

### 7. A method comprising:

accumulating, over a period of time at a device, user-defined presence data associated with a user of at least one computing device, wherein the user-defined presence data identifies one or more characteristics of the user, and is provided by the user for distributing to one or more other users authorized to access the user-defined presence data;

creating a user profile for the user based, at least in part, on the accumulated user-defined presence data;

defining, at the device, at least one advertising package based at least in part on the user profile; and

directing delivery of at least one advertisement object according to the advertising package.

7. A method comprising: accumulating, over a period of time at a device, user-defined presence data associated with a user of at least one computing device, wherein the user-defined presence data identifies one or more characteristics of the user, and is provided by the user for distributing to one or more other users authorized to access the user-defined presence data;

creating a user profile for the user based, at least in part, on the accumulated user-defined presence data;

defining, at the device, at least one advertising package based at least in part on the user profile; and

directing delivery of at least one advertisement object according to the advertising package.

Ever wondered how all of you, your friends', and all the billions of other users' photos, videos, status updates, etc. are stored at [REDACTED] They do it with servers. A lot of them. Giant data storage facilities in Prineville, OR keep track of everything from the events you're "attending", all the way down to a status like (or love, haha, wow, sad, or angry face). In total, recent estimates put [REDACTED]'s Oregon facility storage capacity at upwards of 300 petabytes, which would be enough to hold about 100 billion average-sized photos. The good news is this space is not going to run out anytime soon as the social media giant has both improved its storage efficiency and is nearing completion of its largest data center yet (at over 450,000 square feet).

Machine Learning, or ML, refers to any instance where a product leverages a series of inputs to build a tuned model, and leverages that model to create a representation, a prediction, or other forms of useful signals.

Figure 1 illustrates this process which consists of the following steps, executed in turn:

- 1) A **training phase** to build the model. This phase is generally performed *offline*.
- 2) An **inference phase** to run the trained model in production and make a (set of) real-time predictions. This phase is performed *online*.

Training the models is done much less frequently than inference – the time scale varies, but it is generally on the order of days. Training also takes a relatively long time to complete – typically hours or days. Meanwhile, depending on the product, the online inference phase may be run tens-of-trillions of times per day, and generally needs to be performed in real time. In some cases, particularly for recommendation systems, additional training is also performed online in a continuous manner [5].

One salient feature of machine learning at [REDACTED] is the impact of the massive amounts of data that is potentially available to train the models. The scale of this data has many implications that span the entire infrastructure stack.

- **Ads leverages ML to determine which ads to display to a given user. Ads models are trained to learn how user traits, user context, previous interactions, and advertisement attributes can be most predictive of the likelihood of clicking on an ad, visiting a website, and/or purchasing a product [5].** Later, when a user visits [REDACTED] inputs are run through a trained model to immediately determine which ads to display.

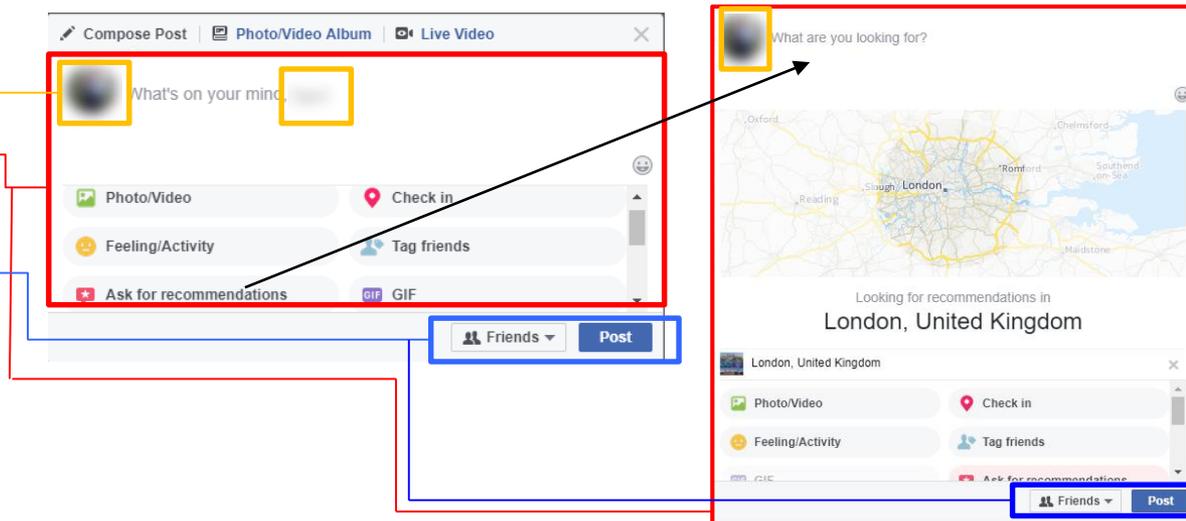
*Comment: Social media data is clearly stored over time as user can view all their historic posts. This data is used to train machine learning models to improve advertising*

7. A method comprising: accumulating, over a period of time at a device, user-defined presence data associated with a user of at least one computing device, wherein the user-defined presence data identifies one or more characteristics of the user, and is provided by the user for distributing to one or more other users authorized to access the user-defined presence data;

creating a user profile for the user based, at least in part, on the accumulated user-defined presence data;

defining, at the device, at least one advertising package based at least in part on the user profile; and

directing delivery of at least one advertisement object according to the advertising package.



