alvanon

REDEFINING FASHION INTELLIGENCE

Man + Machine Collaboration

Executive Report Presented by Alvanon

3DTF 2023

3D TECH FESTIVAL
PRESENTED BY ALVANON

FOREWORD

3D Tech Fest 2023 was entitled "Redefining Fashion Intelligence" with great intention. Our team set out to investigate how the industry embraces human and digital intelligence to inspire innovation for a more sustainable future. We wanted to bring you ideas that would cause the industry to pause and think about the work being done now, and the problems we will face in the future, to inspire the solutions we need to leave a positive legacy.

For 2023 we held our first **OPEN CALL** for speakers and received fifty proposals from eighty tech leaders, creative directors and innovators worldwide. Our judging panel of industry experts reviewed these proposals anonymously, focusing on the most critical topics at the intersection of fashion and technology currently shaping the industry.

This democratic approach to curation inspired a diverse and energetic festival, gathering the global fashion and technology community for the largest 3D Tech Fest to date. 4,300 attendees convened online for three full days of exciting presentations, investigative panels, and innovative case studies from 60+ speakers representing over twenty countries.
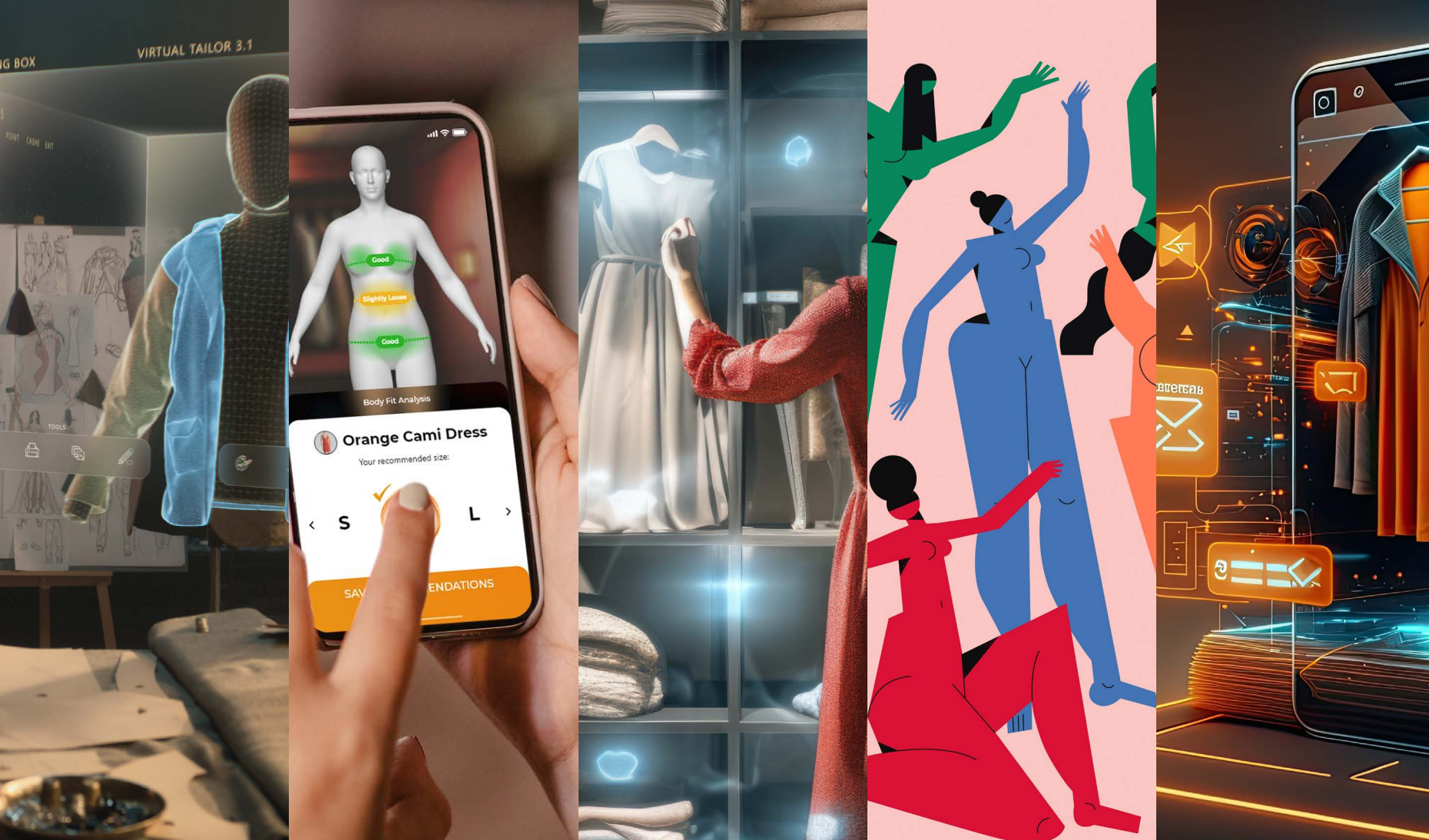
Our personal mission of continuous learning resonated throughout this year's 3D Tech Fest. As individuals, organizations, and as an industry we benefit from sharing real insight into what's working (and not) for our teams, facilitating conversation in the most democratic and intentional way. We view this report the same way. It can only be useful if you take it into your teams, thoroughly discuss, and transform these ideas into action.

We hope that the recorded talks available **online**, this executive report, and the support of our global digital community move you to action.

With hope,

Janice Wang CEO, Alvanon

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UNLOCKING THE POTENTIAL OF AI IN FASHION

From forecasting demand and setting prices, to product design and new ways of connecting with customers, the use of **artificial intelligence** (AI) in fashion is expanding at a rapid pace. It is already beginning to transform design, manufacturing and size and fit recommendations, in addition to customer experiences and many other facets of the industry.

Business leaders, technologists and retailers from Hyran Technologies, Alvanon and Randa Apparel & Accessories (RAA) shared shared their insights on how AI is reshaping the way the fashion industry works.

Dr. Ahmed Zaidi, CEO and co-founder of AI platform **Hyran Technologies**, described his unique perspective on contextualizing the "buzzword AI" in a way that makes sense – defining the technology as a tool we can use to redefine our collective future.

THE FUTURE OF FASHION IS...

DISRUPTIVE: new technology needs new processes

**COLLABORATIVE:** technology thrives in multidimensional decision-making

PROBABILISTIC: technology is your worst enemy when you don't know what you don't know

HOLISTIC: technology needs to be embedded in strong ideas and infrastructure

LOCAL: technology and data is filled with noise so get as close to the source as you can

Zaidi suggests that the future of the fashion industry relies on collaboration and and building a collective understanding between all tiers of the supply chain. Investing in AI-based solutions requires a collaborative approach to adapt to changing markets and ensure successful manufacturing and problem-solving. Zaidi called for companies to re-think the processes and infrastructure they already have and assess if those are compatible with the new technology. Without compatibility, businesses risk not being able to make use of it, "in fact" he stated, "you would create more disruption."

