From Tech to Track

The New Era of Sneaker Innovation Insights Report Spring 2025



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From Tech to Track:

The New Era of Sneaker Innovation

Insights Report Spring 2025







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In all aspects of life and fashion sneakers are integrated, not to mention sneaker collaboration. It's really exploded and taken a front seat in the fashion industry. You see these brands mixing together that would not have historically worked.

> — Q Williams (B.F.A., industrial design, 2011) Professor, accessory design and sneaker design at SCAD

Executive Summary

As consumer expectations around innovation, wellness, and identity grow, footwear is becoming more responsive, personalized, and emotionally resonant. Sneakers have transcended practicality to become cultural tools, recovery systems, and gateways to community connection. This report explores how sustainable design, recovery technology, and community activation deepen consumers' connections to their footwear.

Industry Shift	Opportunities	Future Outlook
Future-forward Sneaker Manufacturing	Advanced materials and agile production systems like 3D printing and robotic spraying reduce waste, enable circularity, and support transparent sustainability efforts.	Future-proofing Footwear: Sustainable materials and automated processes will support made-to-order models, reducing inventory and enabling hyperlocal, low-waste production.
Science-driven Performance	Smart footwear powered by biometric sensors and recovery features can optimize training, track fatigue, and support body restoration in real time.	Designing Superhumans: Footwear will integrate AI-powered systems that adapt to stress, self- regulate performance, and support recovery — transforming sneakers into personal performance ecosystems.
Community and Cultural Engagement	Brands can foster deeper loyalty by embedding sneakers into social rituals through run clubs, fandoms, and immersive collaborations that prioritize belonging.	Laced Together: Retail will become cultural infrastructure — places for movement, matchmaking, and storytelling — where sneakers unlock not just access, but identity.

Introduction

Sneakers are no longer just products of style or sport. They are platforms for transformation. With each innovation, footwear moves closer to the body, deeper into the city, and further into the future.

Human potential is being reimagined — and it begins underfoot.

Self-repairing textiles, temperature-responsive structures, and sustainable compounds transform how sneakers come into the world, evolve with wear, and return to the system.

Footwear functions as a biomechanical system — tracking motion, adjusting support, and amplifying performance to extend human potential.

Sneakers operate as cultural gateways — linking wearers to mobile platforms, immersive spaces, and networks of ownership and movement.

Together, these frontiers signal a shift in what sneakers represent: regenerative systems, recovery tools, cultural artifacts, and storytelling platforms. Sneakers, embrace circular production, respond to real-time data, and bring people together through shared experience.

This report draws from a SCADask survey of more than 800 respondents, indepth interviews with athletes, and conversations with leading voices from companies like Adidas, Puma, Nike, Reebok, Skechers, Under Armour, and the Cleveland Clinic, exploring how brands, designers, and users reshape sneaker culture through sustainability, performance, and community. From intelligent systems to immersive retail, the path forward reflects clarity of purpose and connection. The sneaker now sets the pace of innovation.

> Built for change. Designed for performance. Tied into culture.

Key Takeaways



A SCADask survey found that runners prioritize comfort and function more than brand loyalty.



Athletes interviewed by SCADask say that the reasons they switch brands include injury prevention and performance needs.

"SNKR 375" by Rodrick Thomas (B.F.A., industrial design, 2023)

Customer Journey

Sneaker shopping has evolved into a dynamic journey that blends technology, personalization, and community engagement. From discovery to post-purchase, each step enhances the consumer experience through digital innovation, expert guidance, and interactive retail. Key moments that influence how consumers discover, select, and stay engaged with their sneakers include:



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Al improves sustainability by minimizing material waste, enabling precise 3D printing, and facilitating eco-friendly material selection, helping brands reduce their environmental footprint.

> — Long-Nam TÔ Chair, accessory design and sneaker design at SCAD



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Future-proofing Footwear



Integrating Circularity

Sneaker production is undergoing a fundamental shift — from linear systems built for speed and scale to circular models that prioritize regeneration, reuse, and responsible design. This new era of footwear redefines how materials are sourced, assembled, and reintegrated into the ecosystem.

As technology, sustainability, and design converge, manufacturing becomes a vehicle for change; robotic systems and digital tools now enable precision, speed, and modularity while minimizing waste. Seamless construction, made-to-order fabrication, and mono-material formats transform sneakers into products that can be dismantled, recycled, or reborn.

Materials evolve with the same intentionality. Temperature-reactive foams, biobased fabrics, and compostable components signal a future where every element plays a part in a closed-loop lifecycle. Durability has replaced longevity with graceful decomposition, adaptability, and reintegration.

This shift invites a deeper sense of responsibility across the industry. Consumers increasingly demand transparency and impact, favoring brands that align sustainability with creativity. Sneaker design now bundles care, accountability, and long-term vision with performance. In this next phase, every decision — from thread to tread — becomes part of an expanded ecosystem.



of SCADask survey respondents favor companies committed to sustainability

Committed to responsible design, SCAD's accessory and sneaker design departments have partnered with ReValorem, a sustainabilityfocused luxury network in Paris, to integrate circular design thinking into curriculum.

