

## Hats Off to Web Advertising. No, Really.

Advertising technology has been a breeding ground for Web innovation

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It's axiomatic that advertising on the Internet is at best a necessary evil. What's worse, just as the finance industry once vacuumed up the best and brightest from America's elite colleges, this new source of filthy lucre has proved irresistible to people who might otherwise produce something useful.

"Go West, young people, so you can figure out how to optimize engagement among millennials ages 18-30 in the top quartile of disposable income."

Here's how Harvard-educated math wunderkind Jeff Hammerbacher summed it up in 2011: ***"The best minds of my generation are thinking about how to make people click ads."***

But what if everyone is wrong about ads? What if ads, in a fairly direct way, are responsible for much of what is magical, automated and "smart" about our gadgets and the Internet today?



***There's the simple argument that without ads, there would be no Gmail, no [Facebook](#), no countless other services on which we all rely every day,*** but that isn't what I'm talking about.

If we were to write a sort of People's History of the Internet from the perspective of the ones who built it, a common theme would arise again and again: Many of those behind the curtain building the things we rely on cut their teeth in the ad tech world. Since the debut of the Web banner ad in 1994, ad tech has been a finishing school for some of the greatest minds in tech history, from unsung engineers to [Sheryl Sandberg](#), who headed [Google's](#) ad products for seven years before becoming chief operating officer of Facebook.

One of those people is Gokul Rajaram, now at payment-processing provider Square. He was lead engineer of one of the very first ad networks, at email provider Juno, before going on to lead the ad tech teams at both Google and Facebook.

Early on, one of the things Mr. Rajaram and his team pioneered was the use of techniques, known as “machine learning,” that now power almost every system on the Internet that has the least bit of artificial intelligence, whether it’s Facebook deciding what to show in your news feed or Apple’s Siri learning to better understand your voice.

“Advertising was the first commercial domain to which machine learning was used at scale,” says Mr. Rajaram. Vast advertising markets that had to decide what ad to show in milliseconds meant that from the very beginning of internet advertising, unprecedented amounts of data were flowing into growing quantities of computing power.

Like a kind of Manhattan project for data, solving the problem of ad matching and delivery meant taking formerly obscure areas of research and transforming it into something everyone could use. “Powerful machine learning techniques were just starting to be developed in academia,” says Mr. Rajaram, but ad networks would have been impossible without them.

In 2012, Ray Chan moved from an ad tech startup to his current project, Culinary Agents, which is like LinkedIn but for the food services industry. Skills he gained while figuring out how to get people to click on ads, like predictive analytics, now help others get jobs, he says.

Even [the “sharing economy”](#) is arguably an outgrowth of ad tech, says Mr. Rajaram, whose latest endeavor is a food delivery “startup in a startup” at Square called Caviar. Marketplaces like Google’s AdSense, which had to be equally good at serving businesses and consumers, were among the earliest and most sophisticated examples [of the two-sided markets](#) that gave rise to Uber and Airbnb, which have to serve both suppliers and customers equally well.

I’m not saying all this excuses some seriously egregious practices of the ad tech industry, but the importance of ad tech in the history of the Internet illustrates a larger principle, one also seen in the history of military technology: Just as the nuclear bomb became nuclear power, ***ad tech is continually having a swords-to-plowshares moment.*** The resources companies like Facebook, Google and others are able to pour into creative uses for what is in the end simply applied mathematics pays dividends for the entire tech ecosystem, and ultimately everyone who uses it.

Editor’s Note: ***millennial millionaires be damned: Internet and mobile advertising is not only here to STAY...It’s an absolute must for any business that wants to STAY IN BUSINESS!***