AI is transforming the fashion industry by solving complex problems and **prioritizing customer satisfaction and experience**. Fashion buyers are often unaware of the intricacies and observations necessary to make decisions regarding products. Zaidi gave the example of a **Carhartt** store manager. Black beanies in this store continually sold out faster than grey ones, so the manager filed weekly requests for more inventory in black. Though the manager knows the black beanies are the most popular with consumers, decision-making for this store's assortment was made months in advance. Integrating the potential AI tools related to sales, this problem may have been avoided.
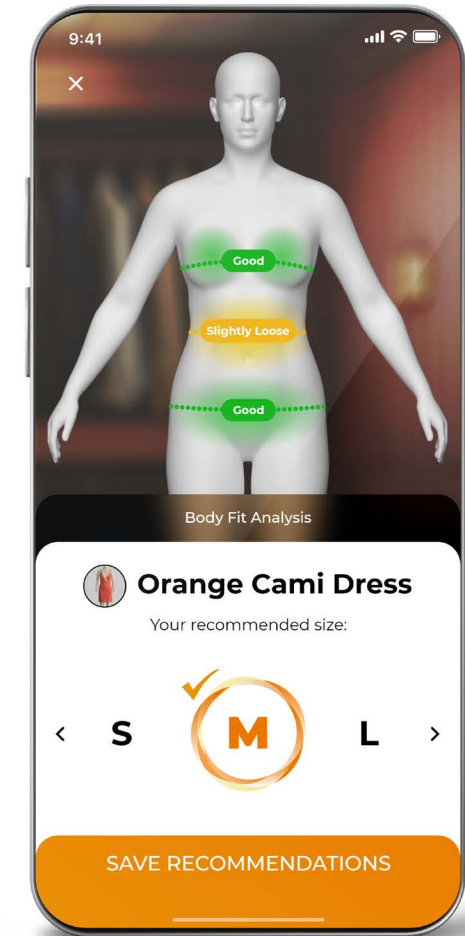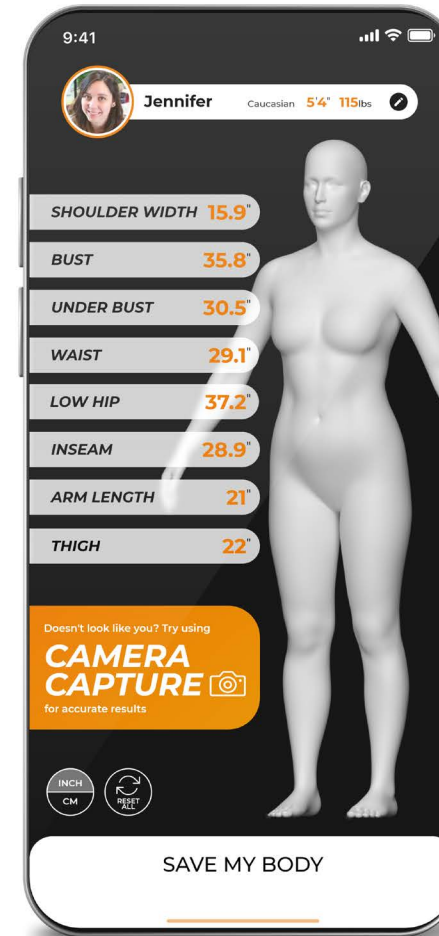

Alvanon's MyAlva app, in development, will allow customers to create virtual body avatars from their measurements or photos.

Artificial intelligence is incredibly good at solving multi-dimensional problems in the fashion industry, which can greatly benefit stores and headquarters.

One such problem continues to be **sizing standards and fit**. Fit standards are designed to serve both brands and consumers. Customers who have an understanding of a brand's fit and how it relates to their body are more likely to purchase more and return less. Brands with consistent fit standards produce more saleable garments, reduce waste and secure customer long-term loyalty.

"By having garments developed on standards, you have consistently fitting products [for consumers] in store," said Jason Wang, Chief Operating Officer at **Alvanon**, while **presenting the ways digital bodies are shaping fashion's future**. "You can then use technologies to drive up your sales, improve conversion, reduce returns and lower your inventory by stocking the right sizes, improving profitability while creating less waste."

BUST

WAIST

HIGH HIP

LOW HIP

THIGH

KNEE

RECOMMENDED
SIZE:
M
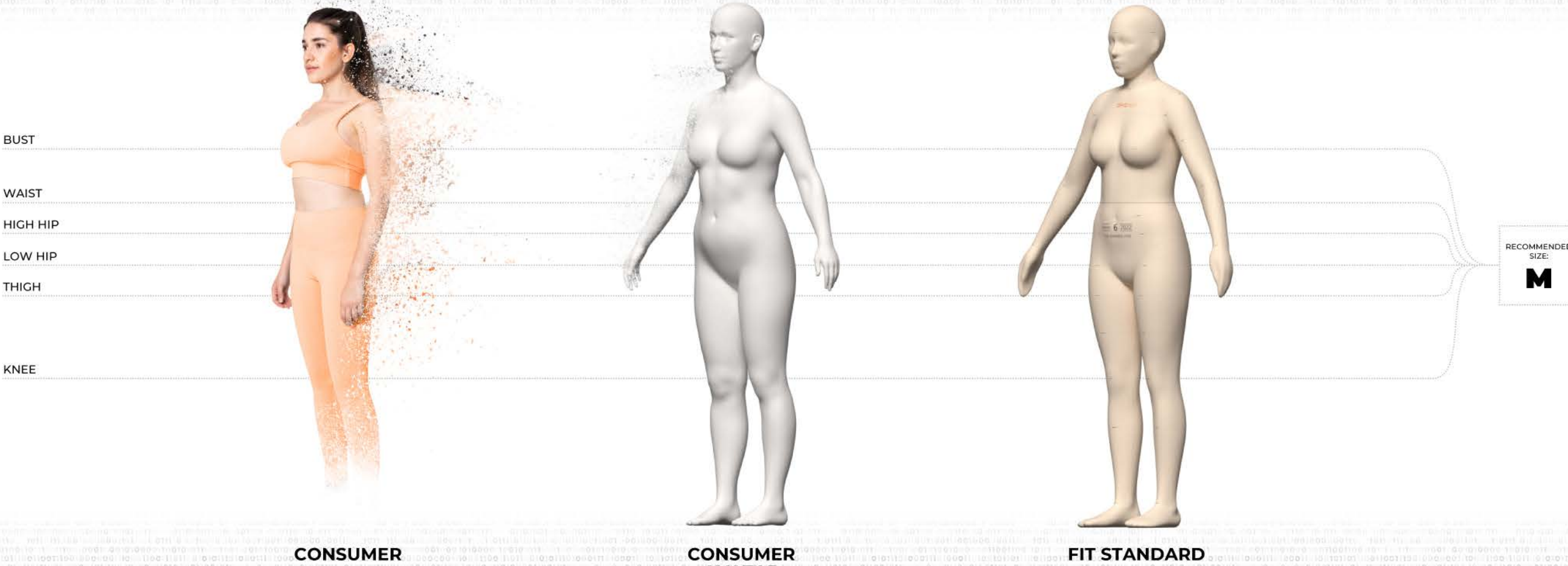
CONSUMER

CONSUMER AVATAR

FIT STANDARD

Alvanon is launching **MyAlva**, a consumer app designed to match measurements with fit standards, powered by its BodyAI engine that uses real customer body shapes and sizes to match the consumer avatar to each brand's fit standards and provide a sizing and fit recommendation. The consumer app, built using Alvanon's precise fit standards, aims to allow customers to see how clothing will fall on their body, eliminating the guesswork that often comes with online shopping. Brands would in turn glean fit data from consumers to help them better serve their consumer base, creating a circular feedback loop for retailers.

Alvanon believes its unique offering in scalability, cost of implementation, and direct impact on the bottom line sets its app apart. "The current fit and sizing app solutions in the market try to match the consumer's human body measurements to garment tech packs," said Wang. "Trying to match human body measurements to garment measurements [instead of fit standards] is flawed at best."

Wang noted that this is where Alvanon's consumer app, MyAlva, differs. "We match the consumer's bodies to your brand's fit standard," he said, "[in] an apples-to-apples comparison of the body shape and measurements of your customer to the brand's body and fit standard that you are using to design and build your product on."

"

We're in a very uncomfortable space right now where there's a demand for the technology, but not the implementation of it.

