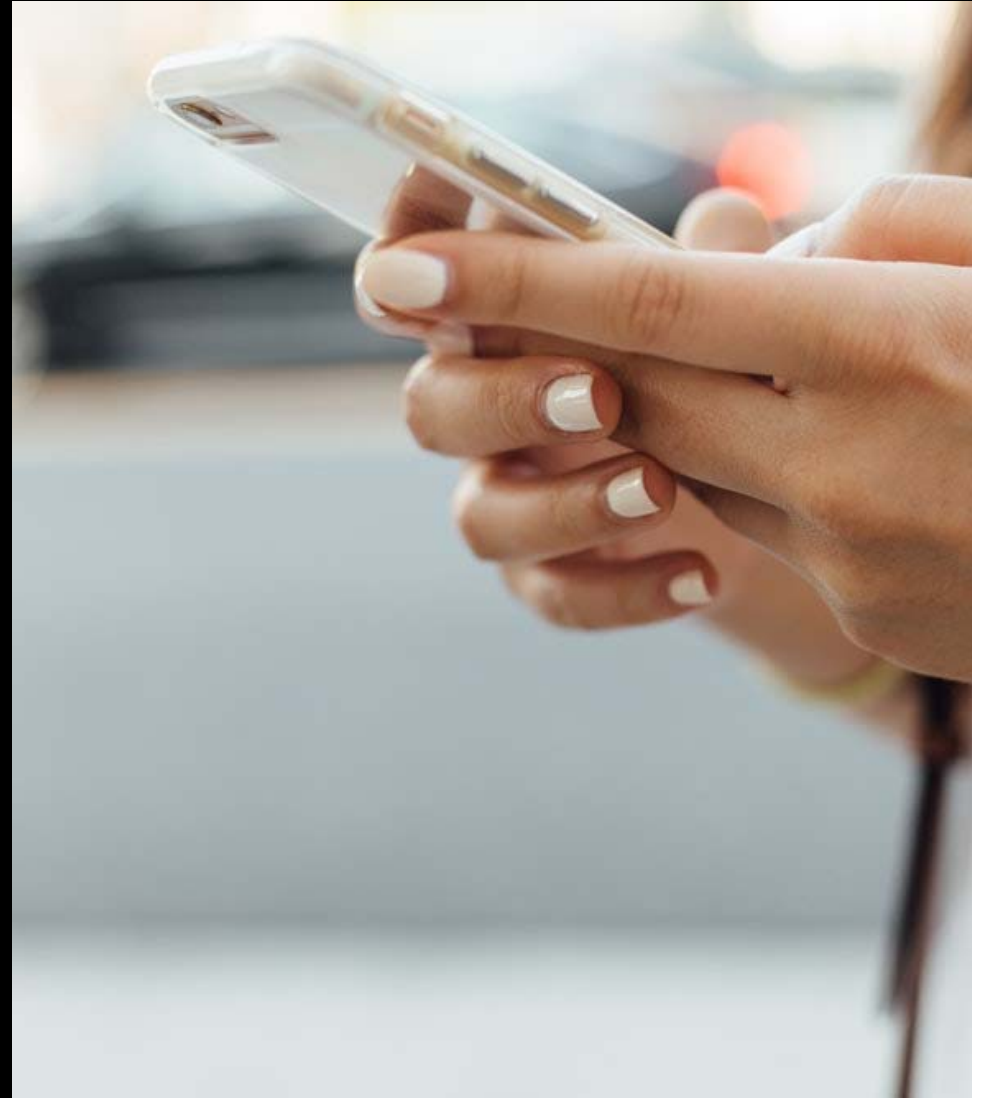


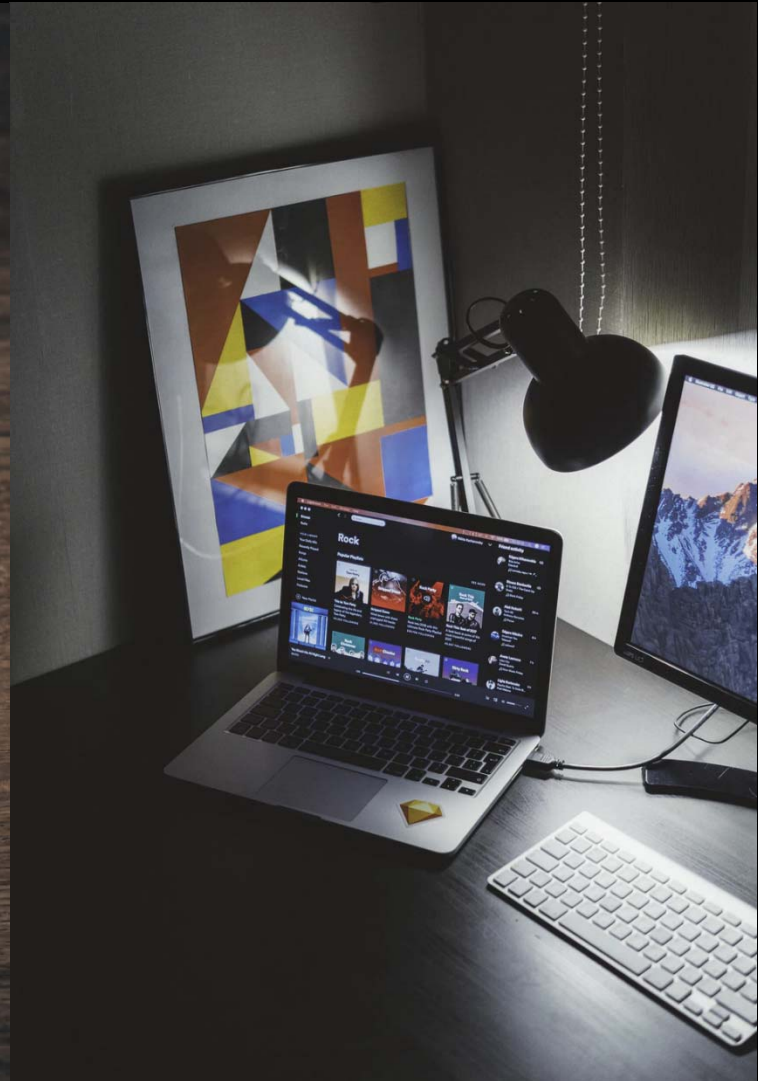


**33% think they use
AI, what percentage
of people actually
use AI?**

77%

of people
are using AI







 **Ashley Arcand**
November 27, 2017 · Edited · 

Happy Holidays ❤️

  179 11 Comments 2 Shares

 Like  Comment  Share

 **Brenna Noble** 1. Love your pants
2. Teddy's grin 😄😄😄
3. Totally precious family pic
Like · Reply · 49w  1

 **Kara Schilli** Yea what she said
Like · Reply · 49w  2

https://www.facebook.com/photo.php?fbid=10101644317756311&set=a.605080816511&type=3&theater#

  Inspector  Console  Debugger  Style Editor  Performance  Memory  Network  Storage

```
+
  Search HTML
  Rules Computed La
  Filter Styles
  Pseudo-elements
  This Element
  element {
  <div id="fbPhotoSnowliftTagBoxes" class="fbPhotosPhotoTagboxes tagContainer">
  <div id="fbPhotoSnowliftTagApproval" class="fbPhotoTagApproval hidden_elem">
  <div class="_2-sx" style="width: 520px; height: 520px;">
  
```



Man + Machine

The purpose of AI is to augment mankind so that we can move society forward.



Let me tell you a story about IT Automation....

“It is difficult to get a man to understand something, when his salary depends on his not understanding it.”