BAFETT BLASSES

Behind the Laces

As sneakers evolve, so do expectations. Consumers — especially runners who wear out shoes quickly — demand more transparency around sustainability. They want to know what shoes are made from, how brands produce them, and where they go afterward.

When it comes to sustainability, certain issues matter more to consumers than others. According to SCADask survey insights, carbon footprint stands out as the top concern – above materials or sourcing. This puts pressure on brands to create products that cut emissions not only during production but throughout the entire lifecycle. That includes how sneakers reach the end of their use, how they break down, and how they return to the environment in a way that aligns with growing consumer expectations.



think the industry's environment-focused sustainability practices lack transparency and visibility.

Respondents identified the following as the most important factors in terms of environmental sustainability:





Top resources used to research the environmental sustainability of sneakerrelated products and services:

People actively seek information about sustainability in sneakers, with social media topping the list of resources. Influencers play a key role by spotlighting the environmental impact of sneaker brands and shaping more informed, conscious purchase decisions.

Many consumers want to know a brand's sustainability efforts at the point of sale in addition to what they glean from their research. Brands must present easily understood and transparent information in-store and online. In addition, they must equip retail staff with accurate knowledge to answer questions with confidence and clarity, supplementing the online shopping experience with detailed FAQs. When shoppers receive honest, direct answers in real time, they feel more informed and supported in their choices, building trust and deepening their connection with the brands they choose to support.



of respondents would like more information regarding the environmental sustainability of their sneakers at point of purchase.

The Instant Sneaker

Advanced manufacturing transforms both how sneakers are made and what they are capable of. Technologies like On's LightSpray and the Spore Paca, created by SCAD alum Jack Winkler (B.F.A., accessory design, 2024), offer new models for cleaner production, process-driven design, and circularity. While each approach follows a different path, both point to a future where the process of making sneakers becomes central to their stories.

LightSpray, introduced by On in 2024, uses a robotic arm to spray liquid performance fibers directly onto a mold, forming a seamless upper in under three minutes. The process eliminates stitching, adhesives, and excess fabric. According to On, it reduces carbon emissions by 75 percent compared to traditional racing shoe construction. The debut sneaker, Cloudboom Strike LS, premiered at the Paris Olympics on long-distance runner Hellen Obiri, demonstrating the system's performance potential at the elite level.

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LightSpray marks a significant milestone for On, not only in creating high performance products but also the potential it has to move us towards a more sustainable, circular future.

> - Marc Maurer Co-CEO at On



Jack Winkler's Spore Paca, launched in 2023, takes a different route. Produced in collaboration with Zellerfeld, it's the first 3D-printed skate shoe made entirely from thermoplastic polyurethane recyclable (TPU). The process begins with scanning the user's foot in 3D and ends with printing the shoe in one continuous form. This madeto-order model reduces parts, simplifies production, and allows for full recyclability. Inspired by its South American rodent namesake, the Paca balances performance and durability with a striking, texture-rich aesthetic.

These innovations reimagine sneakers as dynamic systems. Spray-based construction opens the door to respraying worn uppers, restoring performance without full replacement. Similarly, 3D-printed shoes enable targeted reprints in high-wear zones, extending lifespan through modular updates.

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I approached Zellerfeld because the skate community, the running community, and basically all athletes burn through their shoes much faster than the average consumer. The idea was to create a fully recyclable shoe.

> — Jack Winkler (B.F.A., accessory design, 2024) Footwear designer at FCTRY Lab

Both methods align with emerging trends in adaptive, data-informed design. Virtual tools like Gravity Sketch and evolving AI platforms support co-creation between designers and consumers, allowing footwear to be customized before it's even printed or sprayed. Streamlined construction and mono-material formats simplify recycling, reinforcing the shift toward circular manufacturing. Whether through robotics or 3D printing, On and Winkler advance sneaker design into a new territory — one defined by regeneration, responsiveness, and intelligent production.

Sustainable Manufacturing

Materials now lead the evolution of sneaker design as they shape both the product and the values it expresses. Through innovative choices that bridge aesthetics with sustainability and purpose, brands like Puma and Johnny Footwear transform materials into emotionally resonant statements.

Puma's RE:SUEDE, launched in 2022, reimagines a classic silhouette using biodegradable materials. A blend of Zeology-processed suede (a sustainable tanning process by Nera) and hempbased fibers allows the shoe to break down under industrial composting. As part of a pilot program, Puma asked wearers to return the shoes for analysis after use, testing the viability of a scalable, circular model. The RE:SUEDE aims to reduce landfill waste, built with disassembly in mind from day one.





Johnny Footwear approaches the challenge with a lighter footprint and a poetic message. Made from plantbased, compostable materials, Johnny shoes include an apple tree seed embedded in the sole. When the shoe wears out, the user can bury it to decompose and grow new life. This simple, direct interaction makes sustainability tangible as the end of a product is reframed as renewal.

