The Technologies Shaping Retail

5 startups share their views on the future of commerce

PLUGANDPLAY

Index

To say that technology is changing retail would be an understatement. Technology is not just changing retail: It has completely revolutionized the way we shop and it has forced retail companies to rethink their business model. This evolution process is a never-ending one, now, more than ever. The COVID-19 pandemic has brought many challenges for retailers, and technology is key to overcoming them.

In this ebook, we have selected a series of technology trends that are reshaping retail. In order to analyze them, we have interviewed some of the brightest startups out there. They've told us more about these trends, and they've shared with us their views on the future of commerce.
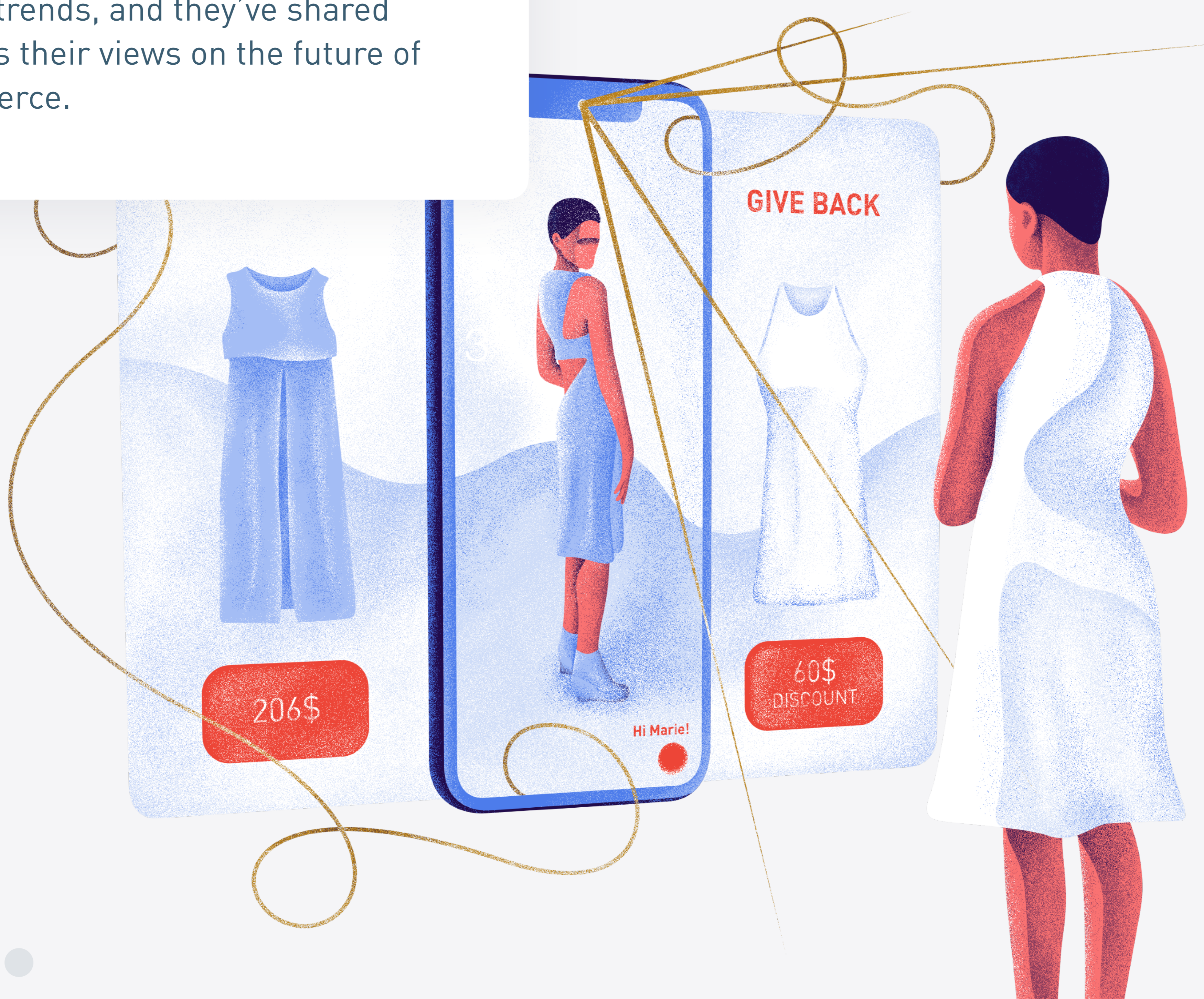
Introduction

