

Search On 2022

Company Participants

- Dounia Berrada, Senior Software Engineer
- Lilian Rincon, Senior Product Director, Shopping
- Nick Bell, Senior Director, Search Experience Product Management
- Prabhakar Raghavan, Senior Vice President
- Sophia Lin, Director & General Manager, Food Vertical

Presentation

Prabhakar Raghavan {BIO 3368123 <GO>}

Hey, everyone, and welcome. We're coming to you live from our Third Annual Search On. Everything we do at Google is to improve the lives of as many people as possible. Since day 1, we've dedicated ourselves to a mission to organize the world's information and make it universally accessible and useful. From how many grams in an ounce, to how to say Hello in Japanese, if you could find the words, we could help you find answers to life's questions, big and small. So much so that if you close your eyes and think of Google, I'd imagine a lot of you would see this.

But the way people seek information isn't confined to a text box. Over time, we've evolved how we bring our mission to life, helping connect you to information in ways beyond how you might traditionally think of search. You can now search what you see with your camera, you can ask a question aloud with your voice, and you can find a song by humming it even if you're out of tune.

But as humans, exploring information isn't something we do in just one way. We rely on our many senses and a variety of inputs to perceive the world around us. And as we learn and explore information, we approach it from different angles and tap into other people's experiences. For example, say a strolling through your grocery store and stumble upon an unfamiliar vegetable. Intrigued, you might pick it up and take a closer look. And if you check out, you might ask the grocer how it tastes and for any recipe recommendations.

While making sense of the world the way humans do is a huge challenge for computers. We're getting closer by making huge leaps in computer science. We're now able to understand information in its many forms from language to images to things in the real world. With this deeper understanding, we are going far beyond the search box to create search experiences that work like -- more like our minds that are as multi-dimensional as people are.

As we enter this new era of search, you'll be able to find exactly what you're looking for by combining images, sounds, text, and speech. You'll be able to ask questions with fewer words, or even none at all, and we'll still understand exactly what you mean and even suggest things you might find useful. And you can explore information in a way that makes sense to you, whether that's going deeper on the topic as it unfolds or discovering new points of view that expand your perspective.

We call this making search more natural and intuitive. But for you, we hope it means that the next time you close your eyes and think of Google, you'll imagine what it's like to search your word, anyway you want, anywhere you want.

Today, we'll share our progress towards this vision, starting with searching and exploring visually. Already, searching with text is indispensable. Now, the age of visual search is here. Cameras have been around for hundreds of years, and they're usually thought of as a way to preserve memories, or these days, create content.

But a camera isn't just a content creation device, it's a powerful way to access information and understand the world around you, so much so that your camera is the next keyboard. That's why back in 2017, we introduced Lens, so you can search from your camera or photos.

Since then, we made it easier to access Lens and people now use it 8 billion times a month to search what they see. We've continued to make visual search even more natural, and earlier this year, we hit a major milestone with the introduction of Multisearch. With Multisearch, you can take a picture and add text to it, just as you might naturally point at something and ask a question about it. This opens up entirely new ways to search. Let's take a look at how one craft maker uses Multisearch to find exactly what she's looking for.

(Audio-Video Presentation)

I didn't even know bagel persons were a thing. Multisearch is available today in English globally and I'm thrilled to share that it's coming to more than 70 languages in the next few months.

This is just the start of how we are continuing to make visual search even more helpful. You might recall, we showed an early-stage demo of Multisearch Near Me this year at Google I/O. With Multisearch Near Me, you can snap a picture or take a screenshot of an item, then find a way to get it nearby instantly. This new way of searching will help you find and connect with local businesses, whether you're looking to support your neighborhood shop, or just need something right now. This is made possible by our in-depth understanding of local places and product inventory, informed by the millions of images and reviews on the web. I'm excited to announce that Multisearch Near Me will start rolling out in the U.S. later this fall.

One of the most powerful aspects of visual exploration is its ability to break down language barriers. We've gone beyond translating text to translating pictures. Our

technology already identifies texts in screenshots or pictures of the world around you and translates it in real time, making anything you see readable in your language.

People use Google to translate text in images over 1 billion times a month, across more than 100 languages. That means people can instantly read storefronts, menus, documents and more, even if they are in a language they don't understand. But often, it's the combination of words, plus context like background images, that bring meaning. With major advancements in machine learning, we're now able to blend translated text into complex images, so it looks much more natural and feels seamless.

Let me hand it over to Dounia to show you a live demo.