Both approaches reflect a shift from durability for durability's sake to purposeful longevity. In this context, a sneaker's value is measured by how well it returns to the system.



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The nice thing about this project is that because it's a biodegradable sneaker that grows into a tree, we can kind of help, number one, offset people's carbon footprint, but we're also helping eliminate plastics. And the more people we can reach with that the more of an impact we can have.

> — Luc Houle Founder at Johnny Footwear

In the future, material development may move even further into intelligent design — including self-healing textiles, temperature-adaptive foams, and biosynthetic compounds that match the performance of synthetics while remaining fully biodegradable.

These advances also open doors for circular infrastructure. As more brands adopt mono-material construction, the recycling or composting process becomes less complex and more scalable. Instead of heading for the landfill, worn-out sneakers can be placed in compost bins or sent to reprocessing centers.

Puma and Johnny Footwear represent two ends of a shared spectrum: one leverages innovation and scale, the other creates emotional connection and individual impact. Together, they show how material intelligence shapes the next era of footwear where performance and responsibility coexist.



"Smocked" boot by Madeline Helt (B.F.A., accessory design, 2023) in collaboration with Jack Winkler [3D printing] and Emily Lacomba (B.F.A., fibers, 2023)[sock development]

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They [Zellerfeld] use 3D scanning like Face ID to create a custom one of one fit to your foot for less sizing waste and more customization. It has democratized footwear design.

> — Jack Winkler (B.F.A., accessory design, 2024) Footwear designer at FCTRY Lab

Emerging Trends

The future of sneaker design lies in adaptability, circularity, and intelligent responsiveness. Materials may soon self-heal, restructure based on activity, or biodegrade without leaving a trace. Real-time customization could become standard, with shoes tailored at the moment of purchase through scanning or Al input. Designers will increasingly work alongside algorithms, crafting forms that evolve with wear. As production decentralizes and becomes more sustainable, sneakers will reflect the individuality of the wearer — and the values of the world they move through. What begins as innovation today may soon become the new baseline for thoughtful, future-ready design.

Action Guide



Build to Reuse: Choose materials and methods that make sneakers easy to repair, recycle, or remake.



Embrace Early Adoption: Experiment with technologies like 3D printing and AI in all stages of the process to accelerate ideas and reduce waste.



Think Smarter: Source materials that change with the body, respond to conditions, or break down naturally.



Unite Team Members From All Stages: Collaborate to build useful, responsible, and exhilarating sneaker designs.

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I think we should start with a clean canvas and define a new era of footwear with new processes, new materials, and new ways to experience shoes and transform the way we perceive shoes.

— Cesar Idrobo (M.F.A., accessory design, 2016; B.F.A., industrial design, 2012) Senior manager of creative innovations at Crocs, Inc.





Designing Superhumans



Q Williams with his "DC2-II PACER" design

Recovery Reimagined

As athletes reach new thresholds of performance, recovery becomes part of the movement itself. Training no longer ends with exertion — it continues through restoration, adaptation, and preparation for what's next. In response, footwear evolves from passive support to active regeneration, offering tools that help the body recover while it moves.

Across midsoles, uppers, and structural components, innovative technologies enable sneakers to:



These capabilities signal a deeper shift in design philosophy. Formerly a separate phase, recovery is now embedded in the architecture of performance. Today's footwear warms the body, responds under strain, and restores energy with every step. Driven by data and informed by sports science, sneakers act as dynamic ecosystems that prepare, protect, and recharge the athlete in motion. This fusion of intelligence and physical design pushes the boundaries of what sneakers can do. They shape the rhythms of rest and exertion, and guide the athlete toward sustained, enhanced performance.

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Wearing the wrong shoes long-term can cause chronic pain, soft tissue issues like plantar fasciitis, and joint problems such as metatarsalgia. These foot issues can also lead to pain in the knees, hips, and spine.

Dr. Carlos Higuera Rueda
Chair, Levitetz Department of
Orthopaedic Surgery at the
Cleveland Clinic Weston Hospital

Recovery Tech Shaping Athletic Potential

A 2024 Nike and Hyperice partnership — initially focused on apparel and accessories — demonstrates how recovery tech redefines the future of sneaker design. The temperature-controlled Nike x Hyperice boots optimize warmup and muscle recovery by enhancing circulation and reducing the risk of injury. Powered via battery, the boots provide:

- Air-compression massage via Normatec bladder
- Integrated warming elements for temperature control

Designed with input from doctors, pro athletes, and sports medicine experts, Hyperice's Normatec is a compression system that supports the lymphatic system to reduce pain and improve circulation. When paired with temperature regulation, the Normatec boots offer three levels of adjustment to the feet and ankles, enhancing recovery.

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From the moment I tried the Nike x Hyperice boots and vest while they were still in development more than a year ago, I knew they were going to change the game for athletes' warmup and recovery.