"

– **Tara St James,** Sr. Director of Sustainability, Moose Knuckles

> ## "
> **Whether it's politics or law, government tends to affect every aspect of your business... It is imperative that you maintain an awareness of all the global dynamics that transpire beyond what you do on a day-to-day basis - because your future, your brand, and your company depend on YOU being well informed**
> "
>
> – **Rick Helfenbein,** Consultant, former Chairman, President and CEO, AAFA

MyAlva will begin beta testing in the coming months with several large Asian retailers, US and European apparel brands, sportswear and uniform companies.

Some of the largest companies are already embracing machine learning and algorithm use and realizing the benefits. "We analyze the sales and performance of our products at thousands of stores every week; actual POS data from cash registers," said David J. Katz, EVP and Chief Marketing Officer at **Randa Apparel & Accessories** (RAA) in **conversation** with Robin Lewis, founder and CEO of **The Robin Report**. "We [then] replenish our products and optimize the assortment on a door level based on analytics and proprietary algorithms." Randa Apparel & Accessories is one of the world's leading fashion, apparel, and lifestyle accessories companies, operating a portfolio of 30+ brands across all channels of distribution. The company uses machine learning as a way to understand consumer desires, applying the technology as a tool for inventory management across specific regions and stores.

Using over a dozen algorithms, RAA's software optimizes what product should be in what store on what day, making a much faster turn of inventory and lower dilution for its retail partners and ensuring that customers have exactly what they need, where and when they need it.

Katz claims RAA's biggest technology ROI has been in their custom vendor-managed inventory (VMI) program. "When you're selling 100 million units a year," said Katz, "making that inventory flow effectively through the system to the consumer when they need it and not having backlogs, shortages, or overages is critical." ◆

CONSUMER EXPERIENCES & REAL-TIME TECHNOLOGY

Eighty-eight percent of customers say that the experience a company provides is just as important as its products or services (**study released by Salesforce** 2022). If customers are prioritizing their experience when they shop, what does this mean for the future of fashion e-commerce? What do consumers value and, more importantly, how do companies design those experiences with changing technologies?

In the ever-evolving experience economy and our increasingly digital worlds, consumers are searching for ways to connect with brands they love. "Our society is undergoing a massive digital disruption which has dramatically changed the way we live our daily lives," said Safir Bellali, founder of Aliph and consultant for **Epic Games** in his **presentation**, titled 'Fashion and Luxury: The Real-time Digital Revolution'. "Today's consumers are more connected, better informed, more discerning, and overall eager to engage in new types of experiences."

This desire for new personalized experiences is being driven by advancements in **real-time technology**, placing the consumer at the center of the experience. In virtual experiences, the user is placed in a digital

3D environment that they influence rather than be presented with pre-animated content. In traditional e-commerce, algorithms curate the customer experience, making product recommendations and providing additional content by responding to a shopper's actions and history. This real-time technology is revolutionizing the fashion industry by enabling virtual try-ons, personalizing digital experiences, integrating immersive gaming, embracing augmented reality, and capturing valuable data in real-time.

Popular brands are leading the charge with **immersive gaming experiences**. In October 2023 Gucci will launch **Gucci Vault Land**, a temporary concept store situated in The Sandbox Metaverse designed to bridge the gap between traditional retail, vintage pieces, and the magic of digital worlds. "This is a heavily stylized and playful activation," said Bellali, "meant to appeal to a younger demographic of gamers who would then build an affinity with a brand." Gucci is not alone – luxury brands like LVMH, Louis Vuitton, Balenciaga, Fendi, mass market brands like Nike, Forever 21, and others are paving their own way in the gaming world. People follow brands to the metaverse to live in the "worlds" created by the minds behind their favorite products. By developing memorable, exclusive, ephemeral experiences and purchasable digital products, these luxury brands are cementing themselves in the minds of young consumers as they come into considerable buying power, ensuring the brand's longevity and building long-term loyalty. ◆

THE OPPORTUNITY IN HYPER-PERSONALIZING SHOPPING

Hyper-personalized shopping experiences are another e-commerce frontier, grounded in big data-gathering and a new wave of personal intelligence. "To really thrive and deliver for our customers, we have to understand their intent in the moment," said Sarah McVittie, co-founder of **Dressipi**, "and then we need to act on that data." Dressipi **presented a partnership** with one of Australian's largest specialty fashion retailers, **Country Road Group** using consumer data to create a seamless online shopping experience. Customers received product recommendations and sizing tips while shopping, as well as styling recommendations for apparel previously purchased. Tracking data across consumer actions led to the technology creating "really sophisticated recommendations and tailor the offering through that path to purchase," said Matthew Horn, Group GM of Customer & Digital at Country Road Group.

Integrating this technology had additional cost-savings and sustainability benefits for the business. By analyzing customer data, Country Road Group was able to forecast trends, inform buying and size ratios, and produce inventory at scale. This led ultimately to reducing waste, increasing margins, and designing a higher quality product based on customer feedback. "It's not about buying a bit of personalization tech, chucking it in, and having a few widgets; it's about really thinking about what that means for your business," said McVittie. ◆

HOW 3D, AR, AND VTO ARE INNOVATING THE PATH TO PURCHASE

Virtual try on, VTO, and **virtual stores** are the latest wave of innovation at the intersection of 3D, augmented reality, AR, and customer experience. In digital spaces, shoppers can interact with products, sampling colors and styles on their own body without visiting a store in-person. These new forms of digital retail have the potential to redefine e-commerce on a vast scale.

As AR and 3D rendering become more accessible and affordable, VTO is becoming a reality. "This is the future of online shopping," said Matthew Klimpke, CEO and co-founder of **Vyking**, while **presenting** Vyking's end-to-end solution for 3D experiences and VTO with **Covision Media**. Including this technology in more traditional e-commerce platforms has the potential to create greater sales conversions. "Customers can now comfortably make purchasing decisions without even touching the product," said said Klimpke. It's no longer a marketing gimmick – consumers looking for easier ways to shop and a confidence in the product are eager to engage with this technology.

"

