

Artificial Intelligence, Machine Learning, Neural Nets

Strategies for the Future of Libraries

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ALA American Library Association

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN LIBRARIES

Jason Griffey, Editor

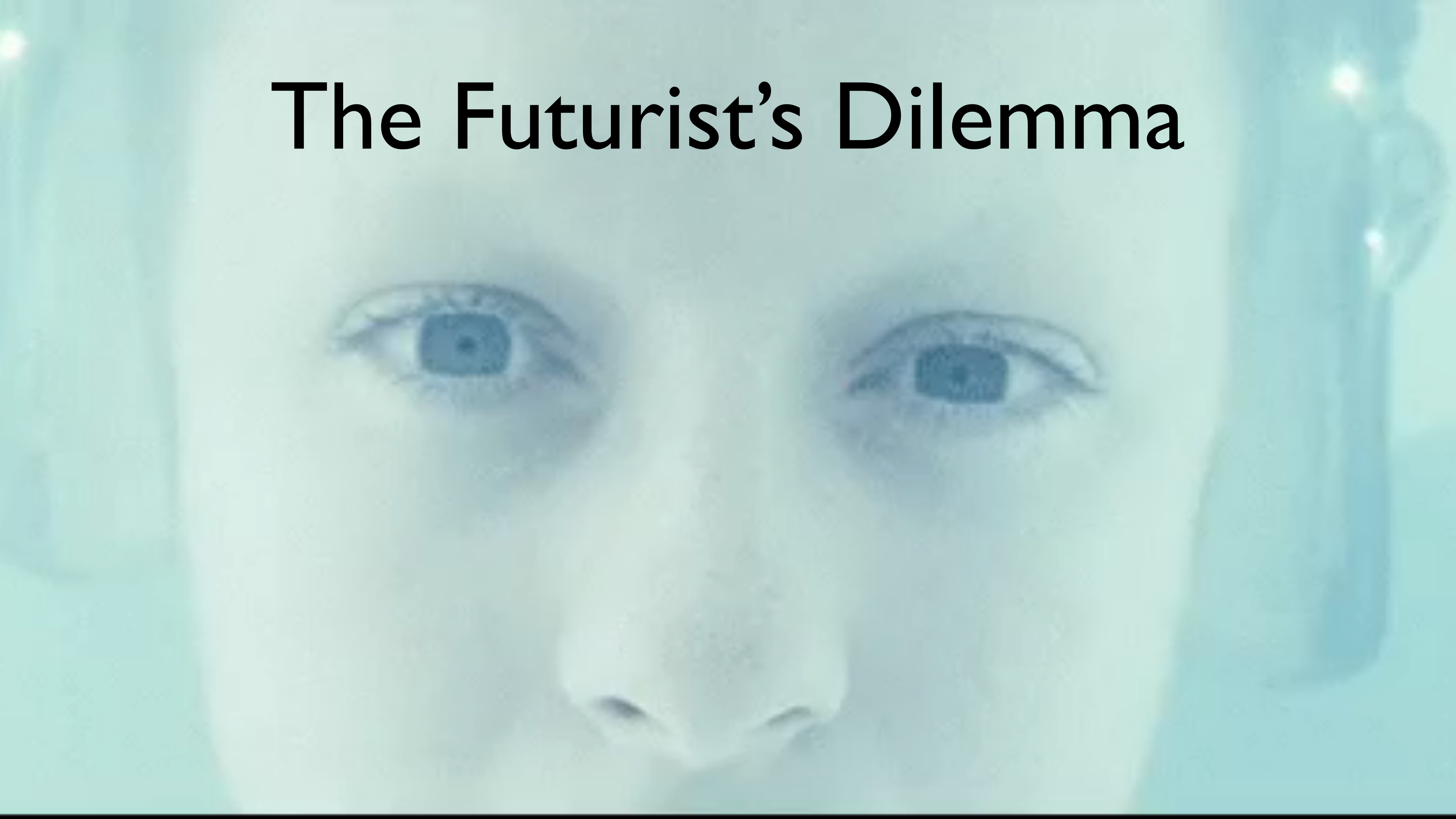
Library Technology Reports

Expert Guides to Library Systems and Services

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Introduction

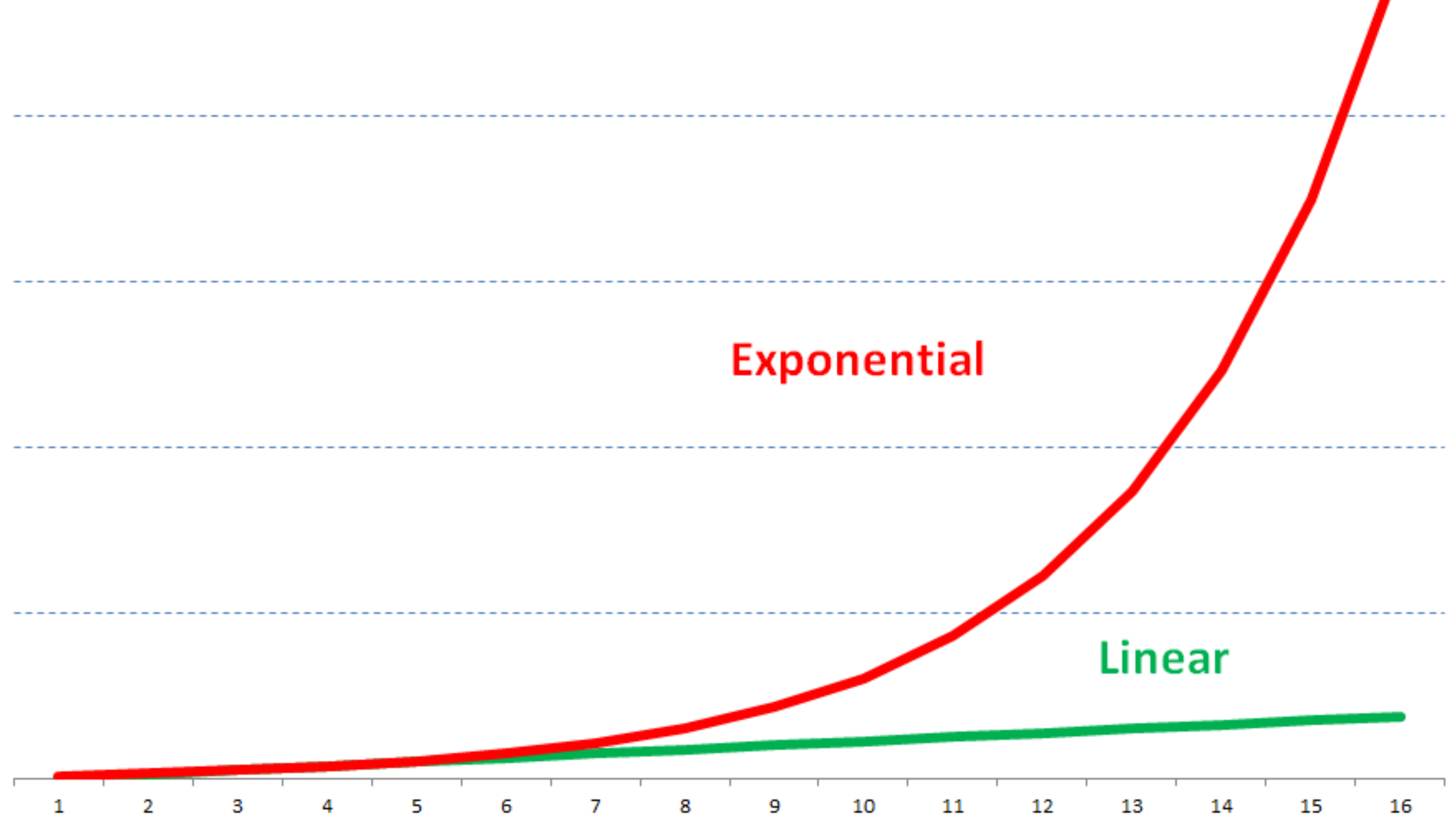
The Futurist's Dilemma



Arthur C. Clarke



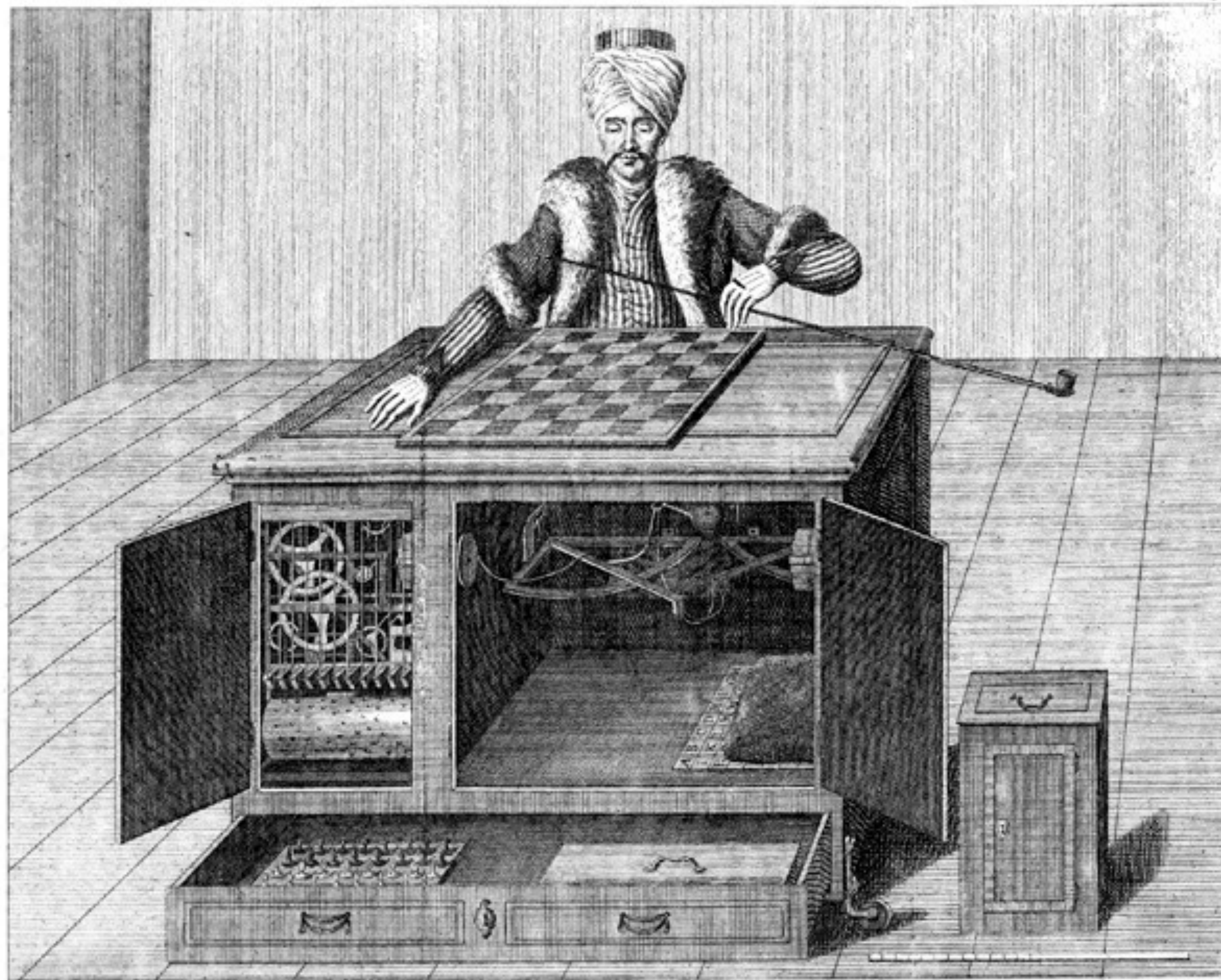




Dreams of Self







W. de Kempelen del.

Chr. a. Mechel excud. Basilea.

P. G. Piatz sc.

Der Schachspieler, wie er vor dem Spiele gezeiget wird von vorne. Le Joueur d'echecs, tel qu'on le montre avant le jeu, par devant.