Upton Sinclair

The automation charade – who sponsored the study !

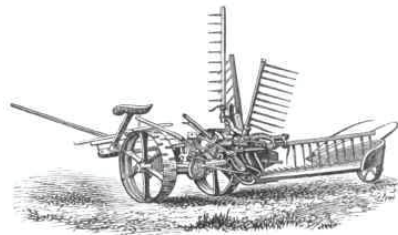
Oxford study

~~estimates that 47 percent of jobs in the US are “at risk” of being automated in the next 20 years.~~

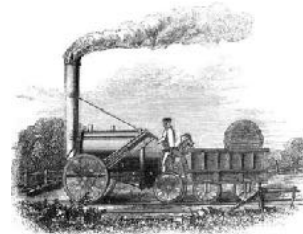
McKinsey study

This study is a published analysis of 800 occupations and the 2000 tasks comprised within the occupations and concluded: "While automation will eliminate very few occupations entirely in the next decade, it will affect portions of almost all jobs to a greater or lesser degree, depending on the type of work they entail."....while machines will take over many tasks performed as a part of jobs, they will not be able to take over many jobs entirely, in fact they will merely enhance the quality of jobs by taking over the most rote, mind-numbing tasks...leaving workers to focus on up-skilling... **They estimate only 5% of whole jobs will be automated.**

Progression of history



creation of more time
(machines)



Industrial revolution
creation of artificial power
(electricity)



Cognitive revolution
anything we “electrified” and add
Augmented Intelligence (AI)

Why do you care ?