Around nine in ten companies that have invested in virtual stores have seen significant or moderate increases in sales, especially online sales...and same with gamified experiences. It can really drive long term customer loyalty and increase the average order value. – **Sunny Zheng,** Analyst, Coresight Research "
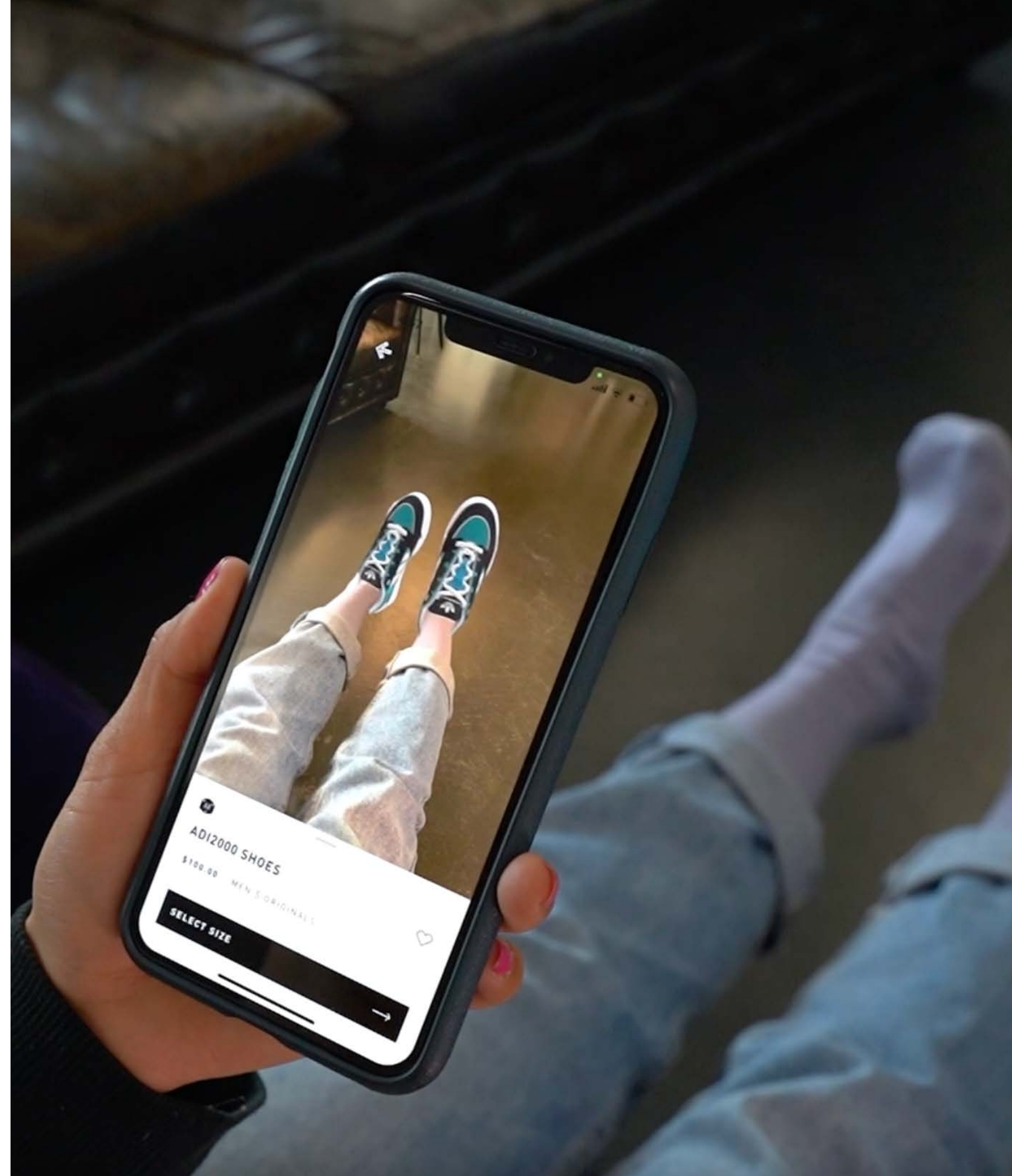
For VTO to have the greatest impact, brands must invest in **high-quality 3D assets**. Exciting product visuals lead to sales, particularly those that appear most realistic in AR. "If the 3D asset quality is high, you can derive much more content from it, like 2D e-commerce photos and videos, not just AR," said Franz Tschimben, CEO of Covision Media. For companies already working with digital product creation, this process is simpler using pre-existing detailed 3D renderings. "You always need to integrate with already pre-existing processes," noted Tschimben. "The bigger question is how to make that integration smooth, scalable and at the highest quality."

There is a vast potential future for these technologies beyond e-commerce. With these **augmented reality** options, Thibault Marion de Proce, Chief Product Officer and co-founder of Vyking, sees a future where brands can engage designers to create digital collections for customer feedback. This data could prove to be invaluable, eliminating product development waste, excess inventory, and ensuring you're creating a garment the consumer wants.

Real-time technology is redefining the customer experience, unlocking a more personal, sustainable, and agile product creation process at scale. The technology enables teams to capture data in real time, informing decisions from marketing to production. Through virtual experiences, from try on to gaming, brands are establishing deeper storytelling and a more personal connection with customers. Investing in your consumers through real-time technology creates brand loyalty, greater sales conversion, less waste, and a more inclusive global community from mass market to luxury. ◆

BODY DIVERSITY = BETTER BUSINESS

The fashion industry is at a crossroads. While brands struggle to create more sustainable business by reducing production waste and minimizing sizing standards, plus-size shoppers with buying power are facing greater repercussions in mental health and self-expression due to lack of representation and access. To affect change at a global level, brands must design apparel and access for **every body**. Serving customers of all sizes has immense business benefits, from longevity to waste elimination, while impacting positive social change.

Integrating diverse bodies and extended sizing is a vastly overlooked business opportunity. Currently some 67% of American women are above a size 14, according to **Time Magazine**. By leaving body diversity out of diversity, equity, and inclusion conversations, brands are neglecting an opportunity to ensure their longevity in this constantly changing global landscape. With the plus-size market **projected to reach $288 billion in 2023**, how can brands join the body revolution?

It starts and ends with considering a brand's specific consumer demographic. From developing universal size standards on real bodies to marketing representation, thoughtful merchandising, and adopting digital tools for customer use, speakers addressed a range of opportunities to drive global transformation through body diversity, one apparel line at a time.

Visibility and representation matters. Consumers search to find themselves represented by their favorite brands. Through greater body diversity in marketing and media, customers begin to see fashion as a viable medium for self-expression and self-actualization while **combating poor mental health due to body dissatisfaction**.

"Brands can take more ownership of the way they build confidence in their customers," said CeCe Olisa, co-founder of **theCURVYcon** while **in conversation** with Daniel Peters, founder of the **Fashion Minority Report**. "Make sure your editorial includes diverse sizing," Olisa said, "so I can attach myself to that lifestyle and disassociate the number on the tag with the value of me as a person. Brands can do a really good job of telling that story, increasing the competence, which increases the buying power." Marketing diverse sizing attracts a wider range of customers to a brand's narrative, developing an emotional tie with the consumer and ensuring loyalty and new business as customer bodies change over time.

Beyond marketing and product development, speakers see the **metaverse and gaming** as a frontier for much-needed representation. Designing new 'inclusive' digital worlds can reframe how brands approach product development and how consumers use fashion as self-expression in the real world. "Having a diverse avatar set in our game also opens up the possibilities of the metaverse to emerging plus size and adaptive fashion brands," said Anina Net, CEO and founder of **360Fashion Network**, when **introducing the forthcoming 360Fashion Maze**. Daniel Peters agreed. "The metaverse can create more space so that we actually feel seen, so that we can feel safe," he said. "That's what the internet does for us in so many ways."

Access in retail spaces continues to be a barrier between body diverse customers and brands. With a lack of consistent sizing and merchandise grouped by style not size in stores, shoppers repeatedly struggle to find garments they like that fit. This lack of consistency creates sustainability and revenue issues for brands, increasing returns as customers need to purchase multiple sizes to find their fit.

"We speak [negatively] about retail theater, but everybody wants to be a part of that," said Peters, "and often we're excluding people." Many brick-and-mortar stores only offer extended sizing online, creating shame in consumers who ask for plus sizes and forcing them to do more work and order multiple pieces to find garments that fit.

Other retail locations sort merchandise by style not size, something CeCe Olisa finds problematic. "As a plus sized shopper, I do not want to dig through all of your merchandise only to find that I'm not going to be served," Olisa said. By consciously designing a shopping experience that sorts product by size while integrating styles allows shoppers to have a sense of self and not feel othered while still retaining privacy. More shopping comfort creates more purchases.

Online shoppers are faced with additional struggles, as sizing and measurements tend to be inconsistent across brands. Avatars representing a customer's measurements can be used, like Alvanon's BodyAI technology, to allow customers to see themselves in the clothes. Diverse models wearing the apparel online can provide additional comfort, ensuring consumer confidence on their purchase.

> "
> **Fashion is a language where you can speak through different brands and colors and styles. If you're limited just because of your size, then your ability to speak and express yourself is also limited.**
> "
>
> – **CeCe Olisa,** co-founder of theCURVYcon

The business benefits of embracing larger size sets and consistency across apparel lines are clear. Increased sustainability, greater global impact, and elevated customer satisfaction are inevitable when brands design for a larger majority of consumers. To see true benefits of this work, brands must also embrace longevity. Developing an audience takes time, beyond a single collection. The commitment to change creates a better business, and a better world for every body. ◆

CASE STUDY
MADE TOGETHER,
REI CO-OP + OUTDOOR AFRO

Made Together, a clothing line launched by **Outdoor Afro** and **REI Co-op** in 2022, set out to address a gap in the outdoor apparel market; accessible outdoor gear designed for the black community. "I knew from my own experiences that I had a hard time finding [outdoor] clothing that fits my body," said Rue Mapp, founder of Outdoor Afro, while **presenting the collaboration with REI Co-op**. "This was not just about cost; it was about marketing fit, style, function and comfort to address the emerging demand and specific needs of the growing black outdoor enthusiast market."