> — LeBron James NBA All-Star and Los Angeles Lakers forward and Nike signature athlete



As performance demands on athletes increase, the boundaries among equipment, recovery, and enhancement narrow. Industry leaders like Nike actively explore ways to embed recovery tools that maximize training efficiency and minimize downtime into footwear with the potential to develop sneakers with more complex embedded systems for muscle stimulation, real-time fatigue monitoring, or micro-vibration therapy. Such features would accelerate recovery and support endurance during high-impact activities, offering athletes a competitive edge. When combined with responsive design and biomechanical insights, integrated AI systems could enable sneakers to anticipate gait, detect pressure points, and adapt in real time - optimizing both performance and recovery.

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I've been using the Nike x Hyperice boots as a key part of my recovery before and after training sessions and races this spring. Because of the lightweight design, I'm able to incorporate my boots into my daily routine without restrictions.

Sha'Carri Richardson
Track and field sprinter and
Olympic gold medalist

The use of AI and adaptive materials in footwear is more than theoretical. Companies across the industry are already leveraging data and advanced fabrication methods to create personalized fits, predictive support structures, and energy-return foams. Nike's alignment with Hyperice shows how science and design unite performance, recovery, and personalization to redefine sneaker serviceability and enhance human potential. As this technology becomes more accessible, it also has the potential to support broader communities of everyday athletes, creating shared recovery tools and knowledge that foster wellness beyond elite performance.

Al-Powered Walking Wellness

A collaboration between Baliston and industrial designer Philippe Starck positions AI-powered gait analysis as the next frontier in wellness-focused footwear. The Baliston by STARCK sneakers feature embedded MovScan sensor modules that measure more than 30 metrics, including propulsion, stride length, and heel impact force. By collecting real-time movement data, the system transforms walking into a tool for performance insight and preventive care.

Through the companion app, Baliston Connect, users receive personalized scores and insights including:

- Actions to relieve pain and discomfort
- Corrections to posture and stride
- Techniques to reduce fatigue
- Alerts for early signs of conditions like Parkinson's disease



Walking patterns, our movements, tell us a lot about our health and I was thinking for a long time, how can we gather this data from the foot to bring more value to the shoes?

> - Karim Oumnia Founder and CEO at Baliston



In addition, the app tracks wearand-tear across the shoe's lifecycle. When performance declines, users can recycle and replace the insoles, the shoes, or both through a built-in takeback system.



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It's a global project which is about well-being and sells well-being through continuous consideration about ecology, recycling, organic product, comfort and — at the end — design.

> — Philippe Starck Industrial architect and designer at STARCK

Baliston reframes sneakers as responsive health platforms. By embedding AI into the act of walking, the brand equips users with real-time feedback that helps them move more efficiently, reduce strain, and detect issues before they escalate. This approach supports long-term mobility and positions gait as a vital source of performance intelligence.

As AI and sensor technology become more seamless, future footwear will learn from each step and respond in real time. These systems will both optimize movement and extend the shoe's function into daily wellness, personalized coaching, and early diagnostics. Baliston's model points toward a future where sneakers adapt, assist, and actively protect users across a wide range of motion.



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With CRM tools, advanced analytics, and behavior prediction, we can better understand each consumer, anticipate what they're looking for, and offer products that align with their identity, interests, and lifestyle. Technology with purpose — that's the path we're building.

> — Juan Pablo Lega Country manager at Puma Colombia

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Emerging Trends

Recovery tech is poised to transform sneakers into intelligent performance systems. Future designs may include Al-powered platforms that anticipate fatigue, self-regulating midsoles that adapt to muscle strain, and temperatureresponsive materials that cool or warm based on real-time body data. Embedded biometric feedback could allow footwear to adjust instantly offering stability, cushioning, or compression before stress becomes injury. These advancements signal a shift from reactive to preventative design, where sneakers do more than respond to motion. They maintain readiness, preserve endurance, and become essential tools in optimizing the body's ability to perform, recover, and push beyond current limits.

Action Guide



Employ Smart Sensors: Add built-in sensors that track biometrics like muscle fatigue, hydration, and pressure to help the shoe adjust during activity.



Collaborate With Recovery Experts: Team with companies that specialize in recovery tools to bring proven techniques into sneaker design faster and more effectively.



Design Shoes That Adjust: Build sneakers that can change support or cushioning depending on what the body needs during warmup, strenuous training, or recovery.



Think Beyond Pro Athletes: Feature recovery enhancements for everyday users that prioritize comfort, affordability, and ease of use.

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Collaborations are exciting because they go beyond just selling a sneaker — they merge two worlds and create something deeply personal for a specific audience. When done well, they speak directly to the consumer, not the masses.

> — Kirsten Warkow (B.F.A., industrial design, 2016) Footwear designer at Reebok





Laced Together



The Power of Sneaker Community

The new generation of runners moves with purpose. They seek connection, belonging, and shared momentum. Across cities and platforms, running evolves into a cultural ritual — rooted in identity, shaped by community, and guided by deeper human connection. At the center of this movement are sneakers, now essential for performance and as symbols of self-expression and collective experience.