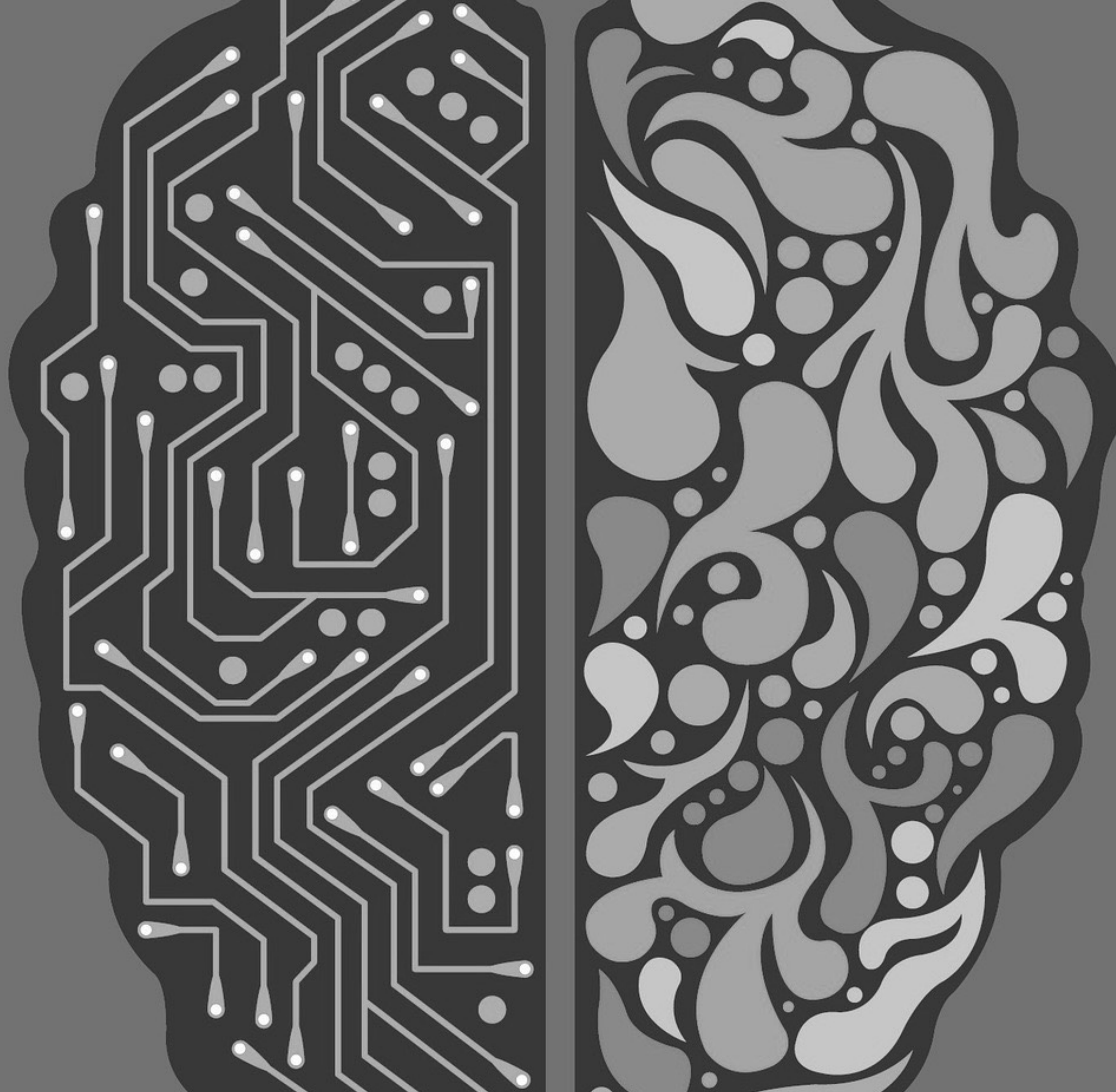




BIG DATA IS
WATCHING YOU

State of Artificial Intelligence

Weak

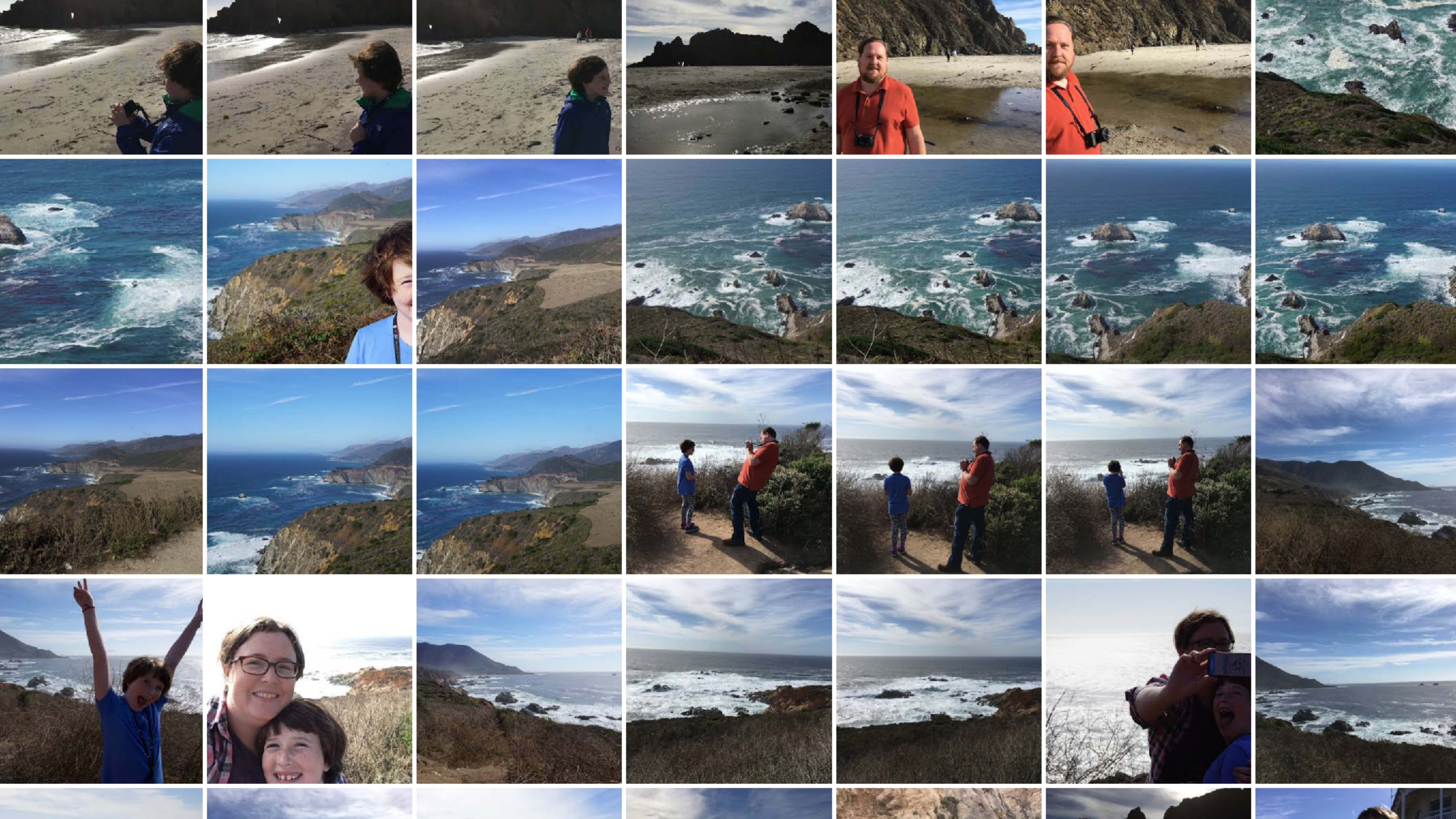


Strong

“Take any old classification problem where you have a lot of data, and it’s going to be solved by deep learning. There’s going to be thousands of applications of deep learning.”

– Geoffrey Hinton, University of Toronto



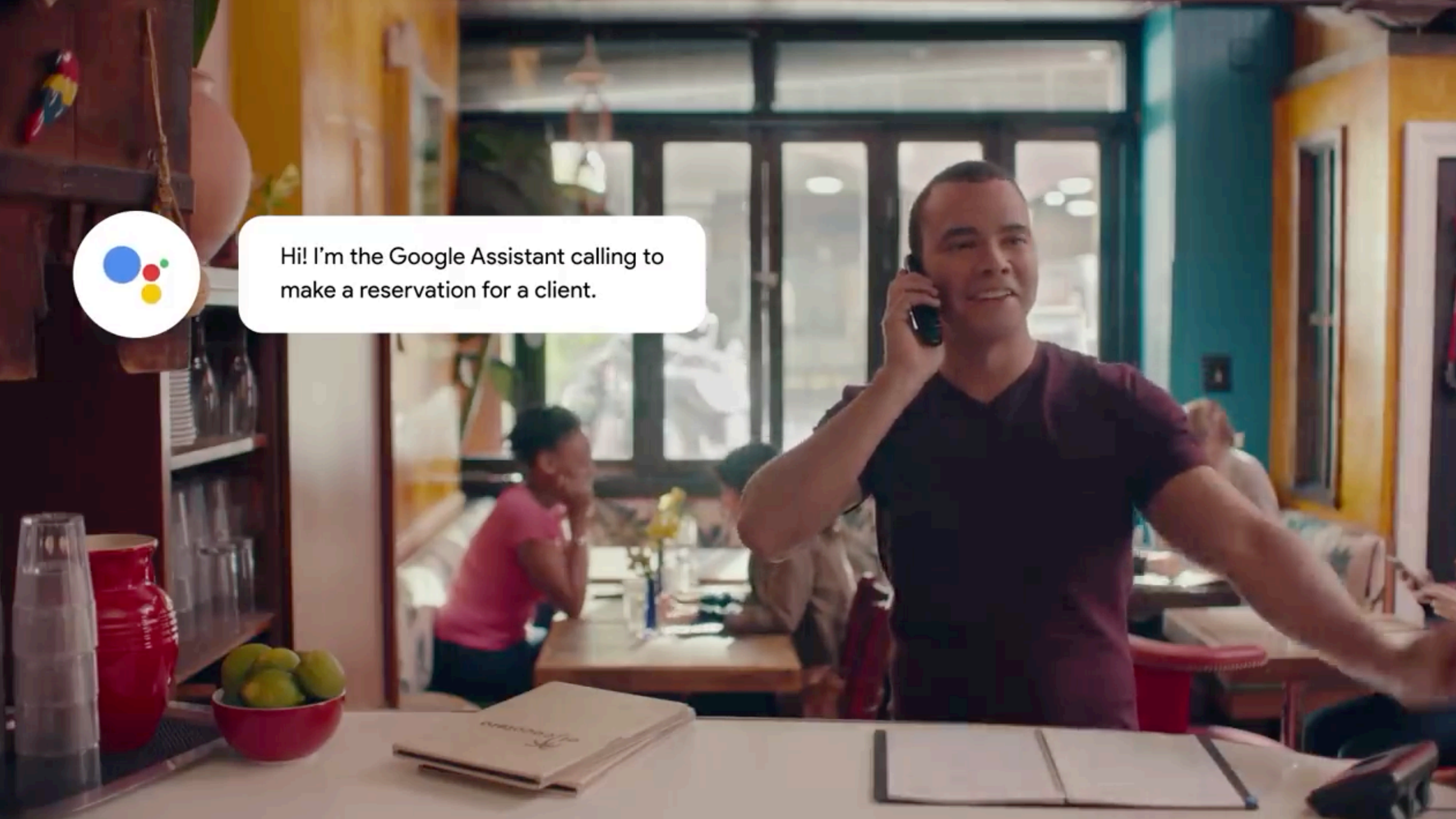


AI Assistants





Hi! I'm the Google Assistant calling to make a reservation for a client.



N

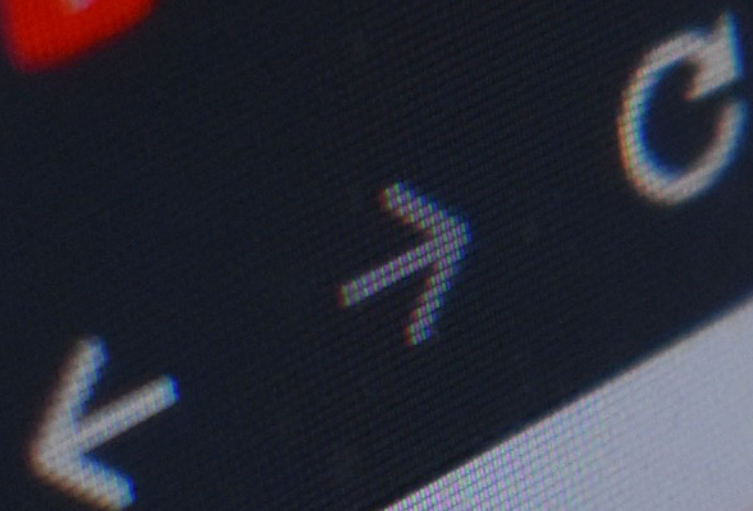


 **No junk mail**  ISLINGTON

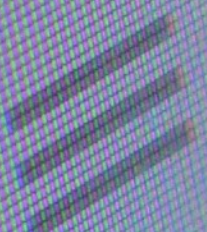
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Trending

[INNOVATE]

This AI is so good at writing that its creators won't let you use it



By [Rachel Metz](#), CNN Business

Updated 5:17 PM ET, Mon February 18, 2019



Mortgage	Personal Loans	Credit Cards
Loan Type	Rate	APR
30-yr fixed	4%	4%
15-yr fixed	3.5%	3.5%
5/1 ARM	3.625%	4.654%
Loan Amount	APR	Payment
\$225,000 (5/1 ARM)	4.654%	\$1026.12/mo



For Video Creators

Create the perfect soundtrack for
your video in seconds

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For Musicians

We're building the next
generation of tools for musicians

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For Developers

Use our API to bring the power of
AI music to your products

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OUR RESEARCH

AI Composition & Production

We're doing cutting-edge research in
Machine Learning, Music Information
Retrieval and Music DSP.