Through a commitment to inclusive design, customer-centric product creation, and a dedication to cultural change in business and process, they created a beloved product line informed and inspired by the black community.

Reaching into this new market, REI embraced a collaborative approach to product development, seeking to understand the unique needs of these consumers. "We leveraged research and data in service of new perspectives that allowed us to move quickly to new ideas and processes and even new approaches to how we would create the product," said Isabelle Portilla, VP, Co-op Brands at REI. Working with Alvanon, REI conducted a BIPOC fit study which included approximately 150,000 data points, designed to represent all BIPOC segments appropriately compared to US census data. The design was informed and inspired by the black community, from inclusive fit to their use of bold color, designing a product that ultimately became better for everyone.

Blending the expertise of Outdoor Afro and REI's understanding of their current consumer, reshaped business practices and opened up REI Co-op's idea of its consumer. Applying new data sets, fit standards, and creative ideas to this product line attracted a new audience beyond the one it had been designing for, growing profit beyond expectation. "We got specific and focused on the black community, and that specificity addressed universal needs," said Mapp. "If you can invest right now with specific intention in the kinds of collaborations that you want for the innovative design outcomes the world will always need, do it." ◆

PHYSICAL PRODUCTS, DIGITAL PROCESSES

Product and process innovations in **digital product creation**, DPC, are transforming the fashion industry. During Day Two, "Digital Design in Practice," speakers explored how the apparel sector products and processes must change; imagining exciting opportunities that inspire better business practices.

What questions should be asked when exploring DPC? With so many software options on the market, how do companies choose the right one? "The important question to ask when diving into digital design and digital product creation, is not what software to buy," said Joshua Young, a leading authority on digital transformation for retail, "but rather what problem are we trying to solve? Or even, what problem do we need to solve?" This problem-first approach to digital transformation is transforming business.

Digital transformation and digital design should be approached by identifying the problem to be solved

first–then selecting the tools that will create a solution. For example, using digital tools might allow companies to spend more time focusing on fit, reduce the number of physical prototypes and waste, take a seasonal calendar from 18-24 months down to under 10, or develop a visual decision-making platform that brands can use from concept to e-commerce.

Gap Inc. is one brand using digital tools to enable it to focus on and improve its consumers' fit experience. Digital fit provides the accuracy of a live fitting experience in a virtual space, alleviating guesswork and enabling fit decisions to be made with confidence before producing a physical garment. The company has embraced this technology at scale, rolling it out across all of its US $15.6bn brands including Old Navy, Gap, Banana Republic, Athleta, and 120 vendors across 25 countries and 400 mills.

> **When we're thinking about 3D and digital product creation, and how that group of technologies can actually make for a better world, we should be thinking about people. We should be thinking about what all this means for new creators, new consumers, new talents, all these people who are helping to redefine how fashion works, and who fashion is for.** – **Ben Hanson,** Editor-in-Chief, The Interline

This shift towards achieving a **sustainable digital fit process** has allowed Gap Inc. to create a circular, collaborative workflow that gives visibility to everyone in the product development lifecycle much sooner, while enabling external partners, as well as internal partners, to achieve 3D goals.

"At Gap Inc. our vendors are currently supplying us with 100% of our assets," said Bernard Grenier, Director of Digital Product Creation at Gap Inc. while presenting on the brand's road to digital fit. "They're building absolutely everything [we need] when we require 3D protos, 3D line adoption samples, and we'll be stepping into 3D fit." Strong foundational tools like avatars, blocks, and digital fabrics ensure a scalable digital process and facilitates a smooth transition from digital to physical. "We were very fortunate to have a great vendor base who adopted all of our digital standards quite readily," Grenier concluded.

Is this a realistic approach to digital fit? Rozh Roux, Senior Director Technical Design, **Athleta**, emphasized the value of using foundational tools to educate vendors, creating a baseline knowledge that aligns vendors and a brand's internal teams. "The same foundational tools in physical and digital is what we build," Roux said. "That provides clarity and consistency to reduce the number of physical fits. That's really the goal here."

To integrate digital production processes successfully requires a continuous flow between vendors and cross-functional teams. This means consistent sizing. "Our avatars represent our mannequins in different size ranges, which are as close as we can get to our fit models," said Roux. "Through using the blocks you can get a fit consistency with rise shapes and armhole shapes, and use that to really drive a level of consistency across a vendor base." Blocks that are consistent across physical and digital forms establish the fit and balance of a brand – vital, when working with a large vendor base.

This collaborative approach to DPC is vital for **digital materials and fabric digitization** as well. "The key to success is co-creating with your vendors, or vendors co-creating with the brands they work with," said Gabrielle Shiner-Hill, co-founder of Bureau 555. "Textile skill level is embedded and inherent in the mills and the use of the 3D technologies can be taught; what is much more difficult, is to teach a technology specialist all about textiles."

Adopting digital processes has created tangible benefits for Gap Inc. 3D proto samples and 3D line samples have managed to save the company 6-12 weeks in the production process. With 3D fit samples and 3D size set samples, the teams have been able to save an additional 2-4 weeks.

"Who couldn't use 16 extra weeks in your product development pipeline?" asked Grenier. "If the 3D fits, wear it!" ◆

CASE STUDY
INFUSING DPC WITH IMAGINATION, TECHNICAL TOOLS AND GENERATIVE AI

In the landscape of Digital Product Creation (DPC), generative AI is emerging as a catalyst for creativity, infusing design with novel concepts and sparking innovation. Grounding this evolution in traditional tools within the 3D realm is imperative in the product development process. What if the entire process was digitized, from designing to developing apparel in multiple size sets?

"We recognize the impact that generative AI can have as a catalyst for creativity and innovation and design," said Christina Onusko, Director Blocks and Grading at Alvanon. "When it comes to the technical aspect of executing a design, there still needs to be a grounding in the design, really making real clothes for real people."

Beginning with a flat sketch, Onusko and Kimberly Wick, Senior Technical Consultant at Alvanon, created a core jumpsuit design to experiment with the transition from digital to physical projects. Midjourney and stability.ai provided initial inspiration with ease, through a variety of prompts that led the team to their initial design; a blue wide-leg jumpsuit.

After creating this core design using foundational tools, they turned to Adobe Firefly to generate additional styles from the original jumpsuit. ADA, an ai-based interactive design tool, generated a collection of designs based on an initial mood board and sketches, giving the team everything they needed to begin developing functional digital designs.

Alvanon's research using Midjourney and the prompt "wide leg sleeveless jumpsuit with collar on female; full-body pose, front and back view"

While generative AI was valuable in the design and ideation process, transforming these renderings to functional digital garments is a complex process. "You need to understand what you see [in 3D]," said Onusko, "so you can make the right decisions for the physical product that you're actually creating, because we are creating real clothes for real people. And the end goal is still the actual production of those physical garments."

Integrating AI and 3D can be quite challenging. Digital designs are not often easily transferred to functional patterns due to a lack of manufacturable information. To build 'authentic digital garments,' – that is, digital garments that are truly representative of the physical product – designers must use crucial foundational tools like Alvanon's digital size sets, a consistent digital library of agreed, defined and consistent standards that would include body blocks, fabrics, fit standards and 3D avatars and skilled technical designers. These digital tools, when embraced in product development processes, allow for exorbitant time savings while ensuring grading precision through traditional methods.