Dounia Berrada

Thanks Prabhakar. As you mentioned, we can already translate text in pictures, but now, we're applying state-of-the-art AI to translate the whole picture, creating a far more natural result. Let's take a look at an image captured with the James Webb Telescope by NASA. Today, Lens sees the text in Spanish and instantly translates it to English, which is cool, but you will notice that we overlay the translations using color blocks, which can cover up some of the image.

Oftentimes though, the image has super important context, especially for educational content like this, which is one of the top ways people use Lens translate. So now, I want to show you a live demo of what this looks like with our latest machine learning advancements.

So I'm here on my home screen and I tap the Lens icon in the search bar. I already have this image on my phone and when I select it, you will see how much better it will look. That was fast. So just in case you missed it, let's do it one more time. Now, you can see the fully translated image.

Instead of covering up the original text, we're erasing it and recreating the pixels underneath with an AI generated background. And then, we overlay the translated text on top of the image seamlessly. We've optimized these machine learning models so that we're able to do all this in just 100 milliseconds, less than the blink of an eye. This uses generative adversarial networks, also known as GAN models, which is what helps power the technology behind Magic Eraser on Pixel, and it works live in your camera too. So let's try it with another live demo on this poster of Stephan's Quintet.

So, I'm back on my home screen and I'm going to tap the Lens icon in the search bar again. But this time, instead of selecting an image from my gallery, I'm just going to open up the camera. And you can see now the translation blending the image as though that's how it was created, and we can still see all of the details of the image. So cool, you might say it's out of this world. We're excited to bring you this improved experience later this year.

Back to you, Prabhakar.

Prabhakar Raghavan {BIO 3368123 <GO>}

Thanks, Dounia. We've just shared some incredible ways you can search visually. And now, we're putting some of our most helpful tools directly at your fingertips, beginning with the Google App for iOS. Starting today, you'll see shortcuts right under the search bar to shop your screenshots, translate text with your camera, hum to search and more. All of the examples you've just seen show how we're helping you search beyond the box. And as I mentioned earlier, we also want to help you explore the world's information more naturally. Up next, you'll hear from Nick and Yvonne on that.

And later, you will hear how we are helping you find and explore information in everyday moments like when you're visiting a new place, looking to satisfy a food craving, browsing for the perfect purchase, and trying to make the more sustainable choice. Over to Nick and Yvonne.

(Audio-Video Presentation)

Nick Bell {BIO 1894549 <GO>}

17 years ago, Google Maps completely redefined what a map can be. Back then, if you needed directions with you, you had to physically print them out. We solved how to get from point A to point B, and over the years, we added helpful insights like live traffic, how busy a place is, and the most eco-friendly options to get there.

We're proud to connect more than 1 billion people every month to the most comprehensive information about the world around them. Now, with advancements in computer vision and predictive models, we're once again reimagining what a map can be and how you can engage with it.

We can now fuse together satellite, aerial, street view imagery with real-time data and photos and videos from our community of contributors, and bring them to life in a more visual and immersive way. This means evolving our 2D map into a rich multi-dimensional view of the real world. The map comes alive in front of you, helping you truly experience a place before you ever step inside, so you can make more informed decisions. Let me show you what I mean.

Say you're in Paris and you want to find fun and unique things to do. It can be difficult to figure out what's worth exploring, what's new, and where the local gems are. Instead of spending tons of time researching, you'll be able to open Google Maps, zoom in on a neighborhood, see what's popular, and quickly get the vibe of an area, so you can find what fits your mood. Let's check out the Latin Quarter. Browsing the map, you can instantly get a feel for what it's like and quickly find the most popular things to do, like admiring beautiful landmarks, strolling in the gardens or enjoying breakfast at one of the trendy sidewalk cafes.

This is possible because we combine information about a place, like how busy it is, with insights from people like you, who, every day, contribute to Google Maps with more than 20 million reviews, photos and more. This new way to get the vibe of a neighborhood will roll out globally in the coming months. And this is only the start of our journey. You might recall that a few months ago, we gave you a preview of the transformational way we're making Maps more immersive and interactive.

The first step was to launch photorealistic aerial views for 100 global monuments and landmarks. We're expanding that to over 250 from the Tokyo Tower to the Acropolis in Athens and more, which allows you to explore these places in an entirely new way on Maps. What's even more exciting is that we're now able to combine this beautiful 3D model of the real world with our unparalleled depth of information, like weather and traffic and busyness to help you confidently decide when and where to go.

Let me dive a little bit deeper into how it will work. So recently, a friend of mine was in San Francisco and we wanted to catch a baseball game at the stadium. Just imagine, with this new experience, I can open Google Maps and I can see the stadium come to life on my screen. Now, I can find helpful information, like the nearest parking and entrances in a more natural and intuitive way. I can also browse the area to find a dinner spot for that weekend.