Strava, with more than 135 million users, reported a 59% global increase in club activity on their app last year. These smaller, intentional communities help runners engage more actively and gamify the experience. Strava reports that its users run 21% farther and 10% longer when they participate in group challenges.

Within these communities, sneakers carry influence. Brand awareness passes from one runner to the next through recommendation, testing, and shared stories. Their value is reflected in form, function, and the journeys they take. In response, runners gravitate toward physical spaces that reflect their values and support authentic interaction. Retail plays a key role as a platform for participation as guided runs, creator-led conversations, and community activations unite sneakers with purpose.



Respondents to a SCADask survey prefer to shop both online and in-store when purchasing sneakers.

Technology extends these connections. Recent campaigns tie sneaker drops to completed routes on platforms like ASICS Runkeeper, linking physical effort to digital reward. At the same time, brands like On and ASICS use this data to shape new products — designing sneakers tuned to pace, fatigue, climate, and terrain. This is the future of running culture: built by people, rooted in place, and powered by products that bring them together.

The U.S. sneaker resale market is projected to grow from \$2 billion to \$30 billion by 2030, highlighting the increasing influence of reselling on brand perception and exclusivity.

age created with Gemini

The Future of Experiential Retail

As digital fatigue reshapes consumer expectations, physical retail emerges as a renewed point of connection. Runners and sneaker enthusiasts seek more than product transactions — they look for cultural immersion, interaction, and community. In response, brands explore new ways to position the retail environment as a storytelling platform. *Sneakertopia* offers a compelling glimpse into that future.

First launched in 2023 at the ArtScience Museum in Singapore, *Sneakertopia* presents an immersive cultural experience rooted in sneaker history and design. Rather than relying on traditional displays or static brand messaging, the exhibition invites visitors to explore sneaker culture through themed zones that celebrated art, sport, music, and innovation.

The traveling exhibition features augmented reality murals alongside installations by local and global artists, sustainable design workshops, and more. Guests can engage by taking design master classes, interact with "Sneak Pics," and visit onsite curated shops stocked with exclusive, artist-designed drops — all made for sneaker culture immersion.

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It's the crossroads of where we are right now with museums and retail space. And we are working with some really great artists. ... We've curated 20 artists, who are all sneakerheads and have worked with the biggest sneaker brands in the world.

> — Steve Harris CEO at Sneakertopia Inc.





More than an exhibition, *Sneakertopia* acts as a prototype for the next generation of experiential retail. In this model, physical stores serve as cultural arenas, where brand narratives unfold through community activations, creative leadership, and personalized engagement. As retail evolves, features like stride scanning, AR try-ons, and data-driven product recommendations will further tailor the experience and connect performance, lifestyle, and environment in real time.

This shift prioritizes interaction over inventory. Future drops may tie to group runs, physical challenges, or creative collaborations. Access becomes earned through movement and presence. In this vision of retail, sneakers carry not just aesthetic or technical value, but emotional memory and community meaning.

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We wanted to showcase all that rich history and culture behind the sneaker through a thematic exhibit that really takes the guest along the journey of the sneaker through all the field[s] that it influences and has been influenced by.

> — Justin Fredericks Curator at *Sneakertopia* and CEO at Art House

By turning curated spaces into living cultural platforms, *Sneakertopia* redefines what sneaker engagement can be. It demonstrates a future in which retail becomes more than the transaction by transforming into an experience where products, culture, and community unite.

Culture in Motion

A new wave of brand partnerships is reshaping how people connect to products and each other. In 2024, social media buzzed with reflections on how meeting people through a run club felt more meaningful than a dating app. That shift signaled a deeper cultural pivot toward real-world experiences built around movement, energy, and shared intention.

A recent collaboration between Puma India and Bumble captured that momentum. Together, they reimagined running as a social language. On November 10, 2024, ahead of Singles' Day, the brands hosted a singles-only 3K run in Bengaluru, India. The goal wasn't a finish line — it was connection. Runners aged 21-35 met at Nexus Koramangala Mall and set off together, finishing at a social mixer with music, icebreakers, and a breakfast café experience.

The event led to a follow-up activation: "Rundowner," a Valentine's-themed event in Mumbai that combined a sunset run with speed dating. Puma, a leader in India's running scene, saw the opportunity to link sneakers with something larger — connection.



of Indian users expressed openness to fitness-focused first dates.

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We strongly believe that the running community is a great opportunity for people to meet, jointly experience the thrill of this fantastic sport and make new memories. Together with Bumble, we have created a differentiated meeting experience that is all about movement, energy, and in turn foster a vibrant running community in the country.

Karthik Balagopalan
Managing director at Puma India



These meetups reframed sneakers as cultural tools and catalysts for connection. The Puma x Bumble collaboration transformed a run into an event that promoted romantic connection through shared identities and values.