Turning design iterations from AI to manufacturable patterns is a challenge, but not impossible. By thinking through traditional garment development and necessary tools like consistent size sets of avatars, embracing an AI to DPC workflow ensures considerable time and cost savings. "It goes back to using the foundational tools," said Onsuko. "We simply use [generative AI] for design inspiration because there isn't any technical aspect about it. Once we had the design, then it was still about relying on the foundational tools to get it there." ◆

AI Pipeline

PROMPT
IMAGE REFERENCE

GET INSPIRATION THROUGH AI

CREATE AUTHENTIC DIGITAL GARMENT

DEVELOP & APPROVE PHYSICAL SAMPLE

ITERATE WITH AI

FASHION INTELLIGENCE IN FOCUS:
LESSONS FROM 3D SUPER-USERS

Software "super users" and developers brought the latest innovations to this intimate virtual stage, from revolutionizing the bra to the value of showcasing digital assets in new ways for luxury brands. Through real solutions and 3D innovations we see the value of these latest technologies in a new light.

iteration
Designs in CLO3D

CASE STUDY
RE-INVENTING THE BRA WITH ITERATION

The bra has remained uncomfortable, poorly sized, and largely unchanged for nearly a century. Through an innovative approach to consumer-led product development, iteration co-founders Kristen Anderson and Bridget Mollner are revolutionizing the bra by including the consumer at every development stage. "We're using a pull method; pulling data points from our community, asking for input, and gathering feedback to ensure that what we create truly aligns with what the market wants," said Anderson. By recognizing the pain points women face with traditional bras, actively engaging the consumer, and leveraging CLO 3D, this new venture holds significant promise for the fashion industry not only in redesigning the bra but reimagining the value of consumer-driven product development.
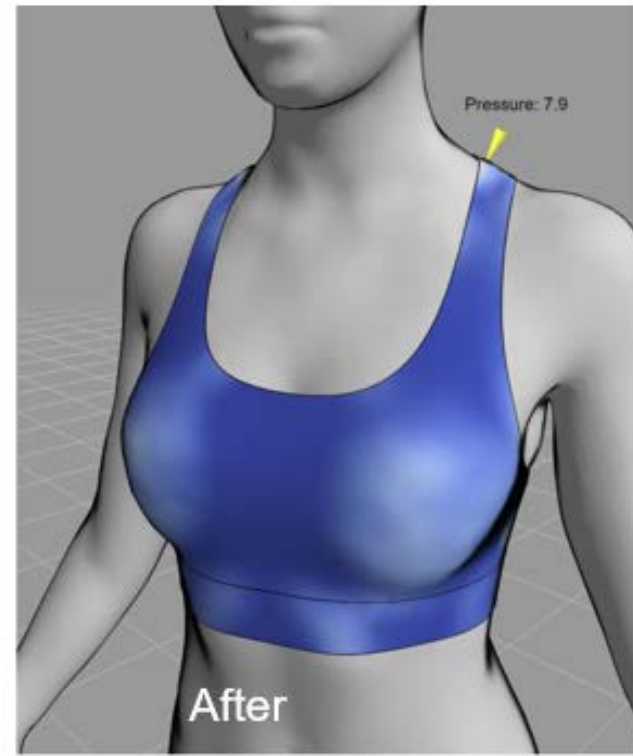
"Good data powers Good AI, e.g. making pattern adjustments"

SUPERUSER

# FAKE IT OR MAKE IT: FASHION IN THE TIME OF AI WITH VITAL MECHANICS

Artificial intelligence is more than a buzzword–it is a tool that could improve the fashion industry. With reliable high-quality data and personalized soft avatars in AI modeling, brands can create better apparel with enhanced fit. "There is a temptation to just rely on the big data that's available on the internet," said **Vital Mechanics** founder Dinesh K. Pai. "We should treat modeling as a science, so we need to measure and validate, we need to close the loop back to real [sizing]." The message is clear: AI is a powerful tool that can either help "fake" garments or "make" them high quality, and it's crucial for the industry to prioritize data accuracy to ensure positive outcomes.