Worldwide spending on AI systems is expected to be more than \$57 billion in 2021, according to IDC.



We are in the first hour of a new world.

Fortune-telling robots have come a long way since 1934.

IMAGE: LONDON EXPRESS/GETTY IMAGES

New digital technologies are disrupting the business landscape...

Sources:

1. ABI Research, May 9, 2013
2. KPCB, March 27, 2015
3. McKinsey Global Institute, May 2013
4. PR Newswire, April 22, 2015



Contextual
Mobility

3 hours per day
spent by every U.S.
adult on a mobile
device on average¹



Internet
of Things

20.8 billion
connected things will
be in use worldwide
by 2020²



Cloud
Technologies

\$419 billion
expected global
opportunity for cloud
computing by 2019³



Cognitive
Analytics


\$12.6 billion
expected global
market size of
cognitive computing by
2019 (38% CAGR)⁴


Resulting in nontraditional players disrupting traditional leaders.


Sources:


- | | |
|--|-------------------------------------|
| 1. Bloomberg, December 3, 2015 | 7. WeChat company website |
| 2. Uber company website | 8. Ycharts market cap |
| 3. The Independent, May 5, 2015 | 9. Hertz Press Release, May 6, 2015 |
| 4. Wired, July 12, 2015 | 10. Hilton company website |
| 5. Thomson Reuters, September 28, 2015 | 11. China Telecom company website |
| 6. Technasia, August 18, 2015 | 12. Annual Report, 2015 |
| | 13. Walmart company website |

Leading Industry Disruptors

 — \$60-70B market valuation¹
 — 1,500,000+ drivers²
 — 0 cars owned³


 — \$25.5B market valuation⁴
 — 1.5M+ homes for rent⁵
 — 0 properties owned⁶


 — \$84B estimated value⁶
 — 650 users⁷
 — 0 miles of fiber network

 — \$325B market capitalization⁸
 — 0 retail locations




Traditional Industry Leaders

 — \$6.4B market capitalization⁸
 — Added over 235K new cars to its U.S. rental car fleet⁹

 — \$21B market value⁸
 — 540+ hotels & resorts¹⁰

 — \$38B market capitalization⁸
 — 198M mobile & 113 wireline users¹¹
 — 315 RMB billion in assets in network plants & equipment¹²

 — \$197B market capitalization⁸
 — Over 11,500 retail units¹³

Immediacy is the new consumer habit.
Innovation happens in **hours and days**.

A sea of data is both the **fuel and result**
of digital transformation.





LOTS OF DATA



SUPER COMPUTERS

Hello

How are you?

Having fun?

"All the News
That's Fit to Print"

The New York Times

LATE CITY EDITION

Weather: Rain, with light drizzle tonight. Snow, pleasant tomorrow. Temp. High: today 61-64; earlier 74-84. Low: 48-50, today 46-50; earlier 64-68. U.S. report on p. 20.

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NEW YORK, MONDAY, JULY 21, 1969

X

45 CENTS

MEN WALK ON MOON ASTRONAUTS LAND ON PLAIN; COLLECT ROCKS, PLANT FLAG

Voice From Moon: 'Eagle Has Landed'

EAGLE The lunar module Houston, Tranquility Base here. The Eagle has landed.

HOUSTON: Roger, Tranquility, we copy you on the ground. You've got a bunch of guys about to turn blue. We're breathing again. Thanks a lot.

TRANQUILITY BASE: Thank you.

HOUSTON: You're looking good here.

TRANQUILITY BASE: A very smooth touchdown.

HOUSTON: Eagle, you are okay for TE. [The first step in the lunar operation.] Over.

TRANQUILITY BASE: Roger, step for TE.