Increasing convenience, saving time and creating quality experiences have become the pillars of successful innovation. These were the foundations on which some of the most successful technology startups in the world were built upon. These days, startups are challenged to find more ways to achieve these three pillars and with the advancement of technology, we're seeing startups push the limits of what a customer experience can become. Shopping in-store can now be faster and more convenient through frictionless checkout experiences and automated stores, items can be delivered faster and cheaper through micro-fulfillment centers and the quality of customer experiences can be improved through robotics and immersive experiences. We expect the future store to be a connected hybrid of physical and digital experiences where the customer can get exactly what they want, where they want and when they want. These are just a few of the endless possibilities of what the future store could look like and we're excited for what's to come.

Tanya Ma
Plug and Play Ventures
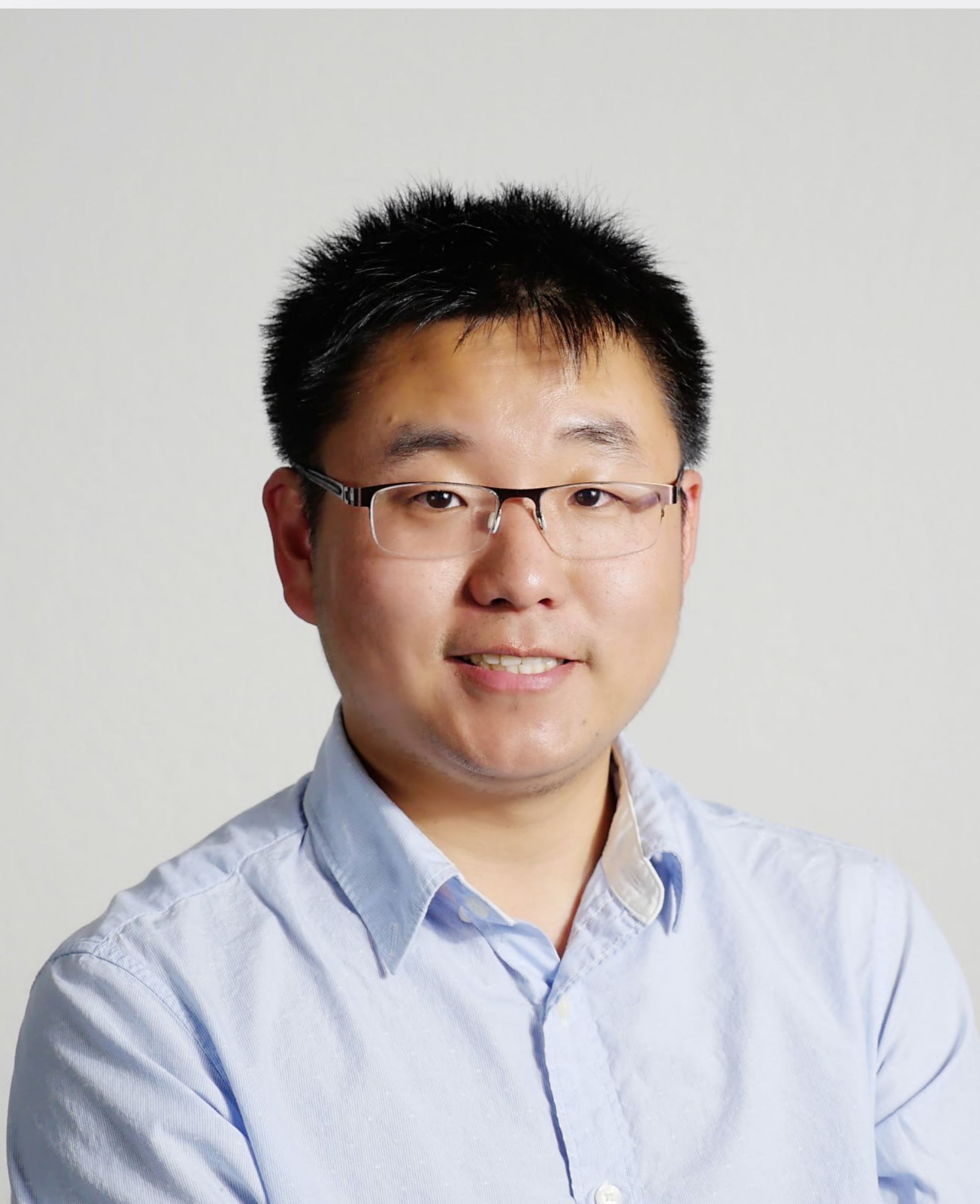Brand & Retail
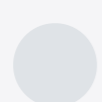
Frictionless Checkout