These activations preview what brand partnerships could become. Future experiences might match runners by pace or route, or offer post-run spaces that blend merchandise, music, and meetups. Sneakers embedded with NFC chips could unlock access to events, suggest new running routes, or trigger shared playlists tied to capsule collections. Such innovations build on existing behaviors, expanding the role of footwear in lifestyle and relationship-building.

Puma and Bumble's partnership revealed how sneaker culture is expanding beyond gear into a gateway for discovery. In an era where connection holds as much value as the product itself, a sneaker's true impact may lie in the relationships it sets in motion.

of Indian users said a lack of interest in movement would be a dealbreaker.

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What we're seeing at Skechers is a deeper relationship with the athlete. They give feedback, we listen, and they see the changes in the next round. That kind of collaboration is powerful — and rare.

> — Devon Anastos (B.F.A., fibers, 2016) Senior CMF designer and artist at Skechers

> > th Gemini

Emerging Trends

As sneaker culture continues to evolve around community and participation, design will increasingly respond to behavior in addition to performance. Expect to see sneakers embedded with NFC chips, enabling users to unlock events, connect to playlists, or share run data with peers. Rather than having customers wait for results, retail environments may offer on-the-spot gait analyses to personalize fits or recommend specialized shoes. Brands will experiment with modular sneakers designed for lifestyle-based customization. Co-created capsules with niche communities — dating apps, artists, wellness groups — will blur the line between product and experience. In this future, sneakers become tools of expression, identity, and connection — worn to belong.

Action Guide



Design for Community: Develop sneakers and gear that unlock access to events, playlists, or shared challenges, turning every purchase into a passport for connection.



Rethink Retail: Transform stores into spaces that foster movement and meaning through guided runs, local club meetups, or creator-led talks.



Leverage Data for Personalization: Collect behavioral and movementbased insights — pace, terrain, timing — to design smarter, more adaptive products like dynamic recommendation systems that respond to lifestyle.



Partner Outside the Industry: Collaborate with unexpected players — apps, artists, wellness collectives — to create capsule experiences that feel personal, culturally relevant, and emotionally resonant.

Alumni Spotlight: **Kirsten Warkow**

B.F.A., industrial design, 2016 Footwear designer at Reebok

SCADask: Thank you for joining us, Kirsten! SCADask has been examining the future of sneakers from a variety of perspectives. Let's begin with sustainability. How are new materials being used?

KW: I see a growing concern around end-of-life solutions - specifically, what happens to sneakers after they leave the consumer's hands. There's a clear push in the industry toward using more natural materials. A lot of footwear is made from plastics nylon, for example, is a big one and is roughly 60% plastic. Now, both consumers and companies are looking for alternatives that are 100% natural — materials like cotton. linen, or even real animal hide. Materials that are naturally biodegradable are easier on the environment and typically require fewer harsh chemical treatments.



SCADask: How do new technologies shape product design and creation?

KW: All is definitely one of the biggest innovations entering footwear, apparel, and fashion as a whole. Some people are concerned it could replace creative jobs, like selecting colors or designing patterns, but in reality, there's still strong value placed on human-made work. Buyers, consumers, and design teams all appreciate that human element, and I don't think that will disappear.

At the same time, AI is becoming a valuable tool in the design process. It can assist with renderings, spark new ideas, and serve almost like a virtual collaborator. For example, if you're debating between different design elements and don't have anyone to bounce ideas off of, you could ask AI for input. It's a way to get quick feedback and move forward.



SCADask: What role does collaboration have in the sneaker industry?

KW: Basketball players have been leading this space for a while. Their long-term brand partnerships often go deeper than visuals. Brands like Nike, Puma, and Reebok invest heavily in those relationships, not just for sales, but to create something that resonates with fans.

There's real potential for collaborations to offer more than just hype. It reminds me of *Fortnite* activations, where they bring in celebrities, host private concerts, and create exclusive content. That kind of personalized, immersive experience could work well in sneakers too, especially when it adds value beyond the product itself. It's about creating something thoughtful and engaging that connects with people on a deeper level.

SCADask: Have you observed any generational differences in sneaker preferences?

KW: Gen Z has a really unique perspective on sneaker fashion. They're drawn to comfort, but they also love what I'd call "camp cool" — shoes that are a bit unconventional, like Crocs. That combination of functionality and quirky style really speaks to them.

I don't think Gen Alpha will follow in Gen Z's footsteps. They might look at Crocs and say, "I don't know if that's for me." Fashion tends to move in cycles, though. Gen Alpha is around 15 or 16 years old right now, so in the next decade — by 2035 — they'll start leading fashion trends and whatever was popular around 2010 might be what comes back.



Conclusion

Sneakers continue to expand in meaning and impact. They support the body, reflect the self, and expand communities with purpose and movement. Every element — material, process, interaction — now holds the potential to serve more than utility.

Designers, engineers, and storytellers shape this future together. They introduce responsive platforms, sustainable materials, and immersive spaces that position sneakers as cultural anchors. With each step, sneakers build trust, deepen identity, and respond to the changing needs of those who wear them.