HOUSTON: Roger and we see you setting the oo, TRANQUILITY BASE: Roger.

COLUMBIA: (the command and service module) How do you read me?

HOUSTON: Columbia, he has landed Tranquility Base. Eagle is at Tranquility. I read you five by five.

COLUMBIA: Yes, I heard the whole thing.

HOUSTON: Well, it's a good show.

COLUMBIA: Excellent.

TRANQUILITY BASE: TE second that.

APOLLO CONTROL: The next major step in this mission will be for the TE crew. That is at TE, sixteen 28 seconds after initiation of power descent.

COLUMBIA: My telemetry command went to retransmit on high gain.

HOUSTON: Copy, that.

APOLLO CONTROL: We have an official time for Apollo 11 of 24 hours, 41 minutes, 41 seconds.



Neil A. Armstrong moves away from the leg of the landing craft after taking the first step on the surface of the moon.

A Powdery Surface Is Closely Explored

By JOHN HIRSH WELFORD

Special to The New York Times

HOUSTON, Monday, July 21—Men have landed and walked on the moon.

Two American astronauts of Apollo 11, stored their Eagle four-legged lunar module safely and smoothly to the historic landing yesterday at 4:17:40 P.M., Eastern day-light time.

Neil A. Armstrong, the 38-year-old civilian oceanographer, reduced to earth and the moon's control room here.

"Houston, Tranquility Base here. The Eagle has landed."

The first man to reach the moon—Mr. Armstrong and his copilot, Col. Edwin E. Aldrin Jr., of the Air Force—brought their ship to rest on a level, rock-strewn plain near the southwestern shore of the wet Sea of Tranquility.

About six and a half hours later, Mr. Armstrong opened the landing craft's hatch, stepped slowly down the ladder and declared as he planted the first human footprint on the lunar crust.

"That's one small step for man, one giant leap for mankind."

His first step on the moon came at 10:56:23 P.M., as a television camera outside the craft transmitted his every move to an awed and excited audience of hundreds of millions of people on earth.

Television Steps Took Toll

Mr. Armstrong's initial steps were tentative tests of the lunar soil's firmness and of his ability to move about easily in his bulky white spacesuit and backpack and under the pull of a lunar gravity which is only one-sixth that of the earth.



Things Watson does really well.

AI Capabilities

Speech

Convert text and speech with the ability to customize models.

Language

Analyze text and extract meta-data from unstructured content.

Conversation

Integrate diverse conversation technology into your application.

Knowledge

Get insights by analyzing domain specific sets of data.

Vision

Identify and tag visual content then analyze and extract detailed information found in an image.

Empathy

Understand tone, personality, and emotional state.



Machine Learning Glossary

Machine Learning

A field that gives computers the ability to learn without being explicitly programmed.

Supervised Learning

A machine learning approach where a function is inferred from labeled training data. For example, learning to recognize an animal or a human face based on a set of positive and negative examples.

Regression

A subfield of machine learning used for estimating the relationships among variables – widely used for prediction and forecasting, such as the probability of an event, or the revenue of a product.

