

MECHANICAL LICENSES FOR MECHANICAL LEARNERS?

SAVING ARTIFICIAL INTELLIGENCE FROM A FAIR USE CRISIS

WHAT IS MACHINE LEARNING?

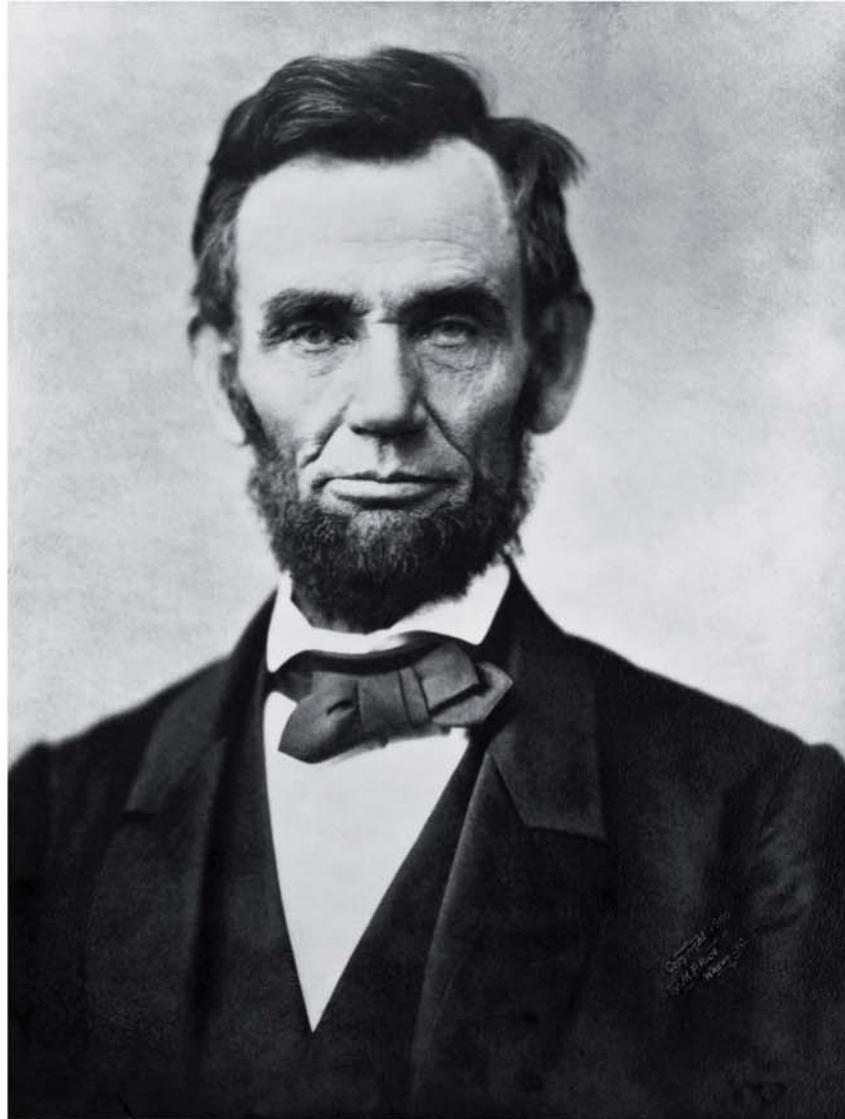
Machine learning studies computer algorithms for learning to do stuff. ... The learning that is being done is **always based on some sort of observations or data**, such as examples..., direct experience, or instruction.