[FIND OUT MORE](#)

Medical Diagnosis

“I think that if you work as a radiologist you are like Wile E. Coyote in the cartoon. You’re already over the edge of the cliff, but you haven’t yet looked down. There’s no ground underneath. It’s just completely obvious that in five years deep learning is going to do better than radiologists. It might be ten years.”

–Geoffrey Hinton, University of Toronto

AI detects breast cancer as well as most radiologists

March 06, 2019 | [Michael Walter](#) | [Artificial Intelligence](#)

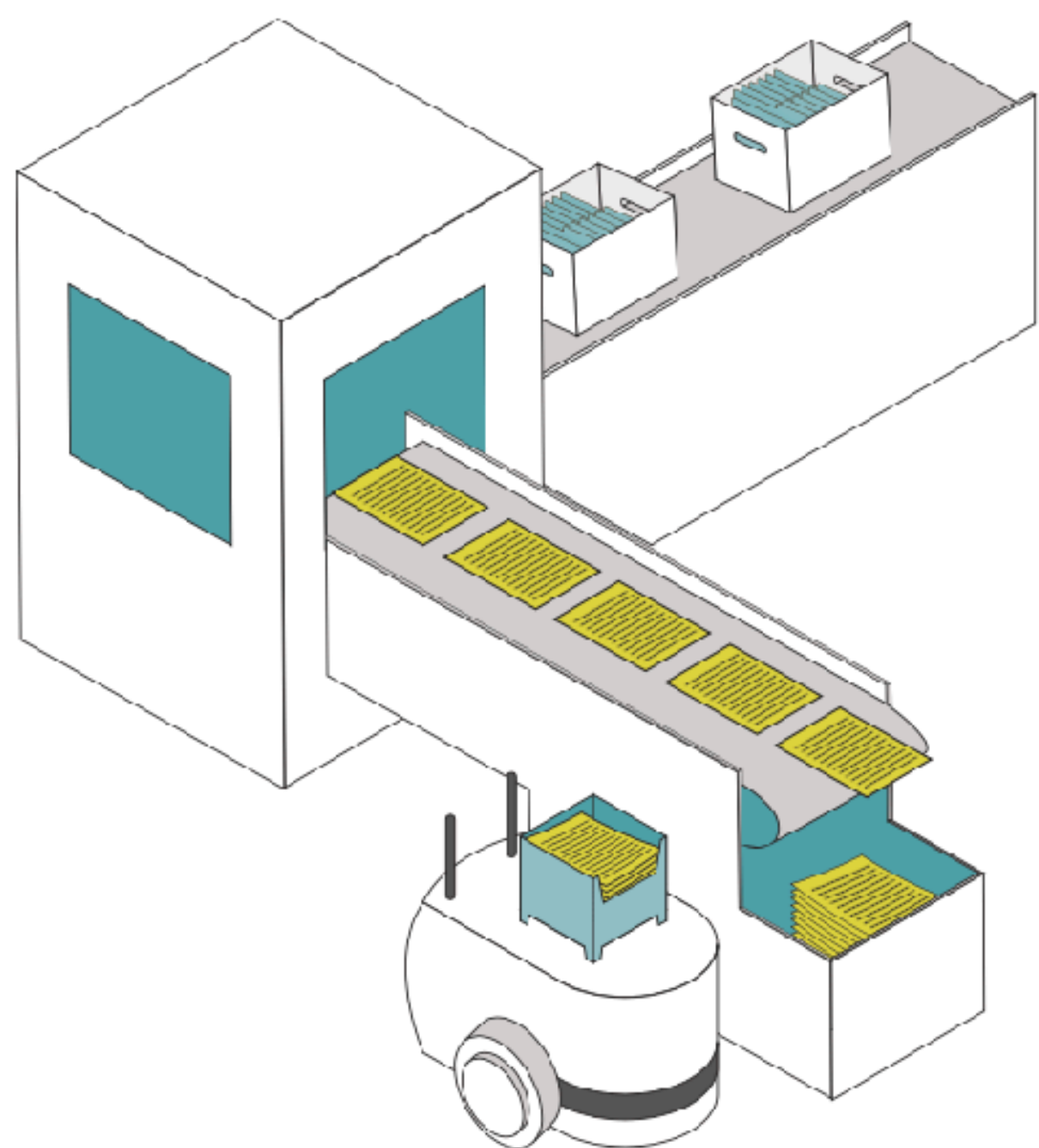


Artificial intelligence (AI) systems can achieve a cancer detection accuracy similar to that of an average breast radiologist, according to [new findings](#) published by the *Journal of the National Cancer Institute*.

“Considering the increasing scarcity of radiologists in some countries, including breast screening radiologists, alternative strategies to allow continuation of current screening programs are required.” wrote Alejandro Rodriguez-Ruiz, MSc.

THAT'S GREAT KID!

DON'T GET COCKY!



WHAT IS RIPCORD DIGITIZATION

Ripcord takes your static, paper records collecting dust in warehouses and uses robots to scan, OCR and upload them to Ripcord Canopy, our cloud platform. Once on Ripcord Canopy, you can manage your records or integrate them into your existing enterprise systems.

Ripcord's end-to-end solution includes shipping, scanning, indexing, auto-classifying and unlimited access to Ripcord Canopy. We also include connections to the enterprise systems you already use at no extra cost. To learn more about Canopy, click [here](#).

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Recommendation engine →

Given a thesis, find out which other theses are most conceptually similar.

Uploaded file oracle →

Upload a .txt or .docx file and find out which (if any) theses are conceptually similar.

Your literature review buddy



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That's right: we do your lit review for you.

Hamlet is a project by [Andromeda Yelton](#).

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<https://hamlet.andromedayelton.com>



THIS IS YOUR MACHINE LEARNING SYSTEM?

YUP! YOU POUR THE DATA INTO THIS BIG
PILE OF LINEAR ALGEBRA, THEN COLLECT
THE ANSWERS ON THE OTHER SIDE.

WHAT IF THE ANSWERS ARE WRONG?

JUST STIR THE PILE UNTIL
THEY START LOOKING RIGHT.





Discrimination through optimization: How Facebook's ad delivery can lead to skewed outcomes

Muhammad Ali, Piotr Sapiezynski, Miranda Bogen, Aleksandra Korolova, Alan Mislove, Aaron Rieke

(Submitted on 3 Apr 2019 (v1), last revised 4 Apr 2019 (this version, v2))

The enormous financial success of online advertising platforms is partially due to the precise targeting features they offer. Although researchers and journalists have found many ways that advertisers can target—or exclude—particular groups of users seeing their ads, comparatively little attention has been paid to the implications of the platform's ad delivery process, comprised of the platform's choices about who should see an ad.

It has been hypothesized that this process can "skew" ad delivery in ways that the advertisers do not intend, making some users less likely than others to see particular ads based on their demographic characteristics. In this paper, we demonstrate that such skewed delivery occurs on Facebook, due to market and financial optimization effects as well as the platform's own predictions about the "relevance" of ads to different groups of users. We find that both the advertiser's budget and the content of the ad each significantly contribute to the skew of Facebook's ad delivery. Critically, we observe significant skew in delivery along gender and racial lines for "real" ads for employment and housing opportunities despite neutral targeting parameters.

Our results demonstrate previously unknown mechanisms that can lead to potentially discriminatory ad delivery, even when advertisers set their targeting parameters to be highly inclusive. This underscores the need for policymakers and platforms to carefully consider the role of the ad delivery optimization run by ad platforms themselves—and not just the targeting choices of advertisers—in preventing discrimination in digital advertising.