Let's actually take a look inside this restaurant. It looks really nice, but when I checked the busyness indicator, I see it's going to get crowded at dinner time. As I continue browsing, I see another place that's less busy, and it has a rooftop patio with skyline views. I can even see with the web that the weather would be really nice, which means I could book a table outside.

Using computer vision and predictive tools, Immersive View takes all the useful information you can find in Google Maps and brings it to life in an immediate and highly visual way. Helping you experience what a place will be like today, tomorrow or even later in the week. Immersive View is launching first in five major cities in the coming months, with more on the way next year.

Being able to search and navigate quickly is especially critical when you're on the go. As you heard from Prabhakar, the age of visual search is here, and your camera is a powerful way to access information and understand the world around you. That's why three years ago, we reinvented how you can use your camera to get around. With Live View, you can seamlessly overlay walking directions on top of the real world, and now, we're bringing visual search capabilities to Live View. You'll be able to find nearby places in a faster, more natural way right in Google Maps. Let me show you how this works.

Say, you're headed to an outdoor market in an unfamiliar part of town, but on your way, you remember that you'll need some cash. Today, finding a nearby ATM would involve lots of steps. You have to stop, search for ATMs on your phone, locate the closest one on the map, and then know how to get there. We're excited to announce that we're radically transforming, how you can explore places nearby.

Soon, you'll be able to lift up your phone, tap on the camera in the Maps search bar and instantly see what's around you appearing overlaid on the real world, like that ATM you were looking for. You'll be able to see all kinds of places, coffee shops, grocery stores, transit stations and more. You can also check business hours and how busy a place is, and helpful details like what services the barber shop down the street provides, all at once.

We're rolling out the ability to search with Live View to six major cities in the coming months. This was just a quick look at how we're reinventing what a map can be, helping people explore in more natural and intuitive ways. Soon, you'll be able to get the vibe of a neighborhood at a glance, experience what a place will be like today or in the future, and see what you're looking for overlaid right on top of the real world.

As we write the next chapter for Google Maps, we're excited about how these immersive experiences can help you explore the world with confidence. Building the future isn't just about helping people who use Google Maps. We're also committed to empowering our developer and partner community to create more helpful experiences for their users with the Google Maps platform. You'll hear how we're doing this with sustainability later.

Now, I'm going to pass it over to Sofia to share how Google can help you find the perfect meal.

Sophia Lin {BIO 16034117 <GO>}

Food is one of the most delightful parts of life. There are endless flavors, textures, and tasty dishes to enjoy from all around the world. For me, food reminds me of family traditions. My family loves soup dumplings and we love trying different restaurants to find the most savory, flavorful ones.

To celebrate my brother's birthday this month, I have the all-important responsibility of finding the best soup dumplings around. I'm not alone when it comes to looking for a specific dish. Our research shows that 40% of people already have a dish in mind when searching for what to eat. That's why we're launching more natural and intuitive ways to experience food on Google.

In the coming months, you'll be able to search for any dish and find local places that offer it. Whether it's something unfamiliar you've always wanted to try, or a late-night craving that you need ASAP, whatever you're hungry for, you can use Google to find it.

Let's say my friend posts a delicious-looking pastry, but I'm not sure what it is. A croissant? A muffin? Using Lens in the Google app, I can search a screenshot of the post to identify that it's a kouign-amann, a French pastry made with layers of butter and dough. Thanks to Multisearch, which Prabhakar mentioned earlier, I can add Near Me to see local bakeries where I can try one.

Or maybe you already know exactly what dish are craving. We're completely reorganizing Google's food information to bring you exact dish results, when that's what you're looking for. Like those soup dumplings. I can simply search for them on Google to see all the soup dumplings near me with pictures and reviews to help me make my decision. No more digging through endless menus from different places to see if they have what I'm hungry for.

You can browse multiple menu items or tap on a specific dish to see detailed information, like which restaurant it's from, price, ingredients, and whether it meets your dietary preferences, like vegetarian or vegan; or if you want a bit of a kick, you'll also be able to refine your search for spiciness.

Once you've found some restaurant options, how do you make sense of it all and decide which place is right for you? Star ratings are helpful, but don't tell you everything. When it's between two 4.4 star rated places, you want to get a better sense of what makes each place special. Maybe they like their cocktails on fire or have a beautiful sunset view. In the coming months, Google will showcase what makes each place unique to help you preview and make a choice before you go. We use machine learning to find and highlight pictures and helpful insights from reviews. So it's similar to getting recommendations and insider tips from your friends.

