

## Stop Naming Your Algorithms

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Many companies have jumped on the “big data” bandwagon. Perhaps you hired your company’s first data scientist. Or maybe your firm has already formed a team dedicated to creating algorithms that leverage insights from big data. This year, the IDC (International Data Corporation) expects big data and analytics products and services to increase 11.7% in revenue from 2017 to hit \$166 billion. And they do not expect it to stop, projecting revenue to surpass \$250 billion by 2020 (Goepfert & Shirer, 2018). From massive tech firms to start-ups, organizations around the globe are facing the same question – **how do we most effectively utilize information gleaned from algorithms?**

Until recently, managers have made their decisions based on advice from their bosses, peers, employees, and even customers – i.e. other people. Yet the rise of “big data” has introduced a new source of advice, considered by decision-scientists to be highly accurate: algorithms. The question remains however, will human listen to machine?

### **Investing in Algorithms**

Tech giants like Google are not the only ones investing in algorithms. Algorithms have been seeping into numerous companies and functions outside of tech. For example, Johnson & Johnson and Jet Blue use algorithms to hire promising applicants, track the satisfaction of current employees, and predict who is at risk for leaving. The world’s largest hedge fund, Bridgewater Associates, uses algorithms to prioritize daily tasks for its employees.

Netflix and Amazon use algorithms to recommend products to customers. Other companies are following suit. Stich Fix, for example, is often called the Netflix of fashion. The

subscription clothing service provides algorithmically-driven clothing recommendations to its customers.

### **Assuming Aversion to Algorithms**

Many companies relying heavily on algorithmic judgment assume that their customers are wary of algorithms. For example, Stitch Fix's marketing goes to great lengths highlighting the service's human aspect. The website explains that for each customer, a "stylist will curate 5 pieces [of clothing]." The website describes recommendations as "personalized" and "handpicked." It refers to its service as "your partner in personal style" and "your new personal stylist." To top it off, a note signed by your stylist accompanies each shipment of clothes.

Nowhere on the website can you find the term "data-driven." But nestled in the site's who's who, the company lists their "Chief Algorithms Officer." What gives? Is the company heralded as the Netflix for clothes actively avoiding the mere mention of data?

If you are anything like us, your curiosity might be piqued. Why would a company marketing a bespoke experience orchestrated by a stylist, dedicate a C-suite position to algorithms with a Chief Algorithms Officer? The same company mentioning "algorithms" 76 times in their S1 filing (Cheng, 2018)? And thus, as any curious person does, we Googled.

We found what appeared to be a secret website. If you simply Google "Stitch Fix + data," a completely separate site from stitchfix.com surfaces. This site has a different name as well. "MultiThread: Technology at Stitch Fix" dedicates a page to a full team working on the algorithms and who, according to the cite, "breathe data" (<https://algorithms-tour.stitchfix.com/>). Another full page is devoted to an "algorithm tour" which explains how data science drives the company.

Algorithms devour data customers' survey responses which describe their taste in clothes and then search inventory across the company's warehouses. The options are narrowed based on the location of the warehouse and other style-relevant factors. Multiple algorithms have contributed to the process before a "stylist" finalizes which items are shipped to the customer and writes a note for each.

Similar services combining human and algorithmic judgment play up the human element of the process. For instance, Bombfell spotlights the "benefits of a personal stylist" on its site and consistently describes its "handpicked outfits" in advertisements. Listed as part of their team, they introduce their data scientist. Trunk Club also shines a spotlight its people-power. "Our stylists are real people invested in your personal style. All stylists go through extensive training and have hands-on experience." Yet, they have a VP of Engineering and are regularly described as being driven by analytics (Hu, 2014).

### **Humanization of Algorithms**

In fact, many companies are working hard to either hide or humanize their algorithms. From Siri to Alexa, companies often name their algorithmically-driven virtual assistants. The more engagement required from a user, the more the products seem anthropomorphized. The creators of Jibo, "the world's first social robot," designed an unabashedly adorable piece of plastic. It laughs, coos, sings, has one cute blinking eye, and moves in a way that mimics dancing. Google Duplex, which calls businesses to schedule appointments and make reservations, generated backlash because it sounded "too" human; people who mistook it for a human felt deceived.

But is it good practice for companies to hide their algorithms behind a human facade? Are marketing dollars well-spent creating names for Alexa and facial features for Jibo? The more elaborate the artifice, the more customers may feel deceived when learning they were guided by an algorithm. And why are we so sure that people are put off by algorithmic advice? Our recent research provided a surprising answer to this question.

## **The Power of Algorithms**

A bit of background. Since the 1950s, researchers have documented the many domains in which algorithms outperform humans. Algorithms beat doctors and pathologists in predicting the survival of cancer patients (Einhorn, 1972), occurrence of heart attacks (Hedén, Öhlin, Rittner, & Edenbrandt, 1997), and severity of diseases (Goldman et al., 1977). Algorithms also predict recidivism of parolees better than parole boards (Carroll, Wiener, Coates, & Galegher, 1982), and which businesses will go bankrupt better than loan officers (Libby, 1976).

A classic book describing the triumph of algorithms reports how these findings were initially met with skepticism (Meehl, 1954). It appears that the experts in the 1950s were reluctant to believe that a simple mathematical calculation could outperform their professional judgment. Similar stories have circulated since (Dana & Thomas, 2006; Dawes, 1979; Hastie & Dawes, 2001).

Over time, these anecdotal claims have morphed into received wisdom. The idea became so prevalent that it has been adopted by popular culture and the business press. Myriad articles advise business leaders on how to overcome aversion to algorithms (Harrell, 2016). But how worried should we be about a distaste for algorithms?

## **Responses to Algorithms**

In our recent research, we tested whether people dislike algorithms as much as prior scholarship might have us believe (Logg, Minson, & Moore, 2018). In our studies, we asked people to make a variety of predictions. We then offered them advice produced by using simple math to combine multiple human judgments. Doing so allowed us to truthfully present the same advice as either “human” or “algorithmic.” Thus, our participants received identical advice, labeled either as coming from other people or an algorithm.

We found a pattern that flies in the face of decades of both scientific and business wisdom: People relied *more* on the same advice when they thought it came from an algorithm than from another person. Importantly we observed these results in areas where reliance on algorithms might seem reasonable (such as predicting song rankings on the Billboard Charts), as well as domains that were more surprising (such as predicting geopolitical events, and even the attractiveness of potential dates).

We wondered whether this “algorithm appreciation” emerged, in the modern age, people are more familiar with using algorithms. If so, age might account for people’s openness to algorithmic advice. Instead, we found that our participants’ age did not influence their willingness to rely on the algorithm. Older people used the algorithmic advice just as much as younger people. What did matter was how comfortable people were with numbers. The more numerate our participants, the more willing they were to take algorithmic advice.

Next, we tested whether today’s researchers might predict our results. We emailed scholars who study human judgment. We gave these researchers the same survey materials that our participants had seen, and invited them to predict the results. These researchers, consistent with what companies have assumed, also predicted that people would be averse to algorithms--the opposite of the actual findings.

## **Practical Takeaway**

Are companies doing it all wrong? We see a growing body of evidence showing that people happily accept guidance from algorithms, and by some measures trust them more than other people. That is not to say that customers never appreciate a “the human touch,” but it does suggest that it may be misguided for companies to invest in highlighting the human element of a process wholly or partially driven by algorithms. Transparency may pay off and save marketing dollars. Maybe Netflix and Pandora have the right idea.

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