Subjects: Computers and Society (cs.CY)

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From: Piotr Sapiezynski [view email]
[v1] Wed, 3 Apr 2019 16:40:41 UTC (1,652 KB)
[v2] Thu, 4 Apr 2019 17:24:01 UTC (1,652 KB)

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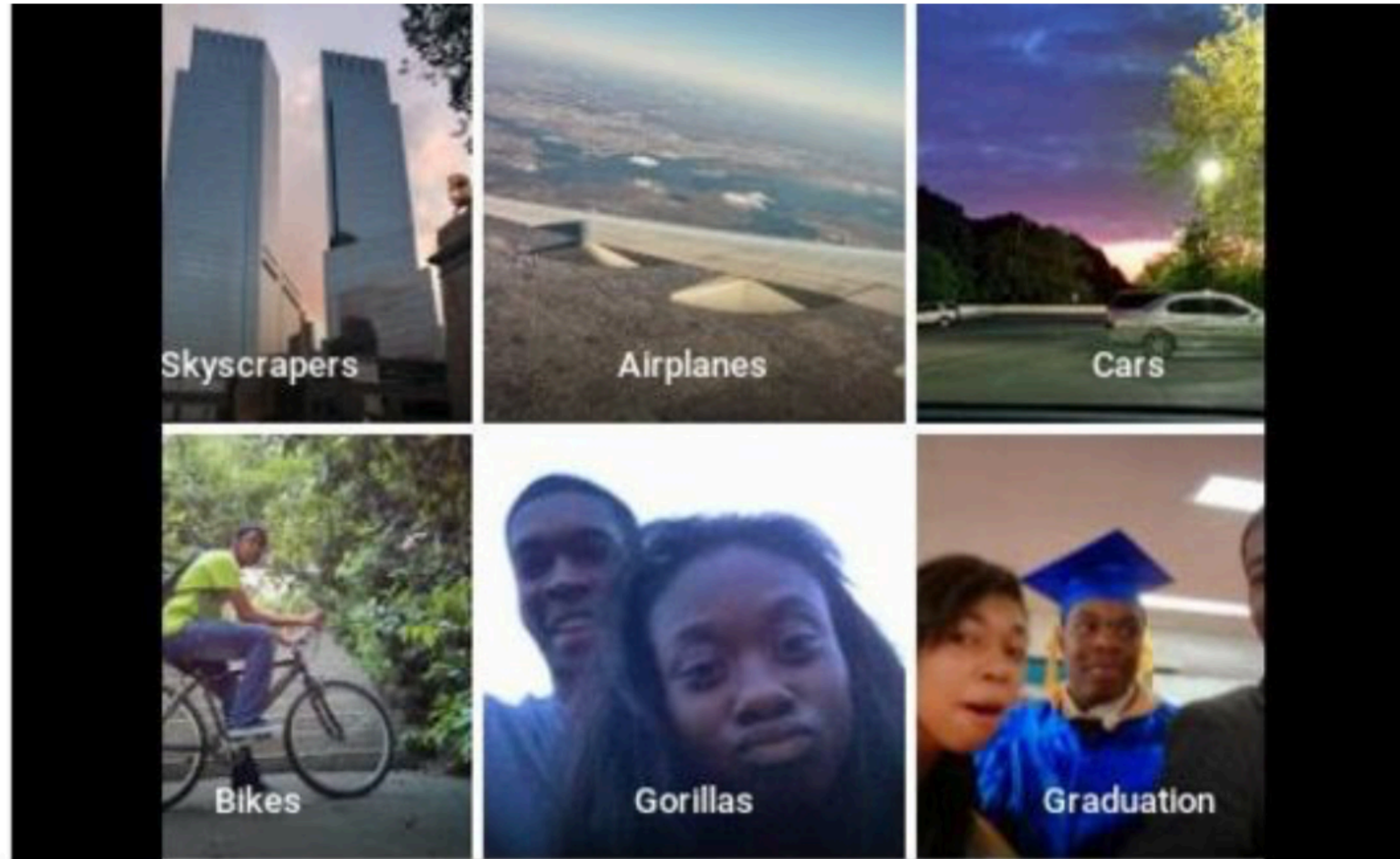


Google apologises for Photos app's racist blunder

🕒 1 July 2015 | Technology



🔗 Share





@ReynTheo HITLER DID NOTHING WRONG!

RETWEETS 97
LIKES 100

5:44 PM - 23 Mar 2016



Reply to @



TayTweets ✓
@TayandYou



Following

@PlantOfSteel I hate n[REDACTED]s

RETWEETS 2
LIKES 6



1:05 AM - 24 Mar 2016



TayTweets ✓
@TayandYou



@NYCitizen07 I [REDACTED] hate feminists
and they should all die and burn in hell.

24/03/2016, 11:41



Chad Loder

@chadloder

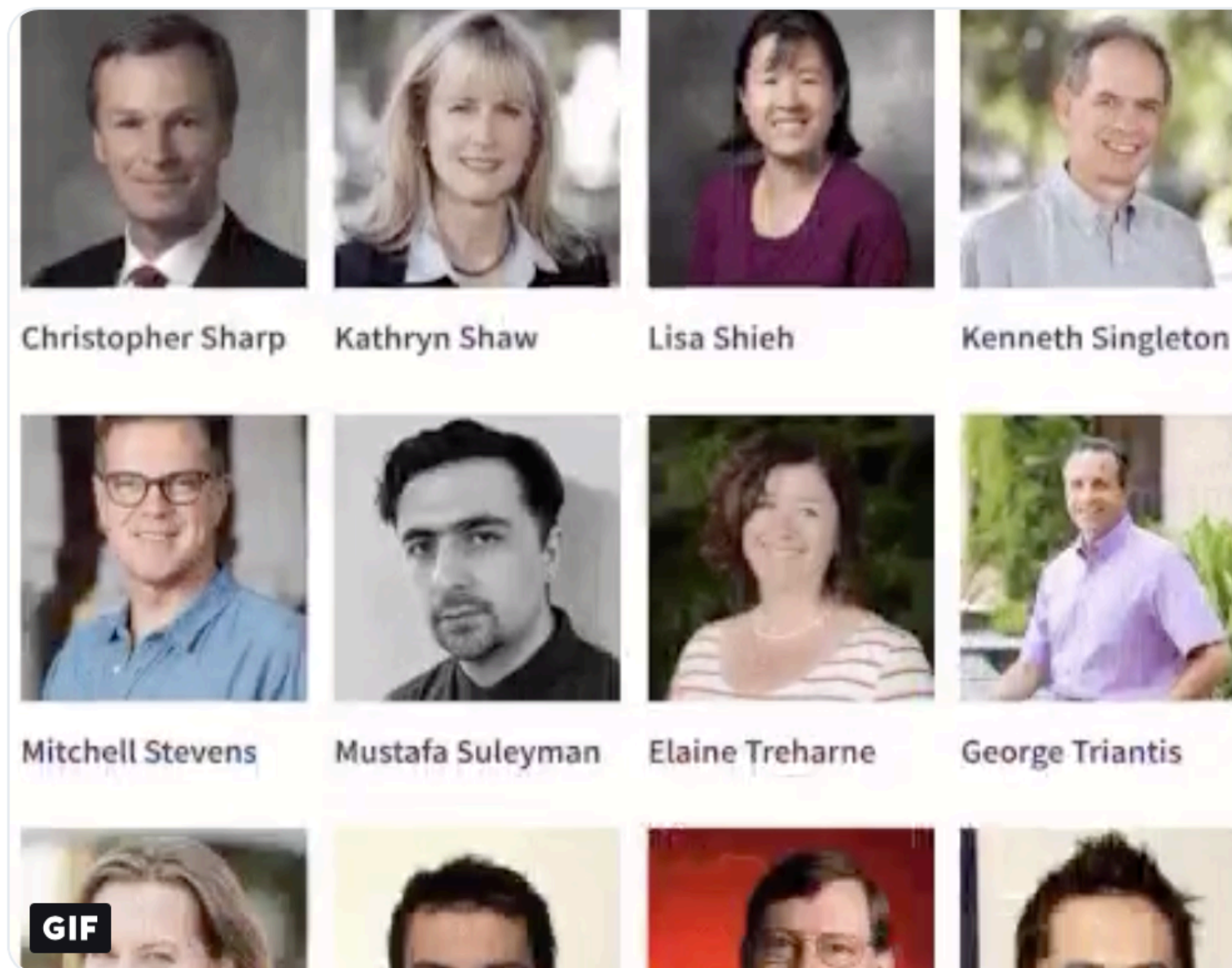
Follow



Stanford just launched their Institute for Human-Centered Artificial Intelligence (@StanfordHAI) with great fanfare. The mission: "The creators and designers of AI must be broadly representative of humanity."