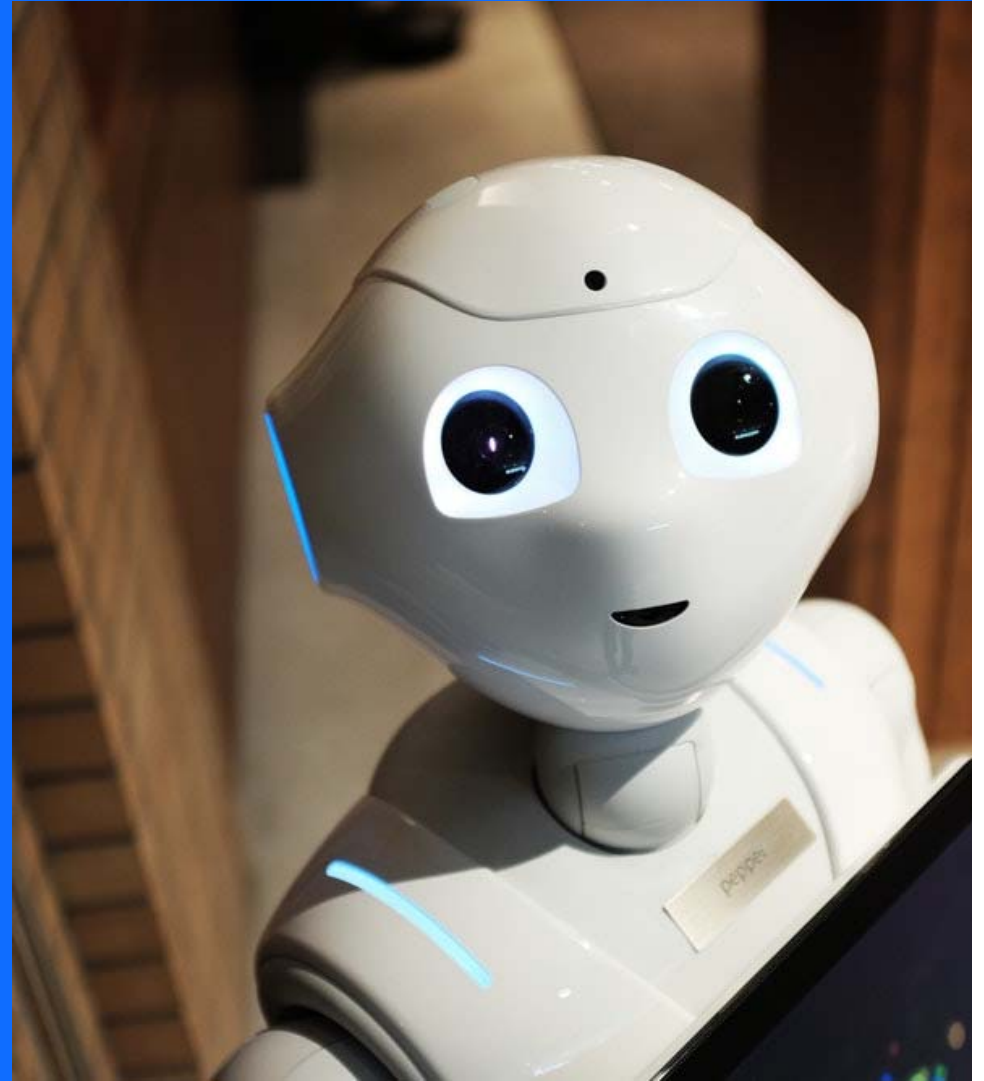
Neural Network

A network of elements called neurons, which receive input, change their internal state according to that input, and produce output depending on the input and activation. The network forms by connecting the output of certain neurons to the input of other neurons forming a directed, weighted graph. The weights as well as the functions that compute the activation can be trained by a machine learning algorithm.

Deep Learning

A subfield of machine learning concerned with algorithms that train very large neural networks. Deep learning neural networks have been applied to fields including computer vision, speech recognition, natural language processing, audio recognition, social network filtering, machine translation, bioinformatics, and drug design.

Machine learning.