–Rob Schapire

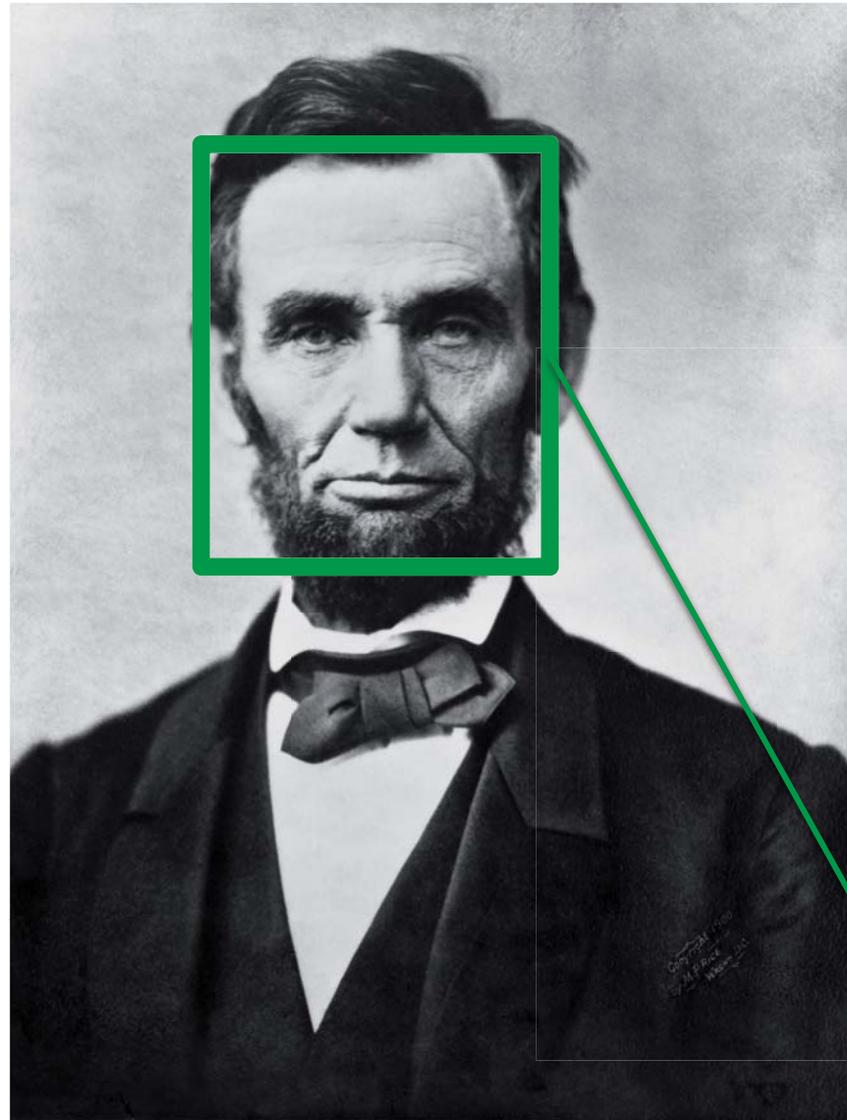
Princeton University, COS 511: Theoretical Machine Learning, February 4, 2008

FACTS IN, FACTS OUT

EXPRESSION IN, FACTS OUT



EXPRESSION IN, FACTS OUT



Name: Abraham
Lincoln
DOB: 12/2/1809
Address: 1600
Pennsylvania
Ave. ...

EXPRESSION IN, EXPRESSION OUT?

Google's AI engine is reading 2,865 romance novels to be more conversational

Unconditional Love, Ignited, Fatal Desire, and Jacked Up are in one bot's library

by [Lindsey J. Smith](#) | May 5, 2016, 3:14pm EDT

The ultimate goal of this exercise isn't for the Google app to start getting fresh with users. Dai and his team simply hope that the AI engine will become more conversational, thus providing a better user experience. The same system could be used to improve Google Inbox's "Smart Reply" feature.



Google Feeds Its AI Engine Formulaic Romance Novels To Improve Emotional Intelligence • 1:54

NEARY: Google's researchers say that because romance plots are often formulaic, the engine can compare sentences across novels in order to learn several different ways of expressing the same idea. "Fatal Desire" is another work that Google's researchers are using to make their Artificial Intelligence more intelligent.

FAIR USE FACTORS

(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;

(2) the nature of the copyrighted work;

(3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and

(4) the effect of the use upon the potential market for or value of the copyrighted work.

17 U.S.C. §107

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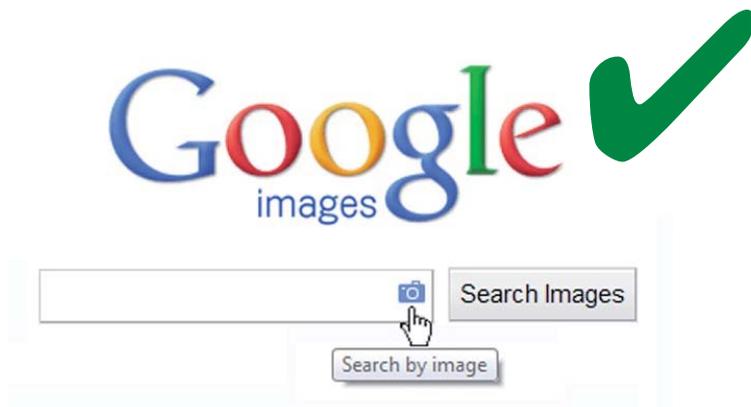
17 U.S.C. §107