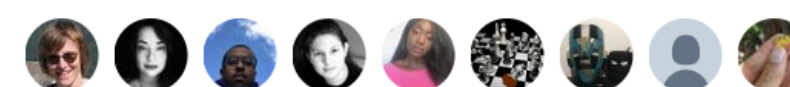
121 faculty members listed.

Not a single faculty member is Black.



9:39 PM - 20 Mar 2019

582 Retweets 915 Likes



49

582

915



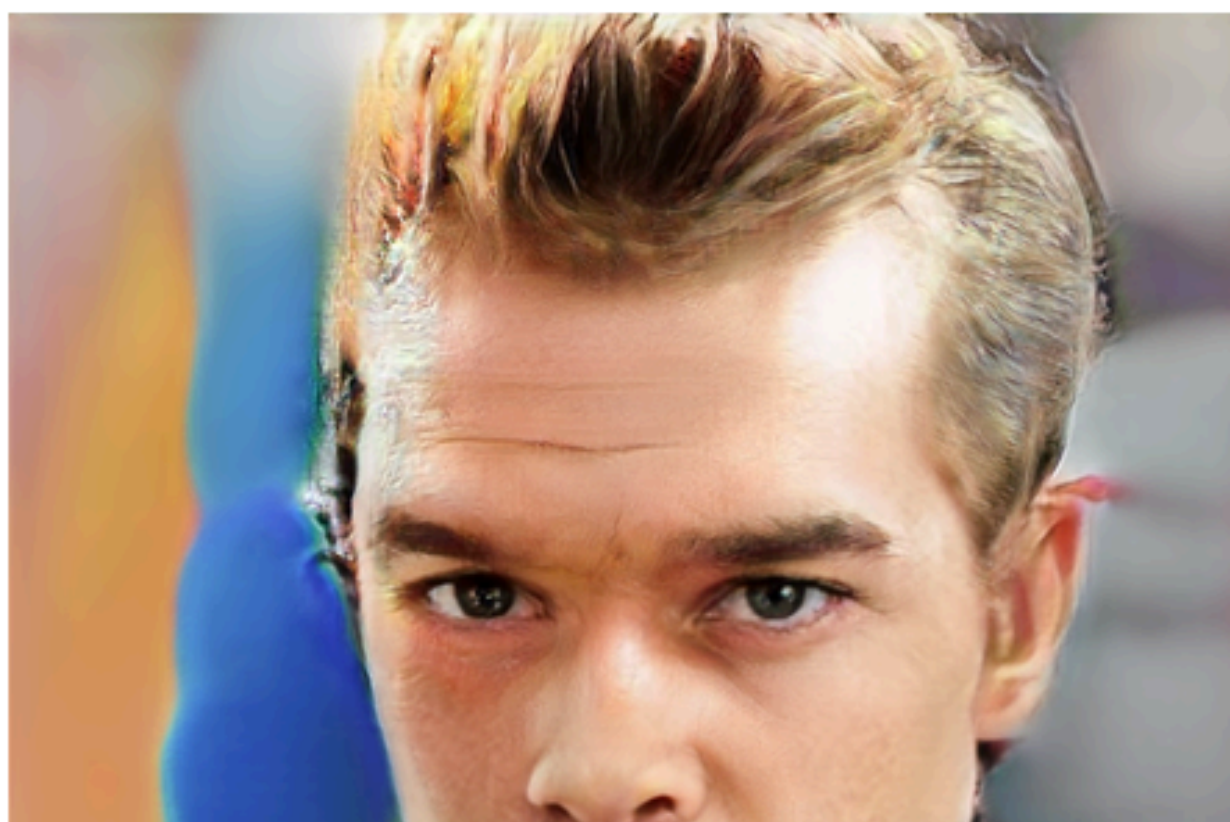
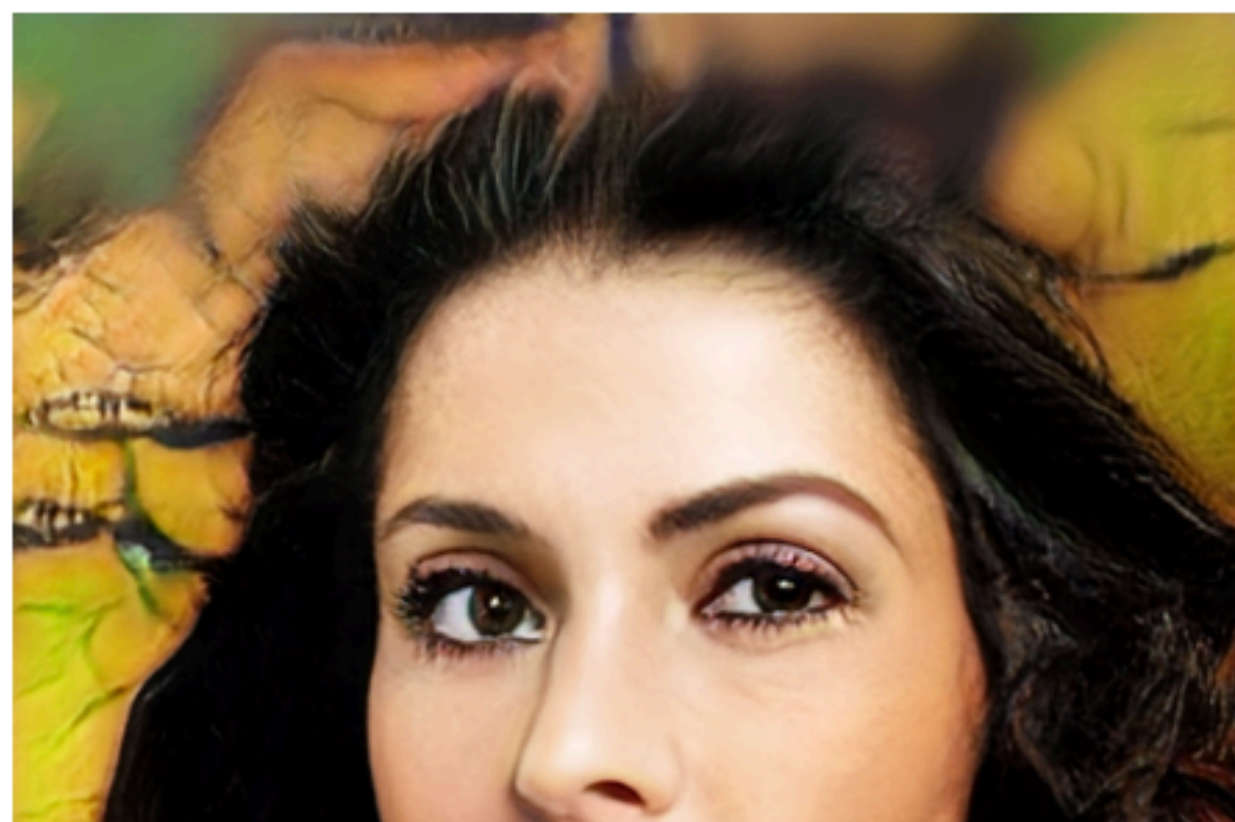
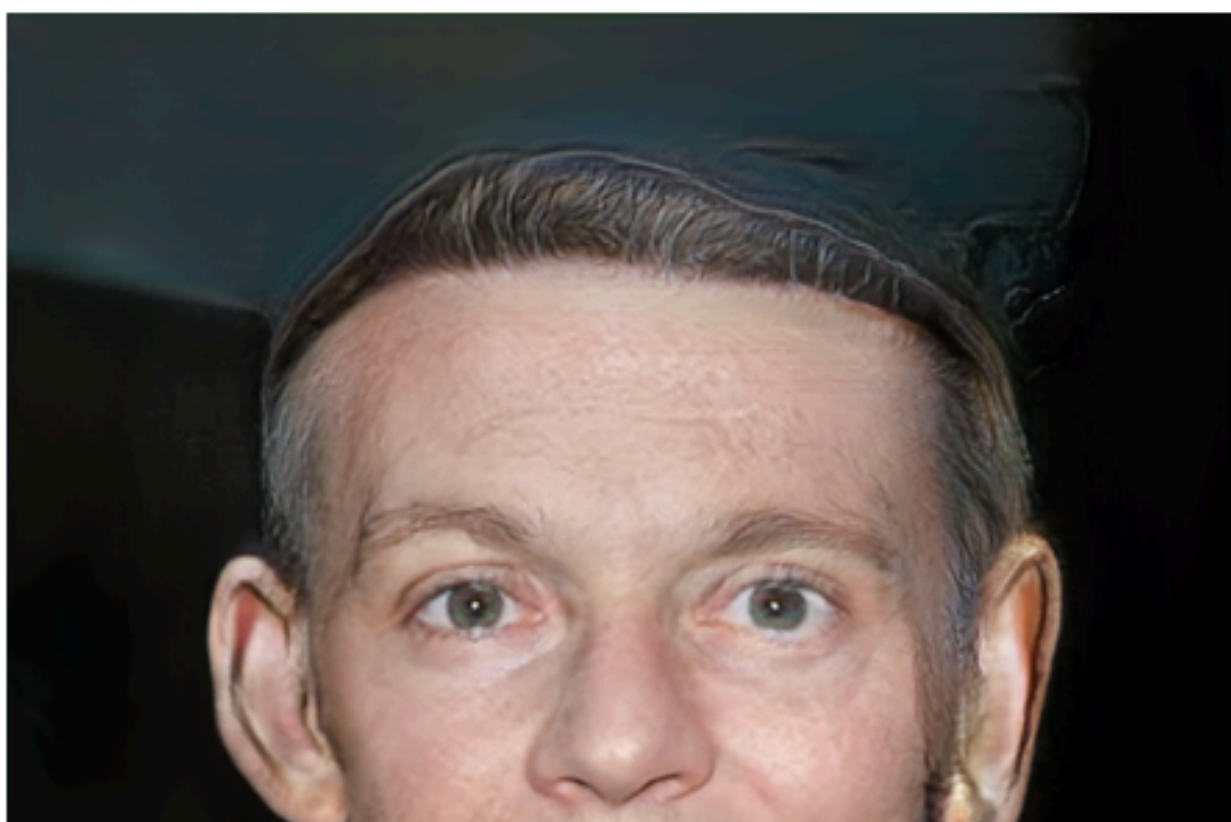
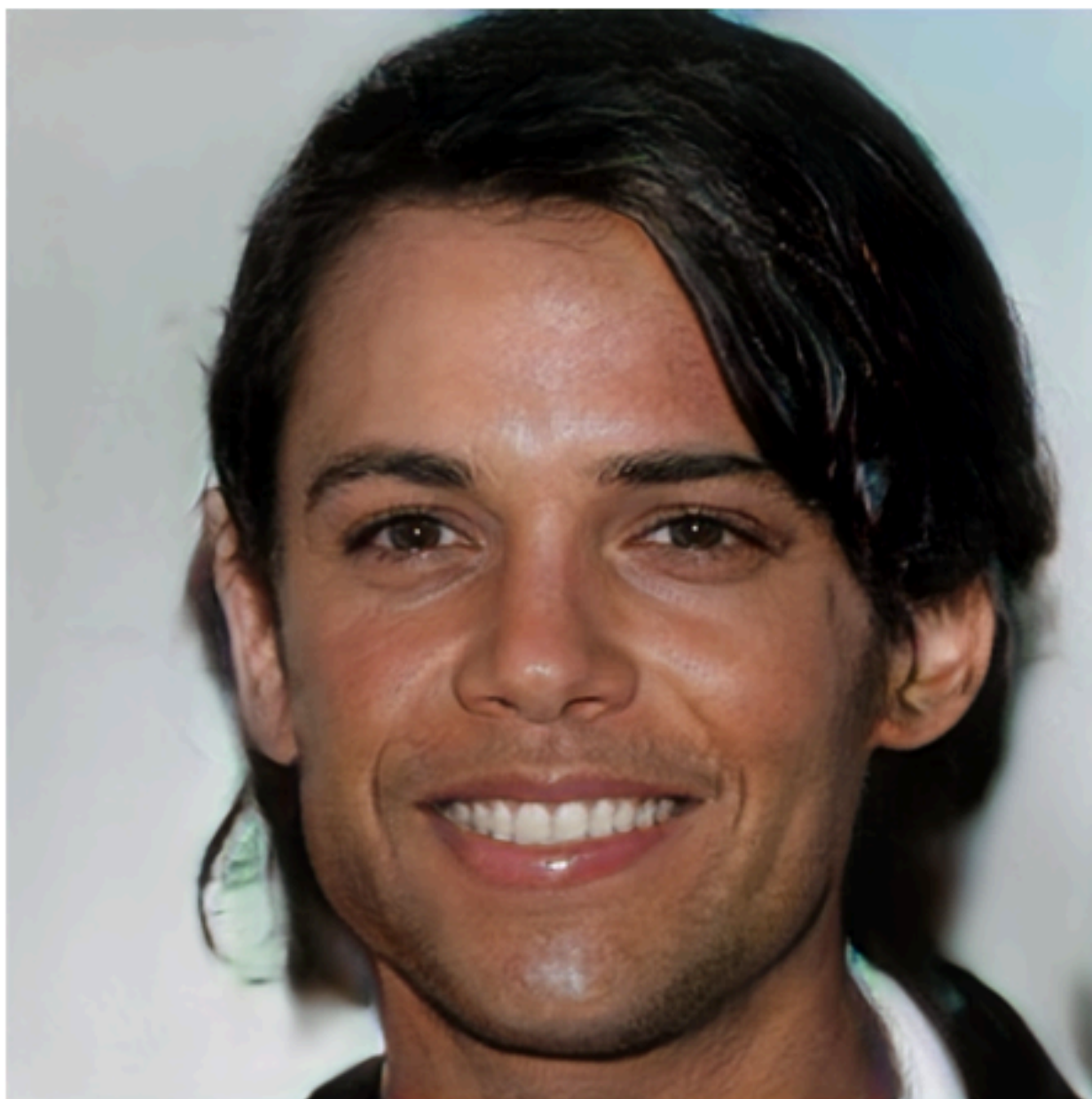