Once you've chosen a restaurant, you probably want to check out more of the menu, but it can be hard to find accurate menus online. Some menus are missing entirely or there might be multiple versions or blurry photos, making it hard to know what's the most up-to-date. That's why we're expanding our coverage of digital menus and making them more visually rich and reliable.

To do this, we use state-of-the-art image and language understanding technologies including our multi-task unified model. We combine menu information provided by people and merchants and found on restaurant websites that use open standards for data sharing. These menus will also bubble up the most popular dishes, the ones that people snap photos of or talk about in reviews. Plus, they'll be easy to find and fun to browse.

Once you've found a restaurant, you're excited about, you can quickly reserve a table. For example, I found a great place that offers soup dumplings that look delicious and can book it on the spot. And if you want to bring some friends along, just tap to share the details. Or maybe you want to scratch all that and just have a cozy night in. We can help with that too, simply order delivery or takeout.

From first search to first bite, Google is making it easier to find the food and places you love. We recently put these new features to the test. We sent our very own Yul Kwon to New York to try them out with one of the city's toughest food critics, Comedian Ronny Chieng. Let's have a look.

(Audio-Video Presentation)

Lilian Rincon

At Google, we recognize that shopping is about so much more than just buying. It's about tapping into your natural human curiosity, browsing, exploring new products and brands, finding the best deal. And of course, that awesome feeling when you find the perfect purchase. People shop with Google more than 1 billion times a day and powering all of this activity is the Shopping Graph, our AI enhanced model made up of more than 35 billion product listings. It dynamically adapts to give you the most up-to-date information, even as products are constantly changing. Now, the Shopping Graph is helping us make shopping on Google more natural, intuitive and of course, fun.

First, we're introducing a new way to unlock a reimagined visual shopping experience. Starting today, when you search with the word shop followed by whatever you're looking for, you'll see a shoppable display of products from the widest array of retailers and brands. So, say, I searched shop women's bomber jacket, I'll instantly see a stream of bomber jackets, just like window shopping online. Plus, I'll see brand new features to help put the fun back into shopping.

Our new Shop the Look feature will show suggestions for how to pair my new jacket with other pieces for the perfect look. And with our upcoming Trending Products feature, I'll see which bomber jackets are popular right now. You can access these new features on any Google search box by adding shop, followed by whatever you're looking for, like shop barbecue grills, shop throw pillows, or even shop dog costumes. This new experience feels like shopping should, natural and fun.

And to help bring online shopping to life, we're making it easier than ever for merchants to show their products in 3D. Earlier this year, we rolled out 3D home goods and we've seen just how helpful they can be when people are researching products. In fact, people engage with 3D images almost 50% more than static ones, that's why we'll be expanding to 3D shoes, which will allow people to see 3D models of sneakers right within search.

Now while some merchants have this kind of imagery already available, for many, especially smaller merchants, creating 3D assets can be expensive and time-consuming, sometimes requiring hundreds of product photos and costly technology. To help, we're making it easier than ever for merchants to create and show off their products in 3D. With our innovations in machine learning, we can automate 360-degree spins of merchant products using not hundreds, but just a handful of still photos. We'll be piloting this new capability soon.

Now, sometimes there are certain product categories that require a lot more research before you know what to buy. For example, when my nine-year old wanted a mountain bike, I read tons of articles, opened countless tabs on my browser, and spent ages researching which models were best for his size, the nearby terrain and so on.

For shopping moments like these, we've created the Buying Guide, which collects the most helpful insights from a wide range of trusted sources all in one place. With this information at my fingertips, I can research and make a decision quickly and with confidence. The Buying Guide recently became available in the U.S. with more insights coming soon.

And that's not the only way we're helping you shop with confidence, we're also introducing Page Insights, a new feature that brings together helpful context about a webpage you're on, or product you're researching. While viewing a page in the Google app, you can just tap this icon to quickly see related content about a topic and learn more about the page, like what others have to say about it.

Page Insights is especially helpful when you're shopping. You can use it to get insights about products like its pros and cons, and star ratings in one helpful view. And if you're looking for the best deal, which I know a lot of us are with the holidays coming up, you can easily opt-in for updates on price drops. Page Insights will be available in the coming months in the Google app on iOS and will come to Android next year.

In addition to helping you shop with confidence, we also want your shopping experience to feel much more personal to you. There are certain brands and departments that are my go-to, but every shopper is unique, that's why we're bringing you new personalization features and controls when you're logged into Google. So now, when you shop with Google, you can see tailored options for a better experience.