AIFI

Steve Gu
CEO and Co-founder

AiFi is an AI technology company that automates stores for retailers and brands of all sizes.

They recently launched OASIS, a patented system to build and operate automated stores. It includes a whole suite of APIs that can be easily integrated into a retailer's front end, back end, and POS systems.

aifi.io

How does frictionless checkout help generate sales? Why is it important for retailers?

Frictionless checkout provides shoppers more convenience. The experience itself is straightforward and time-saving. [Check out what shoppers have to say about frictionless checkout](#).

Frictionless checkout enables retailers to extend operating hours, optimize the store operations, and deploy stores closer to shoppers, whenever and wherever they need.

With COVID-19 looming large, providing a safe shopping environment is a top priority right now. Contagion fear leads to more touchless, contactless ways of shopping, and to taking the checkout process out of the shopping experience so stores can better protect both shoppers and store staff.

How do you think innovation will help retailers recover from COVID-19?

To date, countries, cities and companies continue to improvise and and make on-the-fly decisions on how to cope with the rapidly changing situation, resulting in disjointed and inconsistent measures.

In the longer term, technology and innovation will be crucial in the war against the unexpected. There will be increased investment in innovations like ours, not just driven by retailers but also as part of strategic digital infrastructure to support community resilience and the sanitation of cities.

How can startups help large corporations?

Startups can help larger corporations to make better use of AI and other state-of-the-art technology to solve real-world problems they are facing, and enhance competitiveness and resilience.

It is important to remind all the stakeholders to view the technologies with less aura of moonshots, but with more scrutiny of how real-world problems can be resolved, how troubleshooting is handled in chaotic times like this and how people involved in the process are more empowered and protected.

How do you picture the store of the future?

Full digitalization: Traditional brick-and-mortar grocers and other chain store retailers must look beyond in-store operations and expand their digital strategy.

New revenue model: There will be new revenue models for brick-and-mortar stores other than simply selling products.

Immersive Experiences

ARWALL

Eric Navarrette
Co-founder, CMO

ARwall is an AR/XR technology company creating solutions for film, TV, experientials, and retail. They created ARFX, a digital background solution that combines virtual production methods with real-time engines and interactivity. They also developed a consumer-facing platform called ARwall Interactive, which allows guests to engage in larger than life XR experiences without needing a headset, goggles, controls, or touchscreens (so it's perfect for a post-COVID-19 world).

arwall.co

Immersive experiences: Tell us more about this trend. How does it help retailers?

We've heard from brands that convincing a guest to stay in a retail location just a couple minutes longer than they planned on, leads to a dramatic increase in conversion. When you give guests a fun, immersive experience that they can share—and more importantly, that they can't get at home or on their phones—**it leads to positive associations with the brand, as well as more money spent**. Our technology is providing fun experiences with zero-contact with strangers and no items to handle. I believe that in-store immersive experiences will bolster consumer confidence as people venture back into public spaces.

How do you think innovation will help retailers recover from COVID-19?