The next chapter of sneaker design rewards innovation that listens, adapts, and supports. As the industry shifts, one truth stays constant: sneakers carry more than people — they embody our values, possibilities, and stories.

Appendices

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Research Methodology

3,500+ Raw Data Points

850+ SCADask Survey Responses

30 Athlete Interviews

16 Expert Interviews



References

Cover	lmage	Midjourney v 6.1. Response to "Design a sleek, modern cover for a sneaker design report focused on innovation, sustainability, and technology. Feature a futuristic sneaker made of eco-friendly textiles and a 3D-printed sole, accented with vibrant colors from the report palette: blue (#015CBB), green (#20B078), purple (#5B68DF), yellow (#FCB336), and pink (#BE2B7D). Integrate these into both the sneaker and background for visual harmony. Add abstract geometric shapes, subtle tech icons (AI, 3D printing), and light reflections in the color scheme. Use a bright, futuristic background with a blue-green gradient base and soft overlays of the remaining colors. Include faint motion graphics and footprints to suggest performance. Keep the composition clean, balanced, and professional." Midjourney Inc., March 7, 2025.
		March 10, 2025.
p. 4	Customer Journey Image	1. Discover. DALL•E 3. Response to "Create a 3D isometric illustration of a runner standing in front of a large floating smartphone. The smartphone displays a sneaker post. Surround the phone with simple floating icons for influencer posts (star icons), performance reviews (speech bubbles), and athlete endorsements (a small figure icon). Include one pop-up sneaker display or branded booth off to the side in a minimal style. Use a pastel color palette of peach, blush pink, muted navy, cream, soft green, and light gray. No background. No text. Clean, rounded edges. Clay-like, soft animation style." OpenAI, April 24, 2025.
		2. Fit. DALL•E 3. Response to "Create a 3D isometric illustration of a single sneaker on a soft-edged pedestal with a glowing ring around it to suggest fit technology. Include two small floating icons: an AI chip for fit prediction and a leaf for sustainability, with an optional shield icon for durability. Use soft pastel colors with no background, no text, and a rounded, clay-like style." OpenAI, April 24, 2025.
		3. Purchase. DALL•E 3. Response to "Design a 3D isometric illustration of a runner seated on a soft-edged block, with an expert standing nearby, showing a floating digital screen displaying Al fit prediction (use simple icons like a foot or data lines). Next to the runner, include a sneaker cutaway or transparent overlay showing sustainability materials (symbolized with a small leaf or layer lines), and a small durability gauge icon (like a shield). Use a pastel color palette of peach, blush pink, muted navy, cream, soft green, and light gray. No background. No text. Clean, rounded edges. Clay-like, soft animation style." OpenAl, April 24, 2025.
		4. Post-purchase. DALL•E 3. Response to "Create a 3D isometric illustration of a runner mid-stride, outdoors on a simple scenic path with minimal hills or trees. The runner's sneakers should have soft glowing soles or a small floating shield icon nearby to suggest comfort and durability. Optional: include a small wristband or smartwatch icon for training gear or tracking wearables. Use a pastel color palette of peach, blush pink, muted navy, cream, soft green, and light gray. No background. No text. Clean, rounded edges. Clay-like, soft animation style." OpenAI, April 24, 2025.
		5. Loyalty and Advocacy. DALL•E 3. Response to "Create a 3D isometric illustration of a small sneaker shelf holding two or three collectible sneakers, each styled in soft pastel colors. Add a floating heart icon or star icon above the shelf to represent loyalty and community love. Use a pastel color palette of peach, blush pink, muted navy, cream, soft green, and light gray. No background. No text. Clean, rounded edges. Clay-like, soft animation style." OpenAI, April 24, 2025.
рр. 8	lmage	Firefly Image Model 4. Response to "A sneaker framed by bits of colorful recycled plastic or fabric scraps, reinforcing the theme of reuse and reintegration." Adobe Inc., April 25, 2025.
pp. 12-13	lmage, p. 12	<i>Image of shoe sprayed by robotic arm</i> . July 15, 2024. Photograph, On Pressroom, https://press.on-running.com/swiss-sportswear-brand-on- unveils-lightspray-a-new-high-performance-upper-technology-crafted-by-a- revolutionary-single-step-manufacturing-process-rvo865.