FACTOR 1

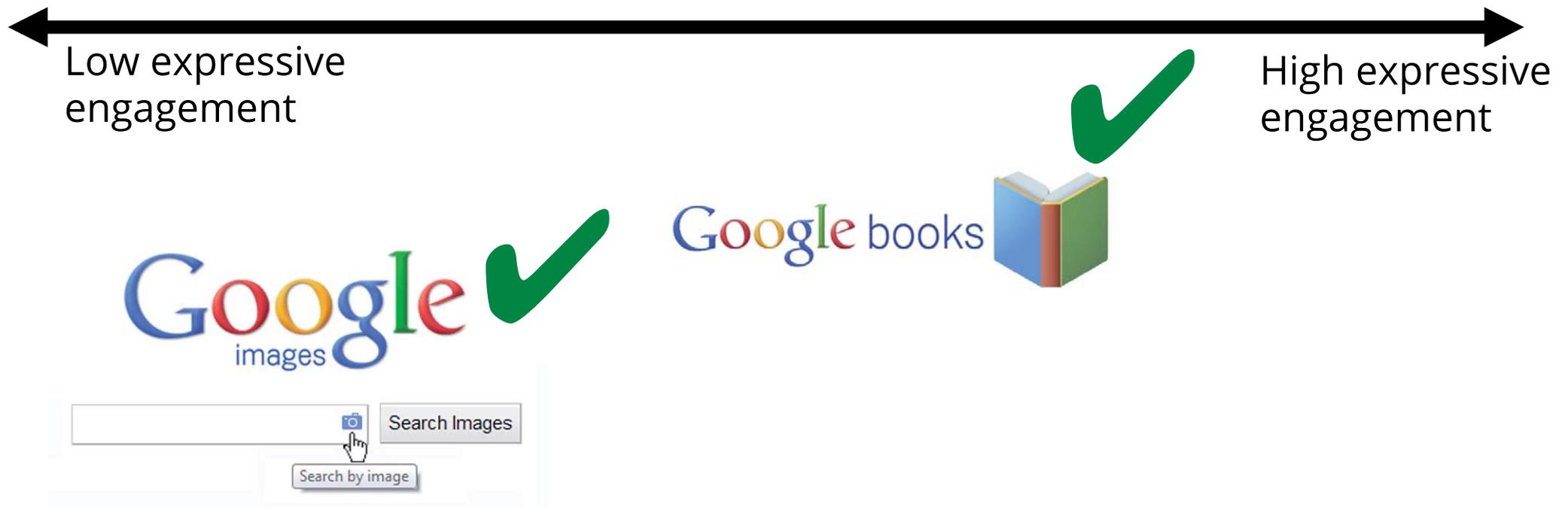
VERBATIM COPYING AND EXPRESSIVE ENGAGEMENT



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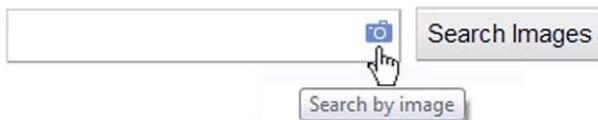
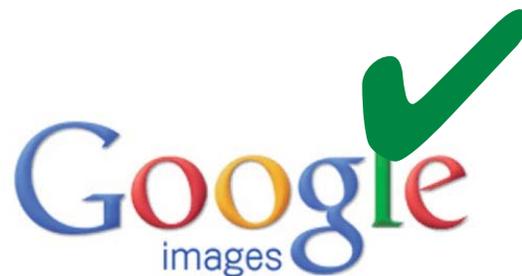


VERBATIM COPYING AND EXPRESSIVE ENGAGEMENT



VERBATIM COPYING AND EXPRESSIVE ENGAGEMENT

Non-expressive uses?