I think embracing technology will help retailers recover faster as we transition into a post-COVID-19 world. Here's an immediate example: retailers can potentially eliminate some of their square footage on locations simply by reducing the amount of merchandise out on the floor. As we venture out and begin shopping again in-person, do we want to go to a changing room and handle a pair of jeans or a shirt that's been tried on by who knows who and tried on who knows how many times?

The novelty of Magic Mirrors, originally more of a marketing gimmick rather than purely functional, now seems more relevant than ever. Imagine having the bulk of a store's inventory existing on an interactive display: You could handle and inspect a virtual version of the item, see what the clothing looks like when it's mapped onto you, etc., and then when you're ready to make the purchase, an attendant comes to bring the actual item for you fresh from the storeroom ready to take to the register.

How can startups help large corporations?

Large corporations are designed for efficiency and achieving predicable results, not necessarily for innovation. They know what problems are at their doorstep, even through they are not always the best equipped to solve them. That's why an organization like Plug and Play is so valuable to companies like ARwall—we are a team of problem solvers. Having a direct connection to brands and corporations, understanding what problems they need solved, allows us to innovate tailored solutions for any company we're introduced to.

How do you picture the store of the future?

I believe the store of the future will someday be an extended XR experience that lives from location to location. Much like you carry your phone everywhere—from work, home, out to eat, or to the mall—your phone remembers your settings, preferences, and purchases. I believe that things like Bluetooth technology, cell phones, and even biometrics will all tie together to create secure identification of users so that someday you can walk into a store that you have already authorized access to, **and the displays will change their messaging to items tailored to your preferences**; you'll get personalized content, or maybe you'll be inserted as a procedurally rendered character into a branded ad; and finally you'll be able to skip waiting in line for a cashier, because your authorized payment is linked to your profile and you can walk out with your goods.

As I mentioned, half of the ARwall team come from filmmaking; we're big believers in storytelling and science-fiction. I sincerely believe we can make that almost unbelievable to imagine future a reality within the next few years. The rate of innovation in these fields is absolutely astonishing. We're very happy to be a part of it.
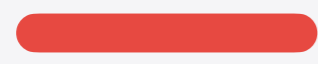
Food Robotics

Blendid

Vipin Jain
CEO and Co-Founder

Blendid is a good example of robotics technology applied to retail. Food robotics, in this case. They offer contactless, autonomous food robotics kiosks that use advanced technology to prepare and serve healthy, delicious smoothies. These smoothies are customized and made-to-order based on an individual's preferences. Their kiosks are currently available in several Northern California locations and will soon be available all across the US.

blendid.com

Food robotics: Tell us more about how it can change the retail industry. Where do you see this trend going?

Foodservice operators are facing three major challenges:

- **Consumer trust and safety**: The current pandemic has exposed the vulnerability that exists in our food service environment making it difficult to provide uninterrupted essential services. Winning consumer trust requires a contactless experience that eliminates or minimizes human to human contamination and the spread of viruses like COVID-19.
- **Consistency of experience**: The constant need to keep up with consumer trends and employee churn make it difficult to maintain quality and consistency of food service experience.
- **Low margins**: Consumer demand for higher quality food, increasing cost of labor & regulations and the inability to raise prices enough to recoup puts tremendous pressure on operating margins and cash on cash return.

Robotics and artificial intelligence can help alleviate all three challenges by providing a contactless and safe experience, while lowering operating costs and improving margins with healthy and delicious food offerings.

As we get back to work after COVID-19, more and more foodservice establishments will turn to robotics to help support their operations. The faster we can integrate solutions to keep us all safe, the faster the economy can recover.

How can startups help large corporations?

Startups often help large corporations by providing break-through technology innovation that is difficult to create within the confines of an established company with existing protocols and processes. Inertia makes it hard for large corporations to be agile and respond to changing consumer behaviors and needs. The need for short term results driven by capital markets exacerbate the problems.

Startups and entrepreneurs are risk-driven, making crazy bets on ground-breaking ideas, and putting all their passion to work to create technology, without the fear of failure. Those who are able to convert their ideas into a marketable product are best positioned to collaborate with large corporations and bring these innovative products to market in the most efficient and scalable way.