For instance, I can tap women's just once, and the next time I search for something like a messenger bag, I will only see women's bags. I can also choose the brands I want to see. For example, I really like the brand Cuyana, I can just tap it once, and the next time I'm shopping for a bag, I'll see more options from Cuyana and similar brands. And our about this result tool now lets me see when a result is personalized. So if my taste change or I don't want to see tailored results, I'm in control and I can simply update my setting or turn it off.

Another way we're bringing you a better experience is through whole page shopping filters. Whole page filters are dynamic and adapt based on search trends. For example, when shopping for jeans, I may see filters for wide leg and bootcut, because those are the denim styles that are popular right now. And if, say, jeggings ever came back in style, those might be suggested as a filter in the future.

But as we said earlier, we want to help you get inspiration beyond the search box. We're bringing you new shoppable ideas, right in Discover on the Google app. Discover already helps you stay on top of what you're into with articles suggested based on what you like and have searched, and starting soon, you'll also see suggested styles based on what you've been shopping for and what others have searched for too.

For instance, because I'm into vintage styles, I'll see suggested queries of popular vintage looks. Here, one of my favorite artists, Selena Gomez, is rocking a classic band tee. So if her tee or anything else catches my eye, like this dress, I can simply use Lens to see options of where to buy. From inspiration to purchase, we're making it more natural, intuitive and fun to shop for what you need or discover something new you'll love.

Next up, Ruben and Hema will share new ways we make the sustainable choice, the simple choice.

(Audio-Video Presentation)

Prabhakar Raghavan {BIO 3368123 <GO>}

As you've seen today, we're building technology to help you, simplifying everyday tasks and providing support in the moments that matter the most. And underpinning this are two foundational principles, keeping you safe and connecting you to the widest array of perspectives.

Let's start with how we keep you safe online. All of our products, including the ones you heard about today, are secure by default, private by design and put you in control of your personal information. We're committed to our mission to make all information accessible, but some sensitive information needs an extra layer of protection. That's why we have policies, so you can request the removal of personally identifiable information from Google Search, things that you might not want broadly visible, like your personal contact information. Now, we're giving you even more control over your online presence.

Starting today, we are rolling out the new Results about you tool that we announced earlier this year. Let's say you come across a result, that includes your personal contact information that you don't want public. With this tool right from the Google app, you can easily request the removal of search results that contain your phone number, home address or e-mail address.

Even though removing these results doesn't scrub your contact information from the web overall, we're doing everything to safeguard your information on Google search. This includes helping you keep tabs on new results about you. Starting early next year, you'll be able to opt into alerts, if new results with your contact information appear so you can quickly request their removal. That way, you can have peace of mind that we are helping your personal information stay just that, personal.

The other foundational element I mentioned is connecting you to the widest array of diverse sources. People come to Google with questions, big and small, general and specific, hoping to find that perfect article, video, image, restaurant or retailer to help them. But for many questions, there's no single, right answer. The answers come from the breadth of human experience and expertise.

No matter what the question, someone somewhere out there has the knowledge to help. Like, how do I get these white shoes white again? Or, how do I bake an erupting volcano birthday cake? A more common query than you would think. But there's more we can do to help you find first-hand experiences in Search. For times like these, you've heard how our community of local guides helps you discover hidden gems and how you can find the best local eats based on insights, reviews or pictures submitted by fellow foodies.

We're introducing a new feature that surfaces helpful information from online discussions and forums, when it seems like you're seeking advice from other people. So whether you looking for best cars for a growing family, or how to make a seating chart for your wedding, you'll get insights from people's authentic experiences.

There are also times when you're looking for authoritative information, like high-quality journalism. We are working to connect you to news, no matter what language it is created in, from all over the world. Today, we surface news in your preferred language. For example, say you want to learn more about that awful earthquake in Mexico earlier this month, if your preferred language is English, you'll get news results from outlets published in English.

With machine translation, we're working to surface news results in different languages. So you'll be able to see translated headlines on important global events alongside ones written in your preferred language. With this, you get a local on-the-ground perspective of the earthquake directly from the source. Starting early next year, we'll begin rolling this out to help you get select French, German, and Spanish news results in English.

Today, we shared our vision to help technology adapt to you and your life to help you find and explore information. This isn't easy, but at Google, we dream big and pursue the seemingly impossible. It's that spirit that drives us to deliver first of their kind innovations at scale like Live View in Google Maps and Multisearch, and to create experiences that are far more natural and intuitive that help technology get out of your way, and free you up to discover and explore the world around you.

We hope you're excited to search outside the box, and we look forward to continuing to build the future of search with you. The best of search is yet to come. Thank you.

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