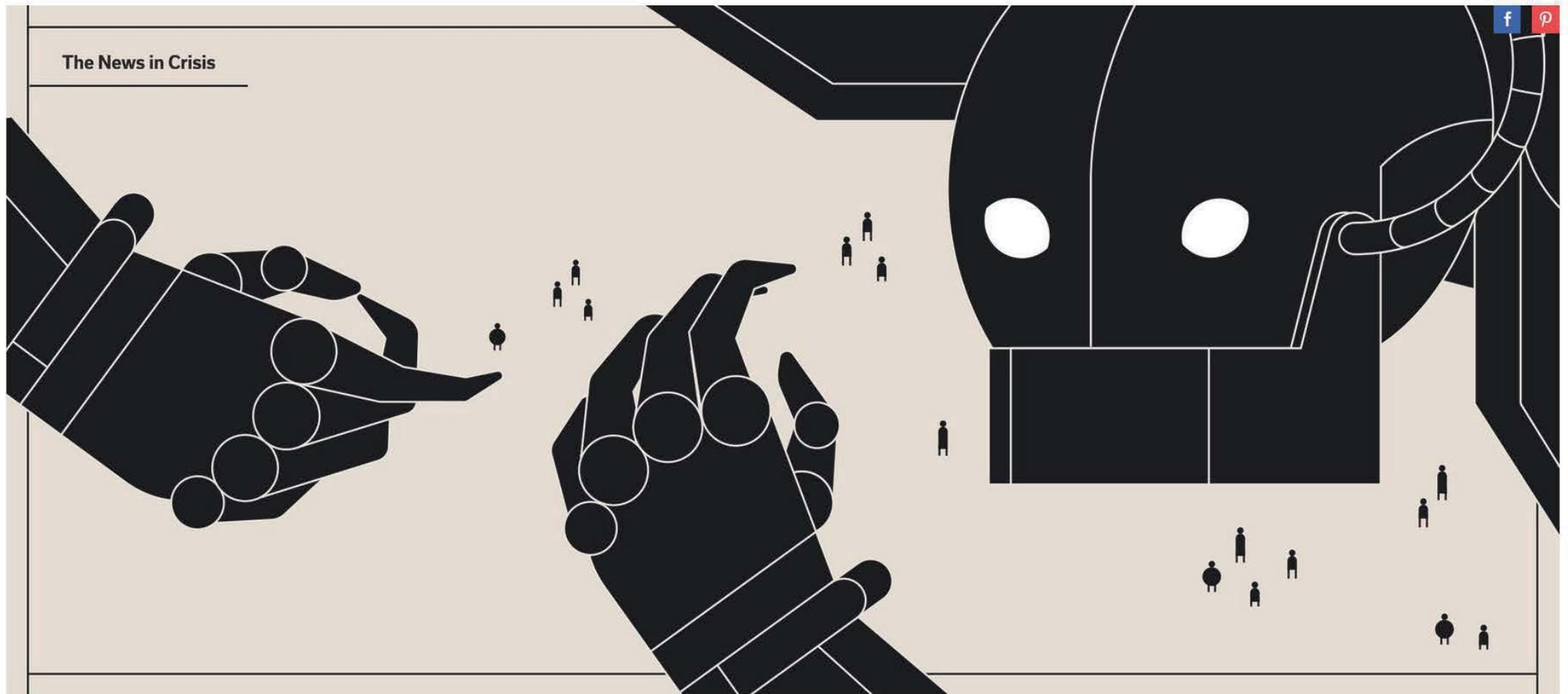


High expressive engagement

Stephen Dan on Flickr:
<https://www.flickr.com/photos/stephendann/47968266/>, licensed under CC-BY-SA₁₇

FACTOR 4

WHAT NEWS-WRITING BOTS MEAN FOR THE FUTURE OF JOURNALISM



MUSIC

From Jingles to Pop Hits, A.I. Is Music to Some Ears

By ALEX MARSHALL JAN. 22, 2017



RELATED COVE



Ed Newton-Rex, left, and Patrick Stobbs founded Jukedeck, one of a growing number of companies using artificial intelligence to compose music. [Andrew Testa for The New York Times](https://www.nytimes.com/2016/11/27/technology/artificial-intelligence-pioneer-jurgen-schmidhuber-overlooked.html)
[om/2016/11/27/technology/artificial-intelligence-pioneer-jurgen-schmidhuber-overlooked.html](https://www.nytimes.com/2016/11/27/technology/artificial-intelligence-pioneer-jurgen-schmidhuber-overlooked.html)

A FAIR USE CRISIS?