**Comment:** The user is indicated by the blurred photo in each case.

*The request for recommendations is an example of “presence data” in that it indicates a user’s availability to communicate on a particular topic.*

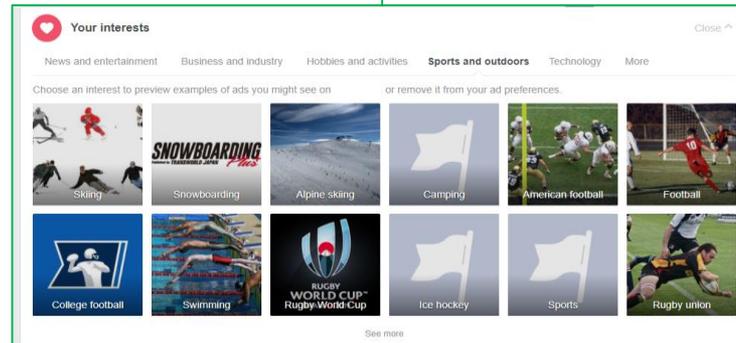
Getting recommendations is as simple as composing a status update. The system will analyze the words that you use to turn on this feature. A post with “I’m looking for restaurants in San Francisco” or “Where can I find night clubs in New York City?” can trigger recommendations. From there, your friends can offer suggestions, and if they recommend any of the 60 million restaurants, businesses, service providers, accommodations, attractions, or venues with a ..... Page, the system will automatically include the Pages in the comments.

7. A method comprising: accumulating, over a period of time at a device, user-defined presence data associated with a user of at least one computing device, wherein the user-defined presence data identifies one or more characteristics of the user, and is provided by the user for distributing to one or more other users authorized to access the user-defined presence data;

creating a user profile for the user based, at least in part, on the accumulated user-defined presence data;

defining, at the device, at least one advertising package based at least in part on the user profile; and

directing delivery of at least one advertisement object according to the advertising package.



One of the top ways we know what ads you might want to see is your activity on the family of apps and services. This includes things such as:

- Pages you and your friends like
- Information from your profile
- Places you check in to using

- **Interest** targeting lets marketers reach specific audiences by looking at people's interests, activities, the Pages and posts they like, posts and comments they make, and closely related topics.
- **Behavior** targeting lets you reach people based on purchase behaviors, device usage, and other activities\*

**Comment:** Social media sites accumulate all a user's activity and content, including presence data, in order to serve targeted ads. The recommendation request shown on the previous slide is a type of "post" which normally includes a user checking in at a certain location. That post then goes on to become part of the user profile.

7. A method comprising: accumulating, over a period of time at a device, user-defined presence data associated with a user of at least one computing device, wherein the user-defined presence data identifies one or more characteristics of the user, and is provided by the user for distributing to one or more other users authorized to access the user-defined presence data;

creating a user profile for the user based, at least in part, on the accumulated user-defined presence data;

defining, at the device, at least one advertising package based at least in part on the user profile; and

directing delivery of at least one advertisement object according to the advertising package.

The best way for us to do this is to hold an auction in which both interests are represented. That way, advertisers are reaching people receptive to their ads and users are seeing something they're interested in. Our goal is to match the right ad to the right person at the right time. This is different than a traditional auction because the winner isn't the ad with the highest monetary bid, but the ad that creates the most total value.

An auction takes place whenever someone is eligible to see an ad. The "participants" in an auction are ads targeted to an audience the eligible person falls into. Billions of these auctions take place everyday. In this article, we'll explain how they work.

Before the ad auction takes place, our system narrows down all of the available AdWords ads to determine which ones are eligible to compete to show on your pages. Here are a few ways that this happens:

- Ad targeting: We only consider ads that are relevant to the content or users of your site. Through placement-targeting, we'll also consider ads from advertisers who have specifically chosen to show ads on your pages when they've found a match between their offerings and your site's users.
- Ad format: Advertisers can create text or image ads and choose contextual-targeting or placement-targeting, and so depending on the selections that you've made, certain types of ads may or may not be eligible to show on your pages.

Just like in a traditional auction, the more advertisers that bid to appear on your pages, the higher the competition is for your ad units and the more you can earn. The fewer restrictions that you place on the ads that can show on your website, the more ads our system will be able to return, therefore increasing your revenue.

*Comment: The advertising package is defined by the ad server when the user accesses their social media feed. The package is defined by the user profile (including interests), device type, location etc. An auction is then held to determine which advertising object to present to the user.*

7. A method comprising: accumulating, over a period of time at a device, user-defined presence data associated with a user of at least one computing device, wherein the user-defined presence data identifies one or more characteristics of the user, and is provided by the user for distributing to one or more other users authorized to access the user-defined presence data;

creating a user profile for the user based, at least in part, on the accumulated user-defined presence data;

defining, at the device, at least one advertising package based at least in part on the user profile; and

directing delivery of at least one advertisement object according to the advertising package.

The screenshot shows a Facebook post from 'Discover The Palm Beaches Florida'. The post is sponsored and includes the text: 'Explore all there is to do and see, and all your friends are sharing. #ThePalmBeaches'. The main image is a teal graphic with the text 'DISCOVER THE PALM BEACHES FLORIDA' and 'USA' in a dotted font, with the URL 'VisitTheUSA.co.uk' below. To the right is a photo of a man holding a beer. At the bottom, there is a 'Learn More' button and the text 'FRIENDS TOAST FRIENDS. See The Palm Beaches'.

Why am I seeing this ad?

Options ▾

One reason why you're seeing this ad is that Discover The Palm Beaches Florida wants to reach people interested in **Shopping**, based on activity such as liking Pages or clicking on ads.

There may be other reasons why you're seeing this ad, including that Discover The Palm Beaches Florida wants to reach **people aged 25 to 54 who live in England**. This is information based on your profile and where you've connected to the Internet.

Let us know if this topic interests you

Shopping 🍷 🍷

⚙️ Manage Your ad preferences