CASE STUDY

FASHION GAMIFICATION WITH Z-EMOTION AND LOUIS VUITTON

Luxury brands are searching for new ways to connect with their target audiences through gaming experiences and innovative forms of entertainment. For **z-emotion and Louis Vuitton**, that experience was a 3D digital show, immersing audience members in a dreamlike physical Fall/Winter 2023 presentation. "Luxury brands are now starting to communicate in a different way with their customers," said Martina Finotti, Marketing Manager at z-emotion. With high standards of quality and realism, z-emotion recreated physical assets and models in 3D, adding animations for a full immersive experience using proprietary 3D technology and simulation engine z-weave and Unreal Engine by Epic Games through the direct plugin z-unreal. In this collaboration, we see luxury fashion evolve in real time as it embraces digital solutions, immersing customers in virtual experiences, and redefining how luxury fashion is communicated and experienced.
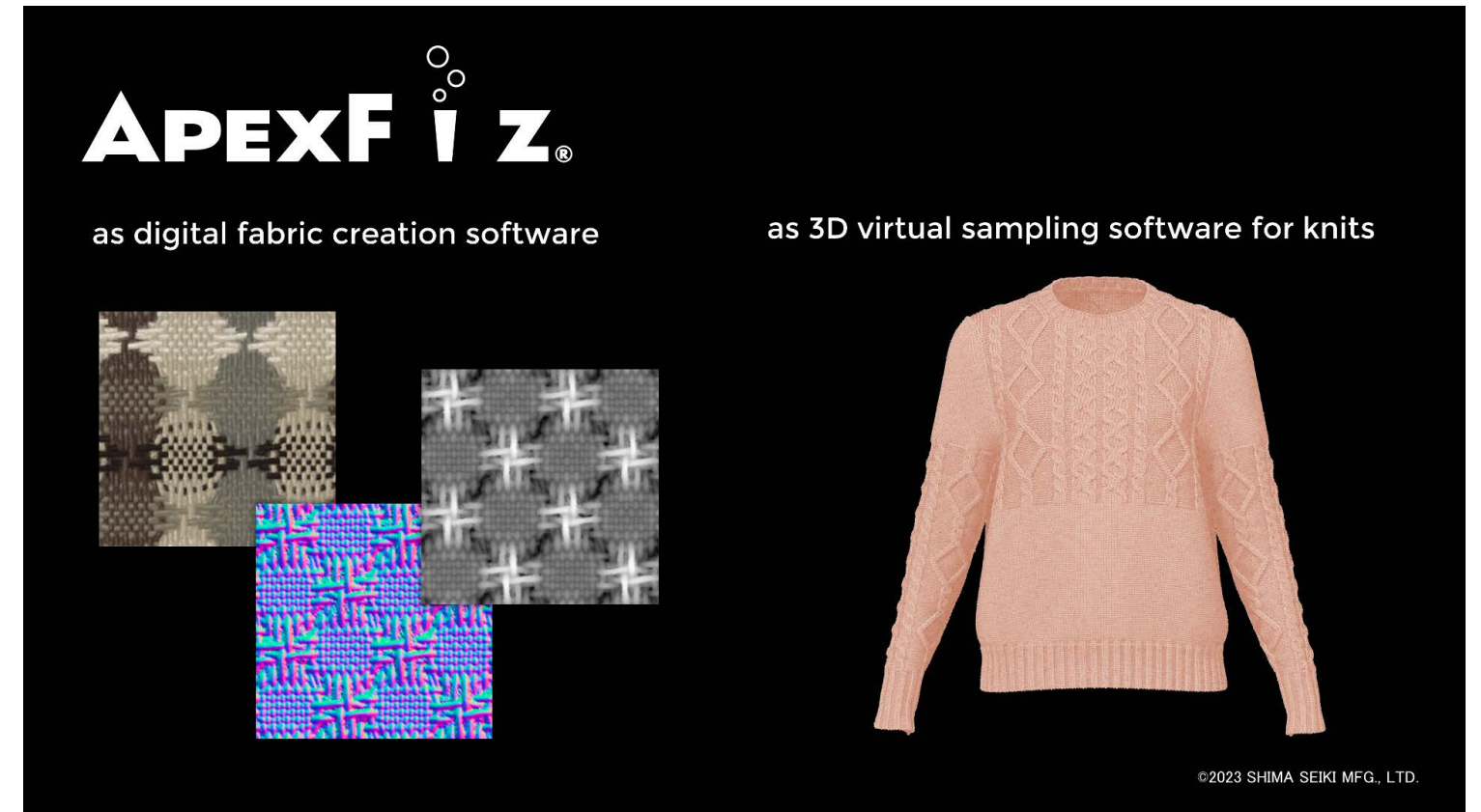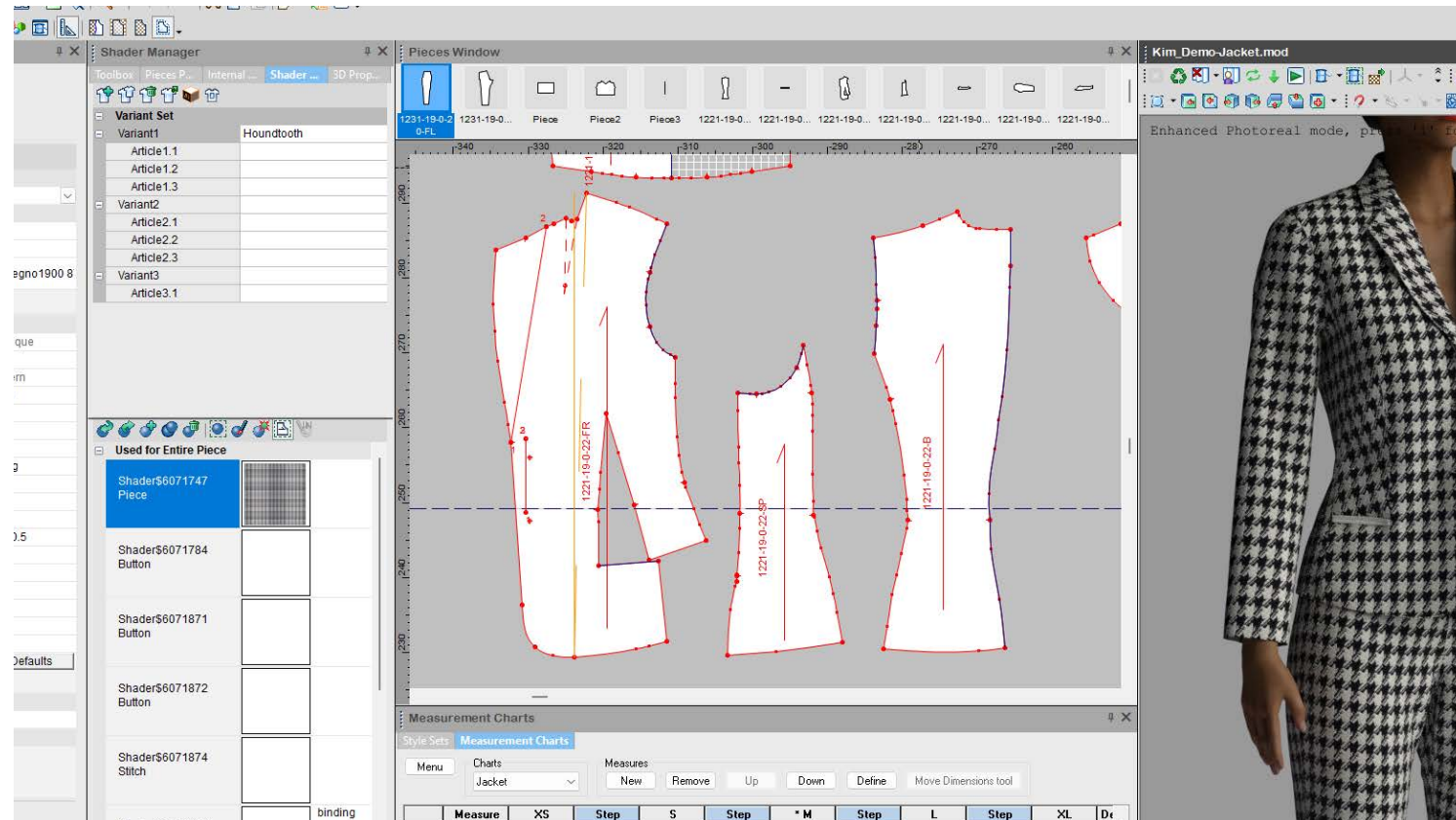
BRIDGING BETWEEN THE ART AND SCIENCE WITH OPTITEX

"What are your 3D objectives?" asked James McDermott, Optitex EMEA Fashion Manager. The 3D fashion landscape is currently divided into an artistic realm and a scientific realm. The "art" focuses on visualization and creativity, while the "science" emphasizes technical accuracy and product development. Choosing the right 3D approach depends on objectives. "If you want to digitize your prototyping, reduce physical samples, increase the speed to market, and have a massive impact on your sustainability efforts, then you're going to be leaning toward a development-focused solution," McDermott said. Indeed, Optitex technology does fulfill design needs, they are widely recognized as market leaders in development, with technically accurate 2D pattern-making software, true-to-fit 2D to 3D simulation, virtual fitting, and material efficiency to streamline fashion workflows and enhance sustainability efforts.