How do you picture the future?

The foodservice restaurant of the future is personal and contactless. A completely autonomous food court that offers numerous cuisines and food options, completely personalized to their taste, allergies and lifestyle, delivered to them without any risk of food safety and virus contamination.

Everyone has unique taste and health preferences and would benefit from individually customized food. Unfortunately, it's too expensive to personalize food in restaurants when using traditional prep methods (aka humans). However, personalization is easy, reliable, and low cost with robotics and AI. In addition, an AI system is able to learn people's preferences over time, so it can even predict your needs and create the great recipes for you.

COVID-19 has been a major catalyst for a movement that was already in motion – the move to contactless. It's safer and more efficient to order from your mobile phone and be able to pick up food exactly when you want it.

The restaurant of the future?
No more one size fits all nutrition. No more waiting in long order lines. No more wondering if someone might have sneezed on your food!

Micro Fulfillment

Fabric

Anne Marie Stephen
Sales Director, USA

This U.S.-Israeli startup designs, builds and operates small-scale, micro-fulfillment solutions based on robotic technology. Their modular platform can be installed in the back of existing stores enabling retailers to provide curbside pickup orders in minutes and home delivery in as little as an hour. And that's not it: E-commerce brands that have no physical stores use local Fabric micro-fulfillment centers to provide same-day delivery services.

getfabric.com

Micro fulfillment: How does it help retailers? What role does technology play in this trend?

Micro-fulfillment refers to the concept of placing small-scale, automated warehouse facilities in accessible urban or suburban locations that are close to the end-consumer. Unlike traditional distribution centers which are dozens or hundreds of miles away, automated micro-fulfillment centers can be located in the back of or adjacent to local retail stores. When a customer places an online order, **their items are automatically picked, packed and available for pickup within minutes**, or they can have them delivered in as little as one hour.

Technology is integral to every aspect of an automated micro-fulfillment. Most shoppers only see the browser or mobile software they use to order products. But those easy-to-use online stores rely on dozens of backend systems to manage receiving, put-away, sorting, picking, packing, and shipping. This type of middleware has been used for years for traditional e-commerce fulfillment, but the technology required for micro-fulfillment is different.

Building micro-fulfillment centers that enable one hour curbside pickup or delivery requires enhanced software and a new generation of hardware. The Fabric automated fulfillment platform includes new applications and services to monitor motion and navigation, manage robots, and provide station managers second by second information on every product in the system. The platform also includes specialized robots (lift, ground, picking, and more) designed with the size, speed and agility specifications required for fulfillment in minutes.

How is innovation helping retailers recover from COVID-19?

Online grocery spending in the U.S. has more than doubled as a result of COVID-19. 52% of U.S. consumers have shopped for groceries online recently because of the pandemic and 20% are first-time online shoppers. Of those who have never ordered groceries online before, 51% plan to do so in the near future because of the pandemic, and 70% say they are likely to continue shopping online. Online grocery shopping will approach or exceed 10% by the end of 2020, four years sooner than previously forecasted.

Retailers, especially grocers, are losing money on every on-demand e-commerce transaction. They lose as much as $5 to $15 on every manually picked online grocery order, or outsource it to 3rd parties, giving up control of the customer. In addition, the manual picking process is inefficient, doesn't scale, and negatively impacts the in-store experience for every other customer.

Retailers need an online strategy that enables them to quickly and efficiently scale operations as needs demand. Everyone should be implementing short, medium and long-term strategies in parallel to meet this new surge in consumer demand. Most retailers have been making improvements to their manual picking processes to improve efficiency and better manage online order spikes. In the very near future automated micro-fulfillment will need to be a part of every successful retailer's online fulfillment strategy.

How can startups help large corporations?

The technology required to implement profitable, scalable, same day fulfillment did not exist a few short years ago. The agile nature of startups enables them to excel at solving exactly this kind of problem. They "see" market opportunities and technology gaps and quickly develop innovative solutions that increase revenues, reduce expenses and enhance the shopping experience for retail customers around the world.

How do you picture the store of the future?