FAIR USE IS CHANGING

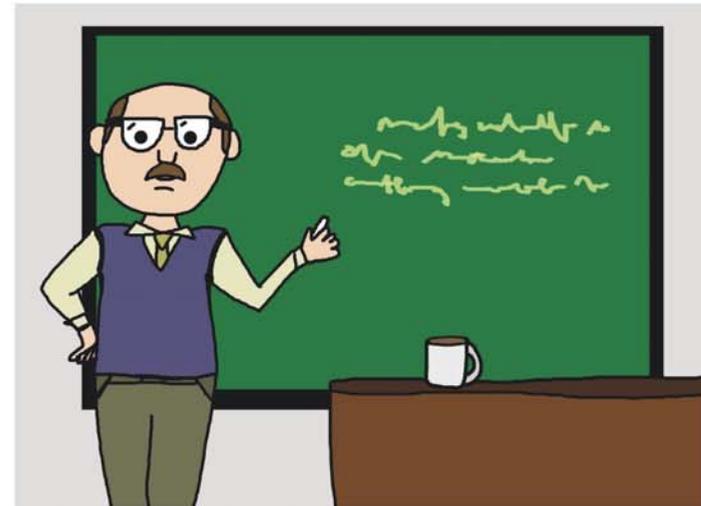
[T]he fair use of a copyrighted work...for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright.