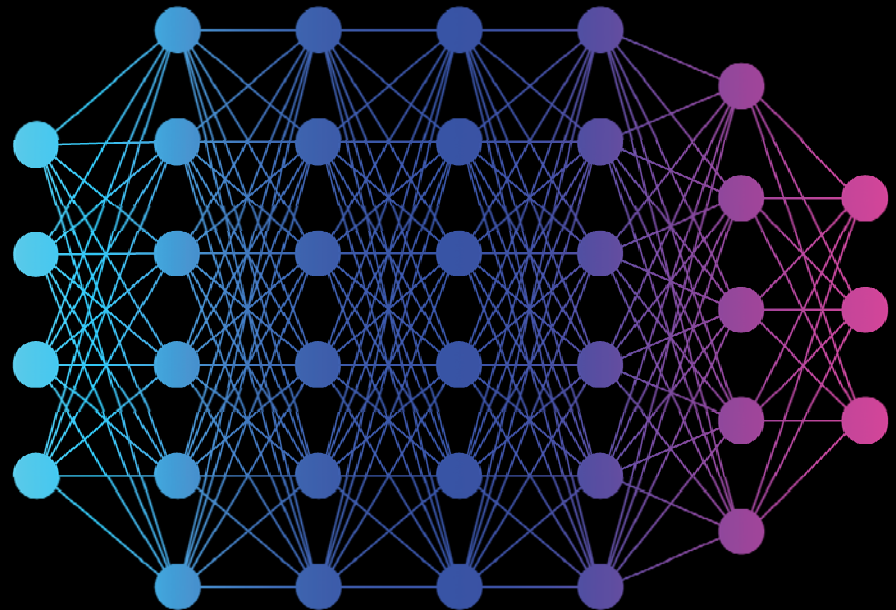
Machine Learning

Types of Machine Learning

- Supervised Learning
- Unsupervised Learning
- Reinforcement Learning

Machine Learning Models

- Regression
- Classification
- Neural Network
 - Deep Learning

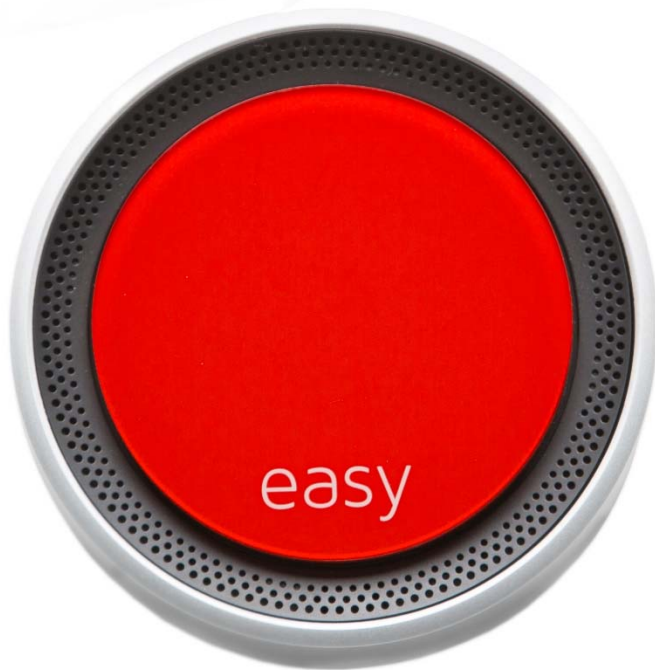




Can a neural network learn to recognize doodling?

Help teach it by adding your drawings to the [world's largest doodling data set](#), shared publicly to help with machine learning research.

Let's Draw!



easy

Watson

Build cognitive apps that help enhance, scale, and accelerate human expertise.



Watson Assistant (formerly Conversation)

Add a natural language interface to your application to automate interactions with your customers.

Lite IBM



Discovery

Add a cognitive search and content analytics engine to applications.

Lite IBM



Knowledge Catalog

Discover, catalog, and securely share enterprise data.

Lite IBM



Knowledge Studio

Build custom models to teach Watson the language of your domain.

Lite IBM



Language Translator

Translate text from one language to another, adapt translation models to your custom needs.

Lite IBM



Machine Learning

IBM Watson Machine Learning - make smarter decisions, solve tough problems, and improve your business.

Lite IBM



Natural Language Classifier

Natural Language Classifier performs natural language classification on question texts. A

IBM



Natural Language Understanding

Analyze text to extract meta-data from content such as concepts, entities, emotion, relationships.

Lite IBM



Personality Insights

The Watson Personality Insights derives insights from transactional and social media data.

Lite IBM



Speech to Text

Low-latency, streaming transcription

Lite IBM



Text to Speech

Synthesizes natural-sounding speech from text.

Lite IBM



Tone Analyzer

Tone Analyzer uses linguistic analysis to detect three types of tones from communications:

Lite IBM



Visual Recognition

Find meaning in visual content! Analyze images for scenes, objects, faces, and other content.

Lite IBM



Watson Studio

Embed AI and machine learning into your business. Create custom models using your data.

Lite IBM

Evolution of AI

Narrow AI
Emerging

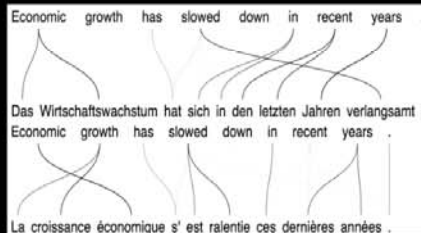
▼ We are here

Broad AI
Disruptive and
Pervasive

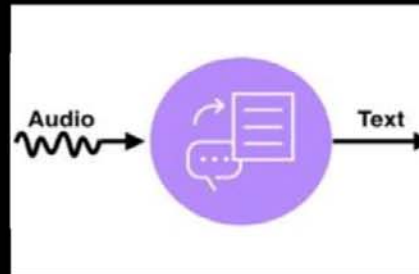
General AI
Revolutionary

2050 and beyond

Narrow AI finally works!