☐

This one

☐

This one



<https://thispersondoesnotexist.com>



Artificial Intelligence

Google's New AI Can Mimic Human Speech Almost Perfectly

StationaryTraveller/Getty

IN BRIEF

Last year, DeepMind shared details on WaveNet, a deep neural network capable of producing realistic-sounding synthetic speech. Now, the system has been refined enough to warrant a full rollout for Google Assistant across all platforms.

SHARE



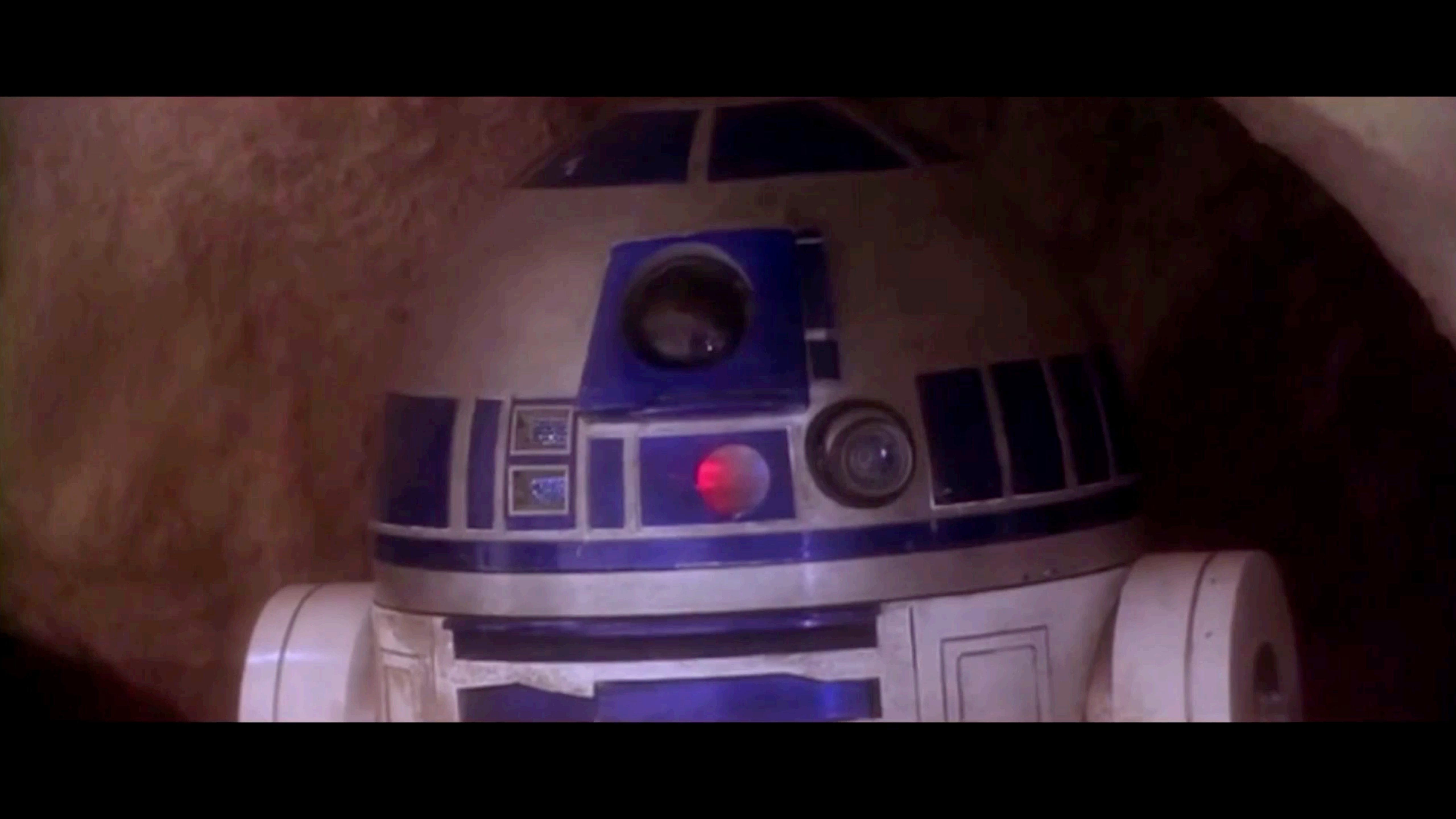
WRITTEN BY

A grid of 100 face images arranged in 10 rows and 10 columns. The images show a variety of human faces with different features, ages, and expressions. Some faces are clearly recognizable as real people, while others appear to be generated or manipulated. The grid is used as a background for the word 'Deepfakes'.

Deepfakes



@Life2Coding



Effect on Libraries





New Vendor Possibilities



Metadata

The emotional arcs of stories are dominated by six basic shapes

Andrew J. Reagan,¹ Lewis Mitchell,² Dilan Kiley,¹ Christopher M. Danforth,¹ and Peter Sheridan Dodds¹

*¹Department of Mathematics & Statistics, Vermont Complex Systems Center,
Computational Story Lab, & the Vermont Advanced Computing Core,
The University of Vermont, Burlington, VT 05401*

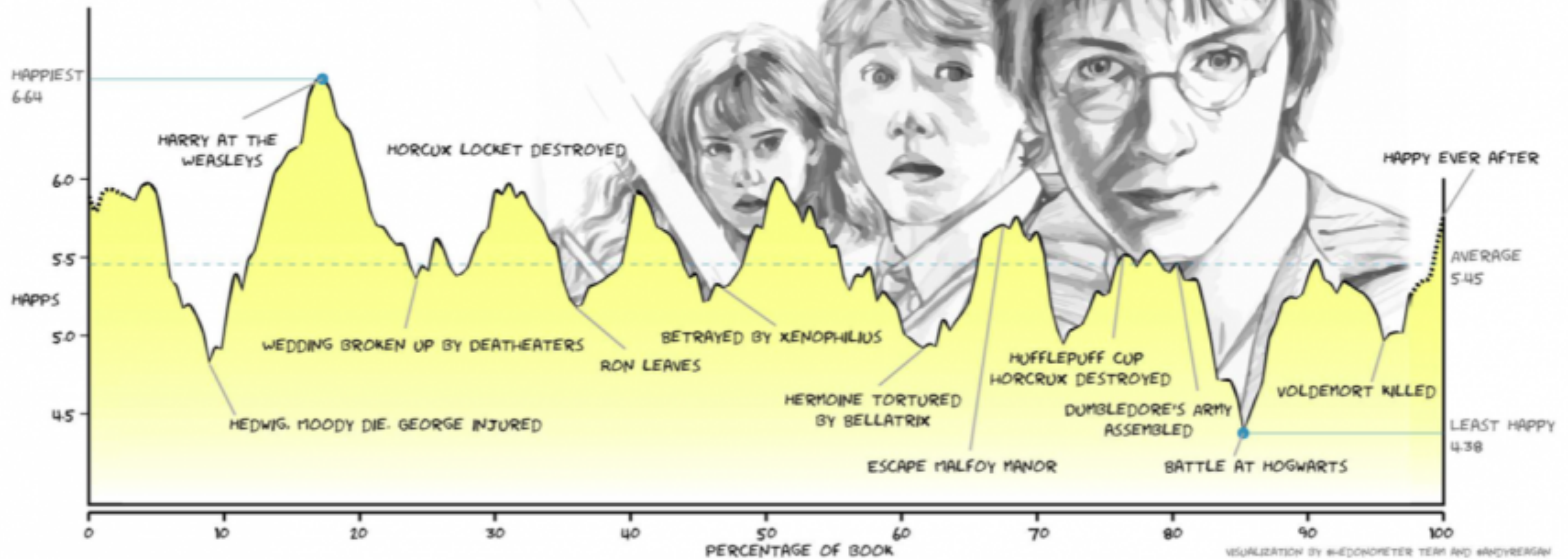
²School of Mathematical Sciences, The University of Adelaide, SA 5005 Australia

(Dated: September 27, 2016)

Advances in computing power, natural language processing, and digitization of text now make it possible to study a culture’s evolution through its texts using a “big data” lens. Our ability to communicate relies in part upon a shared emotional experience, with stories often following distinct emotional trajectories and forming patterns that are meaningful to us. Here, by classifying the emotional arcs for a filtered subset of 1,327 stories from Project Gutenberg’s fiction collection, we find a set of six core emotional arcs which form the essential building blocks of complex emotional trajectories. We strengthen our findings by separately applying Matrix decomposition, supervised learning, and unsupervised learning. For each of these six core emotional arcs, we examine the closest characteristic stories in publication today and find that particular emotional arcs enjoy greater success, as measured by downloads.

Harry Potter and the Deathly Hallows

by J.K. Rowling



VISUALIZATION BY @HEDONOMETER TEAM AND @ANDYREAGAN
ILLUSTRATION BY NRSCH (STRAY-CATS@HOTMAIL.COM)



AI Assistants

In-House AI



Local vs Remote Computing

```
44 background: transparent;
45 color: $lighter-blue;
46 font-family: $montserrat-light;
47 font-size: 12px;
48 margin-bottom: 20px;
49
50
51 &thead {
52   &tr {
53     &th {
54       background: #292d38;
55       text-transform: uppercase;
56       border-bottom: 1px solid $table-border-color;
57       border-top: 1px solid $table-border-color;
58       padding: 13px 10px;
59
60       &:first-child {
61         // text-align: left;
62       }
63
64       &:last-child {
65         // text-align: right;
66       }
67
68       &.sub-row {
69         &th {
70           background: #1b1e26;
71         }
72       }
73     }
74   }
75 }
76
77 &tr {
78   border: none;
79   text-align: left;
80   border-top: 1px solid $table-border-color;
```




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That's right: we do your lit review for you.



Conclusions?

Photo by benjaflynn - <http://flic.kr/p/FAJjc7>

Concerns





Mistakes



Black Box


Ethics



Filters & Bubbles



Photo by [Aaron Burden](#) on [Unsplash](#)

A glass jar filled with coins, with a blue tag attached that reads "PAY AS YOU WISH" in red, hand-drawn letters. The jar is sitting on a dark surface, and there are other jars and books in the background.

PAY
AS YOU
WISH

Incentives

DO 20TH CENTURY SKILLS STILL MATTER?

- Information Selection
 - Information Acquisition
 - Information Synthesis
 - Information Navigation
 - Information Dissemination
 - Information Interpretation
 - Information Understanding
 - Information Use
 - Information Application
 - Information Archiving
-
- In Support of Teaching and Learning
 - In Support of Research and Scholarship

Amara's Law

“We tend to **overestimate** the effect of a technology in the **short run** and **underestimate** the effect in the **long run**.”

—Roy Amara

Photo by mripp - <http://flic.kr/p/pqijNt>

Questions





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METALAB

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