In many ways, **the store of the future is here today**. Consumers browse and shop from computers in the comfort of their home or on mobile phones wherever they may be. In most cases, orders are delivered within 2-3 days. Local micro-fulfillment centers are enabling same day pickup and delivery, soon to be the standard for all retailers.

Many people enjoy the physical act of shopping, so brick and mortar stores are not going away. However, for the time being, many prefer to shop at home. New technologies, such as connected mirrors enhanced with augmented reality, will provide fun new ways to virtually "try on" clothes or different hair styles and makeup. With AR we can see how new furniture or a new color of paint will transform rooms in our homes. Technologies will continue to provide new ways for consumers to shop.

Although the ways consumers shop has evolved over the years, there is one thing that has remained consistent and is guaranteed to be a factor in every future store. When a consumer purchases a product, however they purchase it, they want it in their hands as soon as possible. Given multiple options with similar products and price, the retailer offering the fastest delivery will get the businesses.

17

In-Store Tech

HYPERVSN

Art Stavenka
Co-Founder

This British startup develops innovative products, such as 3D holographic display systems for retail and entertainment markets. They offer two main products: 'Solo', a single device producing a hologram of up to 75cm, and a 'Wall', multiple Solo devices placed together to create a large hologram. Take a look at this video to find out more.

hypervsn.com

In-store technology: Why is this important? How does it help generate sales?

Attention has always been a crucial ingredient for marketers in both advertising and communication. If a potential customer is not paying attention, no message can impact him or her.

Traditional visual advertising and digital signage are becoming less relevant and less impactful: a human eye is too used to regular flat 2D images. The average person is exposed to 5,000 adverts a day, so for brands and businesses it is more challenging to cut through the information clutter and encourage customers to enter the store.

This is exactly where HYPERVSN'S new holographic 3D display systems come into play: they have redefined the concept of visual storytelling by making interactions with end-users more personalized, engaging and impactful.

The latest independent case studies with several Fortune 100 brands demonstrated that HYPERVSN allows for c.40% longer viewing and engagement time compared to conventional 2D ads and c.60% longer - compared to printed ones.

Also, conventionally, 2D displays provided by Samsung, LG, NEC and others commonly bring up an approximate 5% sales increase in the consumer space. Multiple case studies demonstrated that HYPERVSN's immersive attention-grabbers managed to double and even triple this effect through its 3D image projections.

How is innovation helping retailers recover from COVID-19?

I believe that, regardless of how far everything dives into online, people will always be in the streets, they'll go to shopping malls and socialize - this is our human nature (we may just predict the mere shapes of, say, shopping malls may be transformed into being more of entertainment hubs with truly immersive experiences for customers).

Retailers -as well as governments and city authorities- will need to use powerful communication channels more than ever before, to be able to communicate important messages to customers. Thus, the need for a new attention-grabbing technology is set to significantly increase. Times for the new offline media channels people DO pay attention to.

The new HYPERVSN Back to Business solutions are able to facilitate exactly that helping to raise awareness in a way that can not be ignored.

How can startups help large corporations?

When it comes to innovation, startups are often faster. They are swift in taking decisions, testing new features and, as a result, developing much quicker solutions. Narrow and specific expertise in a particular area and their ability to take risks often allow startups to succeed in developing breakthrough solutions compared to large behemoth tech giants in need to financially justify any new development before initiating a cumbersome process.

How do you picture the store of the future?

We at HYPERVSN imagine the stores of the future still being brick-and-mortar, but -apart from providing an opportunity to purchase goods per se- they would also host some immersive visual experiences which are difficult to find sitting in front of your computer. Imagine beautiful holographic assistants greeting you at the entrance and advising on new arrivals. Or think of magnetizing holographic performances to watch while queuing to make a payment.

Plug and Play is a global corporate innovation platform which helps to connect corporate partners to startups in order to help solve their greatest challenges. We also operate as a venture fund and startup ecosystem. To date, we have helped over 3,000 early-to-growth stage startups raise over $3.5 billion. Plug and Play is consistently ranked among the most active VCs in Silicon Valley.

PNPTC.COM/RETAIL