REVOLUTIONIZE DIGITAL FABRIC CREATION AND KNITWEAR MODELING WITH SHIMA SEIKI

Poor digital fabric creation and knitwear digital representation are hindering effective 3D adoption for some brands. Maya Yamaguchi, a sustainable technology specialist at SHIMA SEIKI USA, introduced **APEXFiz**, a software revolutionizing fabric material creation and knitwear modeling for digital product creation, DPC. "With APEXFiz it is possible to not only create as a visual, but also achieve a complete DPC that leads to final production," said Yamaguchi. The software allows for digital fabric creation, and 3D knit virtual sampling, eliminating the need to procure physical fabrics and streamlining the production process. APEXFiz fills a critical gap in the fashion industry by addressing the challenges of digital fabric creation and 3D knitting.
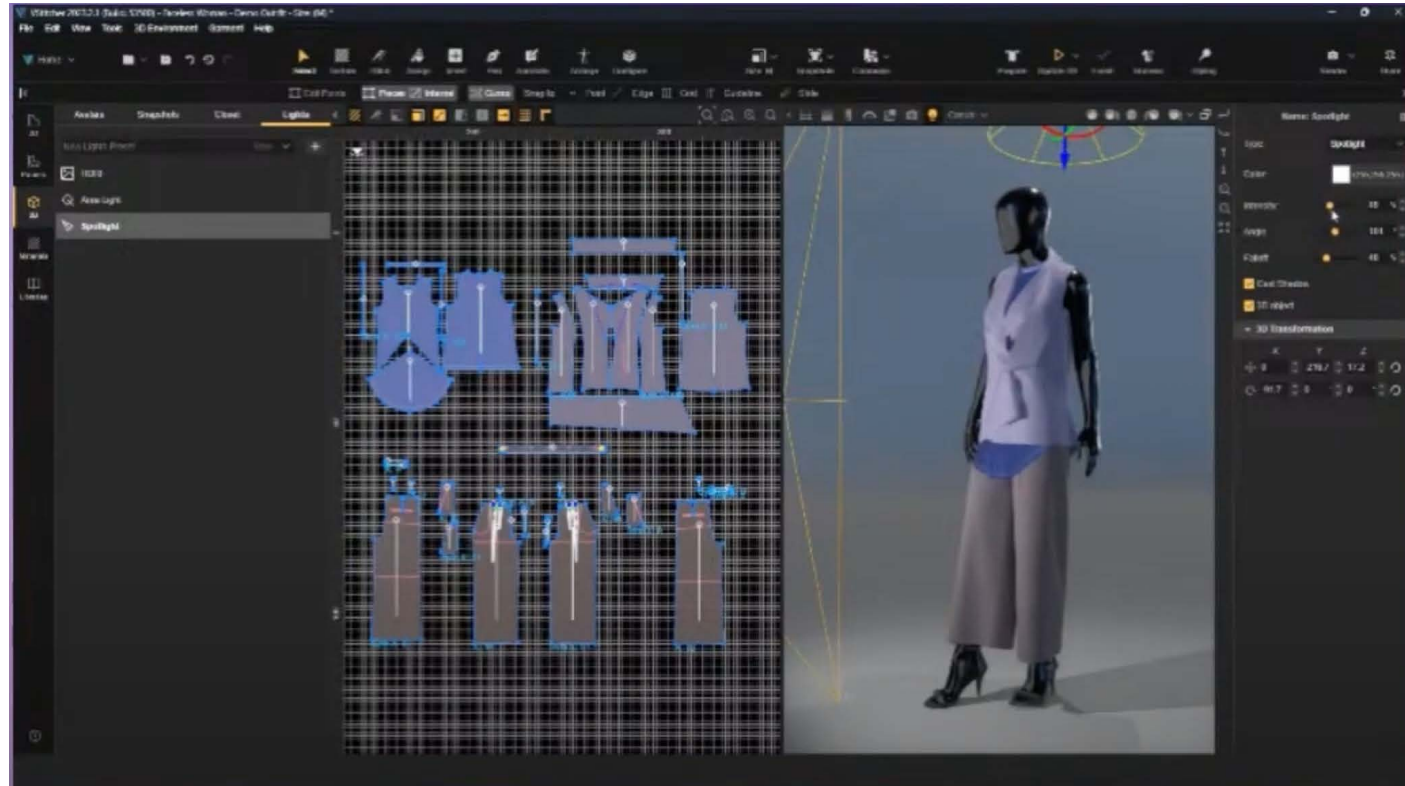
3D ADVANCEMENT WITH BROWZWEAR'S VSTITCHER

Digital product creation is only effective if the digital products mimic real garments. With the integration of V-Ray 5 and Unreal Engine, Browzwear's **latest updates in V-Stitcher** are improving the efficiency of the design process. "We've upgraded so you can see a realistic view of your 3D materials," said Dorelle McPherson, Product Marketing Manager, noting a change that allows designers to visualize different textures and lighting effects more accurately. These updates have eliminated the need for different programs and developed more dynamic editing tools. These improvements signify a major leap forward in 3D adoption, empowering designers to create, visualize, and refine their garments more efficiently, ultimately saving time and improving the quality of their work.
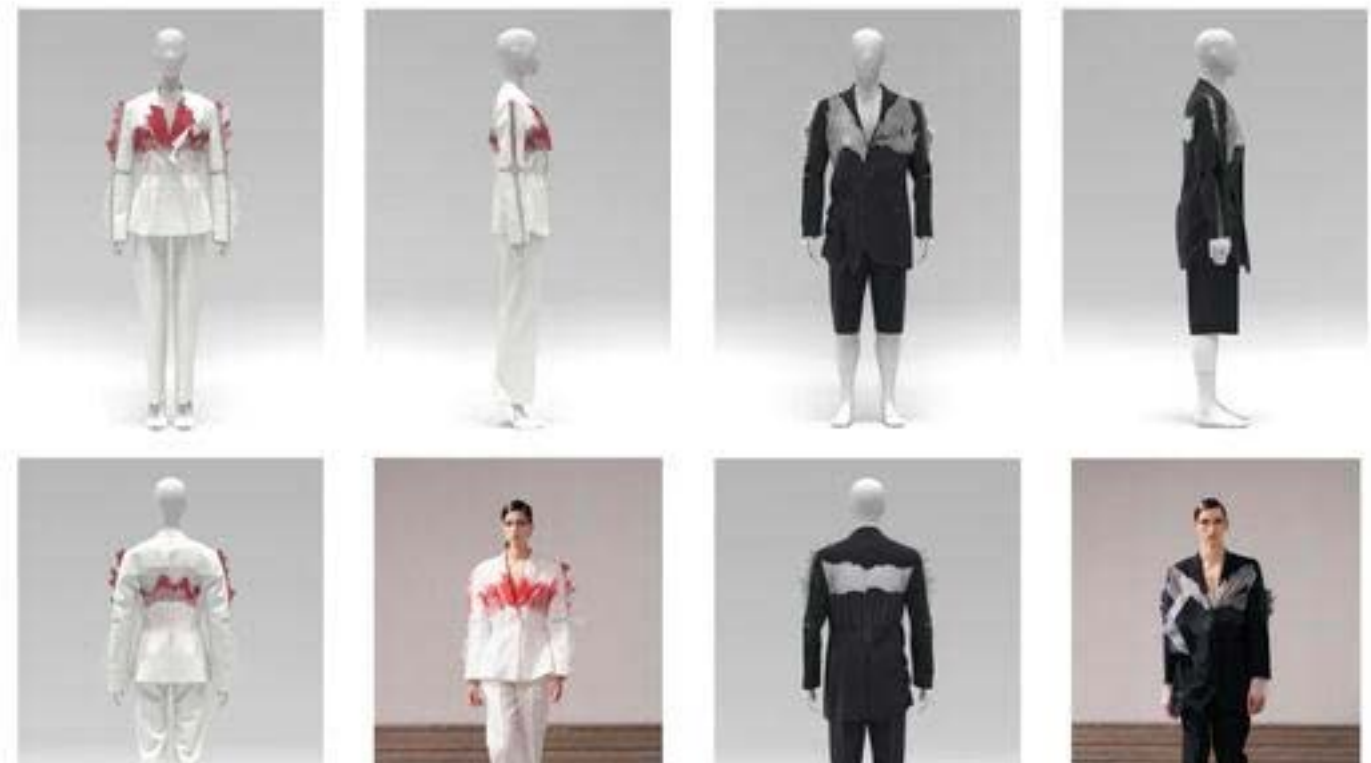
HOW 3D IS REDEFINING DIGITAL COUTURE WITH STYLE 3D AND STEVEN PASSARO

Steven Passaro's Spring-Summer 2024 couture collection presented at Paris Fashion Week came with an unexpected twist – a digital presentation, created by **Style 3D**. Style 3D collaborated with Passaro to showcase his collection virtually, demonstrating how 3D technology can accurately reproduce intricate couture designs. "Our focus is on taking this whole process and making it easier," said Dan Snyder, Business Development Manager at Style 3D. "That's how we'll affect more change as we move forward." Style 3D's vast product ecosystem, simplified 3D development for designers, allowing them to seamlessly integrate digital tools into their creative processes, increasing efficiency and sustainability while maintaining the intricate details of couture garments.

ACCELERATING DIGITAL TRAINING IN FASHION WITH AI TOOLS AND LEARNMONADE

The AI boom is bringing new opportunities to revolutionize training and content creation in the fashion sector. "It's clear that the world of AI is brimming with incredible tools, and with access to these tools, you can keep up with the ever-changing fashion landscape," said Ivy Shi, CEO of **Learnmonade**. Spotlighting Lumen5 as a tool for creating engaging e-learning videos, Runway Gen-2 is a tool used to enhance visual content through high-quality image generation, Synthesia and D-ID as tools for realistic talking head videos, and Fireflies as a multi-language transcription tool, the presentation underscores the importance of AI in making fashion training more efficient, engaging, and accessible through captivating e-learning experiences.

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