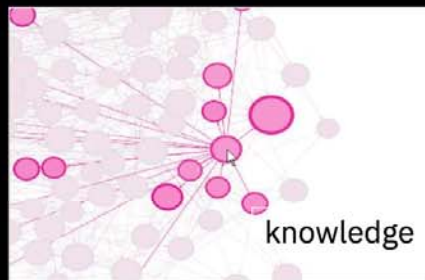
Language Translation



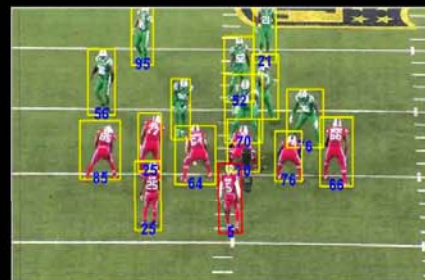
Speech Transcription

Vehicle 1, a 1995 Honda Civic was traveling north on a two lane undivided roadway, negotiating a curve to the left on an upgrade.
V1 went over the right lane line, overcorrected and went over the left lane line into the southbound lane.
V1 overcorrected again and went across the northbound lane, over the right lane line.

Language Understanding



Machine Reasoning



Object Detection



Face Recognition

Making AI robust for enterprises

Learn from Less Data

From supervised learning to unsupervised or reinforcement learning

From video and text to rich human perception

Embed Security & Ethics

From threatening to trusted

From scalable machine learning to making a case

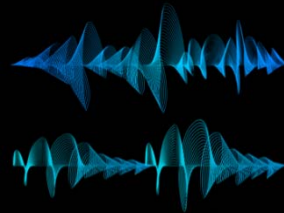
Explain AI Decisions

Open up the black box

Reduce compliance risks



What Lies Ahead



AI Everywhere

Healthcare
Finance
Government
Education
Retail
Energy
Science
Agriculture

Deeper Insights

Distributed deep learning
Neuromorphic computing
Quantum computing
Cognitive discovery
Data centric systems
Machine foresight

Engagement Reimagined

New AI modalities
Human-machine collaboration
Conversational agents
Embodied cognition
Augmented reality
Cognitive blockchain

Personalization at Scale

Context-aware systems
Personalized healthcare
Micro-segmentation
Fraud management
Targeted marketing
Personalized learning
Individualized solutions

Instrumented Planet

Smart sensors
Connected cars
Cognitive environments
Smarter cities
Macroscopes
Digital agriculture
Cyber-physical systems
Crypto anchors
Smart energy

Reasoning and Lifelong Learning

Humans learn continuously throughout their lives, remembering what they've learned and leveraging it for new tasks. They combine inputs and knowledge from multiple sources to solve sub-problems and larger complex tasks. Human reasoning can be exact and it can be flexible.

AI Everywhere



Healthcare

Personalized Healthcare, Diagnostic Tools, Integrated Wellness and Health Systems, Behavior Tracking



Finance

High Frequency Trading, Risk Modeling, Asset Management, Underwriting, Investment Planning, Cyber Security



Government

Campaign Content and Planning, Citizen Experience, Public Security, Policy Planning Support



Education

Personalized Education, Learning Content Indexing-to-Skill & Search, Custom Teaching Methods, Smart View Devices



Retail

Forecasting, Personalized Marketing, Training Retail Sales Employees, Scaling Imagination in Fashion and Food



Energy

Strategic Oil Drilling, Risk Minimization, Geological Analysis, Demand Prediction, Adjustment of Resource Generation



Science

Data Analysis, Experiments, Predictive Modeling, Theorem Proving, Deductive Reasoning, Experiment Planning