17 U.S.C. §107

Rightsholders



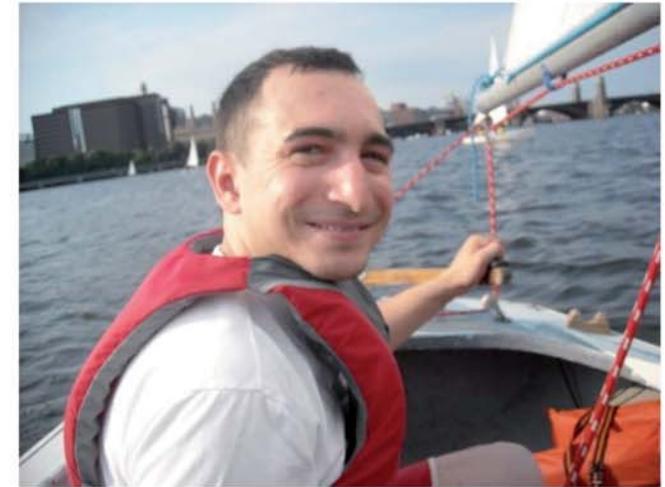
Users



Rightsholders

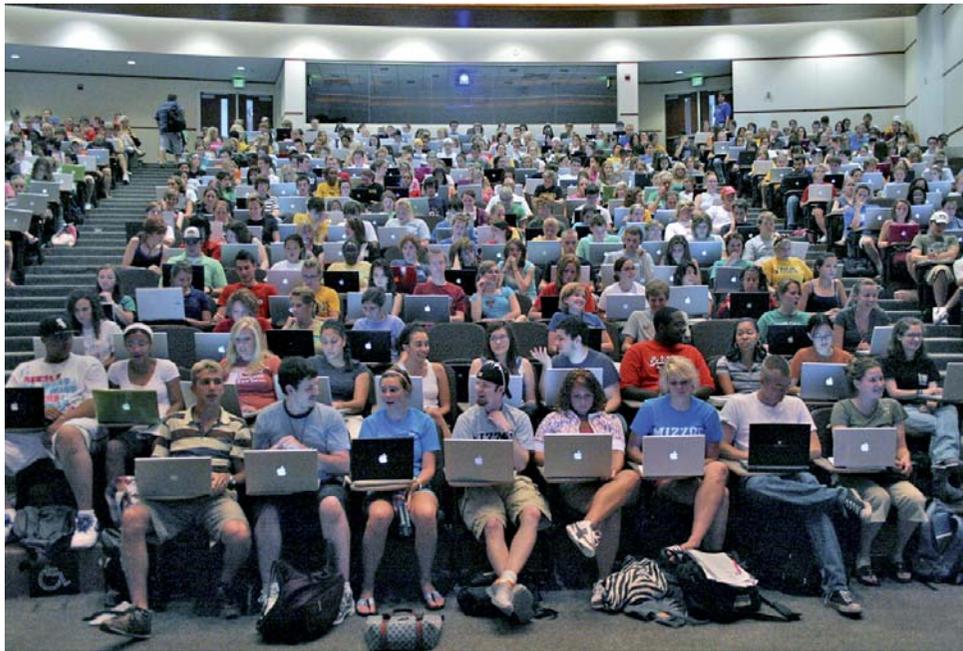


Users



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Rightsholders

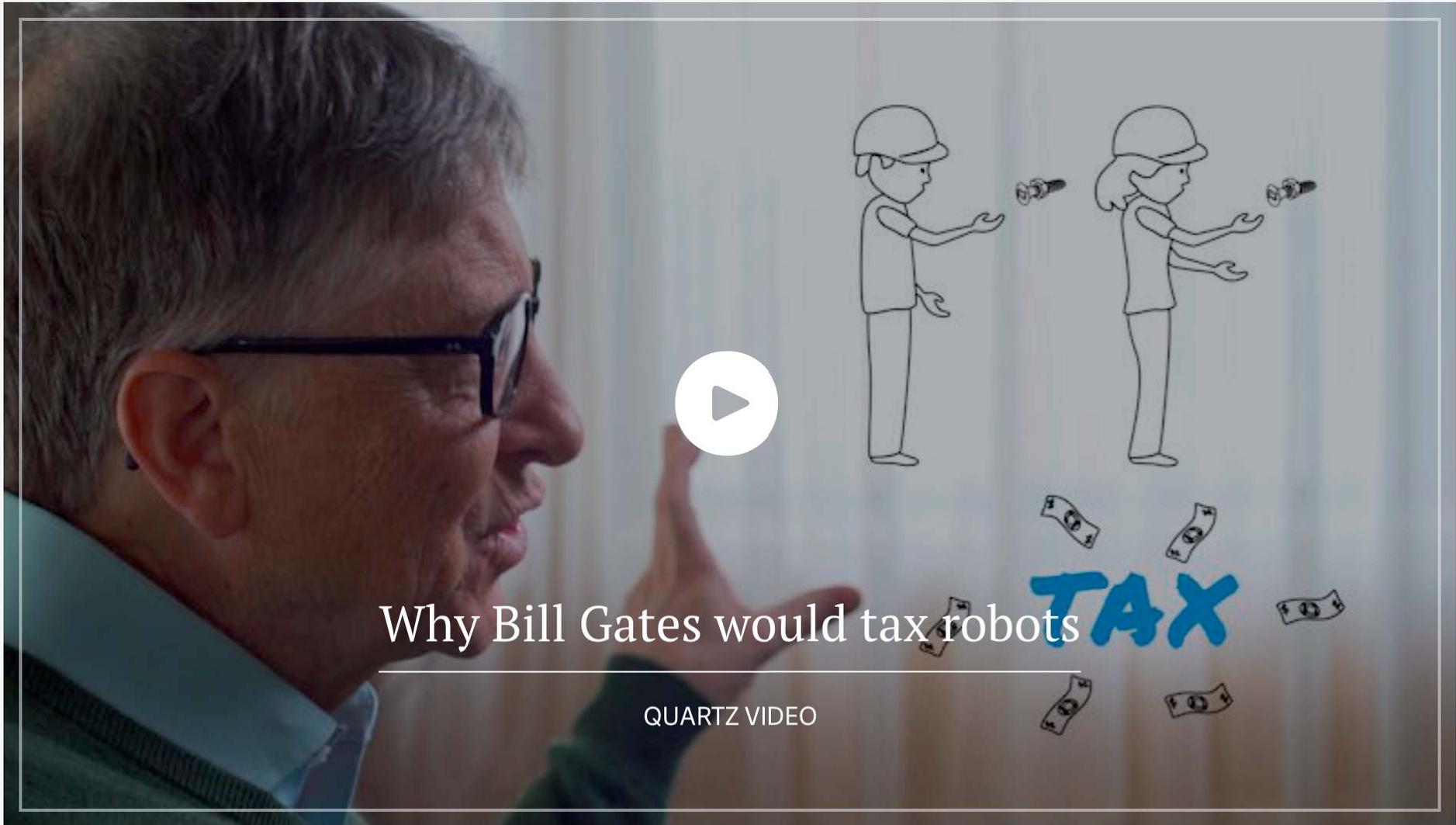


Brett Jordan on Flickr (<http://flickr.com/photos/55497864@N00/1472187414>)
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Users



The robot that takes your job should pay taxes, says Bill Gates



QUESTIONS

1. How do we determine when a use of copyrighted materials in artificial intelligence is expressive in character, rather than factual?
2. What entitlements should authors have regarding how their works are used in machine learning? (e.g., full control, compulsory licensing, no entitlements)
3. Should we use copyright law to promote equitable economic distribution in the AI age, or is another tool more appropriate?