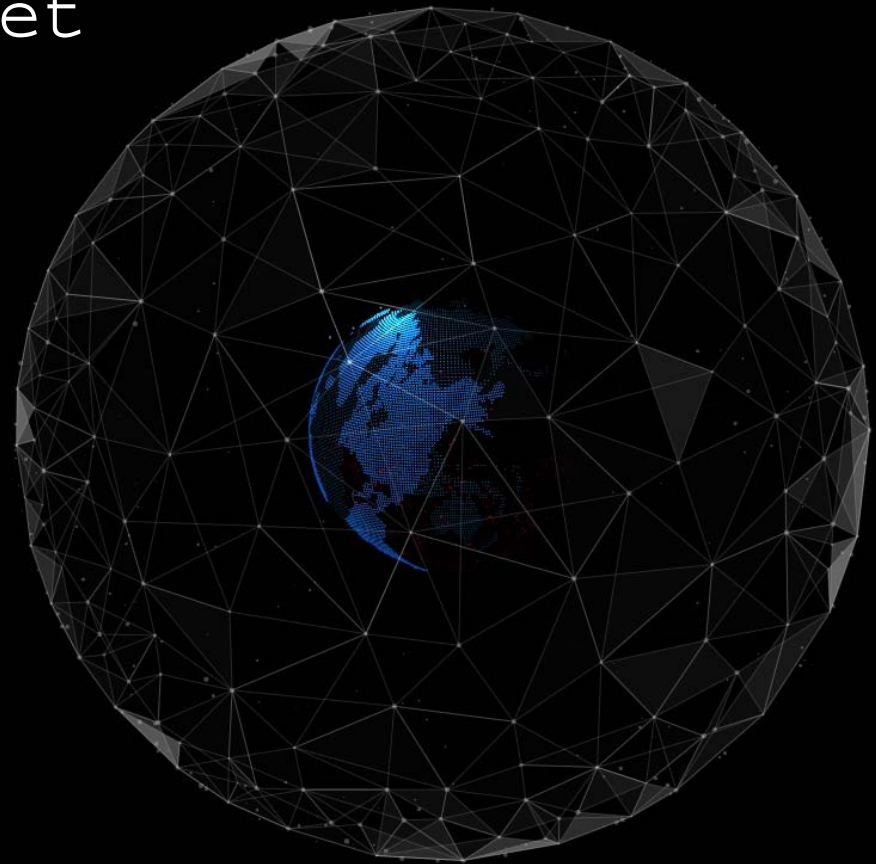
Agriculture

UAV / Satellite Crop Field Analysis, Disease Recognition, Comprehensive Strategic Crop Planning

Instrumented Planet

Machine-learning algorithms and new software will help us make sense of the vast and complex data gathered by billions of interconnected devices throughout the world.

Our ability and agility to act on these insights will have critical repercussions for the security, safety, and sustainability of our planet.



How Project Management AI can deal with the data challenge...

- ❑ **Filling in the blanks** – AI can make good enough assumptions about the data that is missing in projects and enter that data.
- ❑ **Encouraging better practice** – Now that chat apps are widespread, AI can gently encourage teams to improve the quality of the data they are inputting.
- ❑ **Creating new layers of metadata** – In order to really understand the state of projects and the performance of teams, AI will need to create metadata to represent additional concepts that aren't currently represented. This meta-data can then feed into machine learning algorithms as features that will enhance the ability of AI to provide meaningful advice.

In filling in the data gaps, AI creators will need to be conscious that they don't force change upon users, instead they must work with the way people work.

How AI is changing Project Management

- ❑ Gartner predicts that by 2021, brands that redesign their websites to support voice and visual search will [increase digital commerce revenue](#) by 30 percent. In the meantime, small business owners use AI to solve several problems – including interruptions.
- ❑ Despite this potential, AI is still its early days. In a report available to clients, Gartner [predicts](#) that just five percent of organizations will gain value from AI through 2019. That's largely because most teams lack the talent needed to manage AI projects.
- ❑ It's also tough to predict concrete benefits from artificial intelligence projects. Without knowing the benefits upfront — like time or money saved via AI — it's understandable why small and midsize businesses (SMBs) worry that now's not the time to invest in the unknown of AI.

How AI is changing Project Management

These six tips will keep your AI expectations in check— and help you learn from others' past mistakes:

1. Adjust your definition of "AI project"
2. Aim for "soft" outcomes
3. Use AI to augment employees' work instead of replacing them
4. Know that early AI projects often fail
5. Include AI in your software search
6. Use open source tools to learn about AI

Source: <https://lab.getapp.com/ai-for-project-management/>

"Growth and comfort
cannot co-exist."

-Ginni Rometty



Keep in Touch

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