References continued

pp. 12-13	Quote, p. 12	"Swiss Sportswear Brand on Unveils LightSpray: A New High Performance Upper Technology Crafted by a Revolutionary Single Step Manufacturing Process." On Pressroom, On, Oct. 7, 2024. Accessed March 3, 2025. https:// www.press.on-running.com/swiss-sportswear-brand-on-unveils-lightspray-a- new-high-performance-upper-technology-crafted-by-a-revolutionary-single- step-manufacturing-process-rvo865.
	lmage, p. 13	<i>Image of Paca Spore shoes</i> . Photograph, zellerfeld.com, https:// www.zellerfeld.com/product/FvwnLy99sIDMscIhxXeu.
	Quote, p. 13	Jack Winkler in discussion with SCADask, April 3, 2025.
	Works consulted, text	Fairchild Studio. "Meet Jack Winkler: A Visionary in Footwear Design." Women's Wear Daily, Penske Media Corporation, Sept. 4, 2024. Accessed March 3, 2025. https://wwd.com/business-news/business-features/scad- graduate-jack-winkler-footwear-designer-1236556431/.
		Seemer, Jack. "On's New Sneakers Have a Spray-on Upper Made by Robots." Gear Patrol, July 15, 2024. Accessed March 3, 2024. https:// www.gearpatrol.com/fitness/on-lightspray-running-shoes/.
		"Swiss Sportswear Brand on Unveils LightSpray: A New High Performance Upper Technology Crafted by a Revolutionary Single Step Manufacturing Process." On Pressroom, On, Oct. 7, 2024. Accessed March 3, 2025. https:// www.press.on-running.com/swiss-sportswear-brand-on-unveils-lightspray-a- new-high-performance-upper-technology-crafted-by-a-revolutionary-single- step-manufacturing-process-rvo865.
		Tse, Abigail. "Syntilay Shows Us the Possibilities of Al x 3D Printing." 3DSPRO, January 20, 2025. Accessed March 3, 2025. https://3dspro.com/ resources/blog/syntilay-shows-us-the-possibilities-of-ai-and-3d-printing.
		"This Is LightSpray." On.com. Accessed March 3, 2025. https://www.on.com/ en-us/lightspray.
pp. 14–15	lmage, p. 14	Image of Cara Delevingne with Puma RE:SUEDE. Photograph, Apparel Magazine, https://images.app.goo.gl/9cZSj3wspuPWNi877.
	lmage, p. 14	<i>Image of Puma RE:SUEDE shoes.</i> Photograph, Puma, https:// images.app.goo.gl/kVLjre7aaFGVyziS8.
	lmage, p. 15	<i>Image of Johnny Classic Lo</i> . Photograph, kickstarter.com, https:// images.app.goo.gl/z7CE5FzEdTj8t7H38.
	lmage, p. 15	<i>Image of Johnny Classic Lo anatomy.</i> Photograph, https:// images.app.goo.gl/ah4ZZk6K6WsfRjBbA.
	Quote, p. 15	Ho, Sally. "Meet the Sustainable Sneaker That Grows an Apple Tree." Green Queen, Ekowarehouse Limited, Nov. 3, 2021. Accessed March 10, 2025. https://www.greenqueen.com.hk/johnny-footwear-sneakers-apple-tree.
	Works consulted, text	Audacy Staff. "Become a Modern-Day Johnny Appleseed with Sneakers That Can Be Planted to Grow a Tree." Audacy, April 27, 2022. Accessed March 10, 2025. https://www.audacy.com/1-thing/these-sneakers-can-be- planted-to-grow-a-tree.
		Du Plessis, Samantha. "Puma Re:Suede Pilot Project Turns Experimental Sneakers into Compost." PUMA SE, Nov. 29, 2023. https://about.puma.com/ en/newsroom/corporate-news/2023/29-11-2023-puma-resuede-pilot- project-turns-experimental-sneakers.
		Ho, Sally. "Meet the Sustainable Sneaker That Grows an Apple Tree." Green Queen, Ekowarehouse Limited, Nov. 3, 2021. Accessed March 10, 2025. https://www.greenqueen.com.hk/johnny-footwear-sneakers-apple-tree.

pp. 14–15	Works consulted, text	"Johnny Footwear: The Shoe That Grows into an Apple Tree." Johnny Footwear. Accessed March 10, 2025. https://www.johnnyfootwear.com.
		Ruggiero, Adam. "Like Apples? Plant These Shoes to Grow Your Own Tree." GearJunkie, Nov. 3, 2021. Accessed March 10, 2025. https://gearjunkie.com/ footwear/johnny-apple-tree-sneakers.
		"The Materials in PUMA's RE:SUEDE." NERA, Smit & Zoon, May 28, 2024. Accessed March 10, 2025. https://www.neratanning.com/puma-resuede-the- materials.
		Wenzel, Elsa. "From Kicks to Compost: Puma's Playbook for Circular Sneakers." <i>Trellis</i> , Trellis Group Inc., Dec. 18, 2023. Accessed March 10, 2025. https://trellis.net/article/kicks-compost-pumas-playbook-circular-sneakers.
p. 20	Deconstructed shoe image	Imagen 3. Response to "A futuristic sneaker in an exploded view, showing embedded tech: muscle stimulation nodes in the sole, biometric sensors, energy-return plates, thermal regulation mesh in the upper, and smart lacing. Clean, high-tech aesthetic, white background, infographic-style with labeled components." Google LLC, March 4, 2025.
pp. 22–23	lmage, p. 22	Image of Nike and Hyperice recovery boot. Photograph, https:// about.nike.com/en/newsroom/releases/nike-and-hyperice-unveil-tech- enabled-boots-and-vest-designed-to-boost-athlete-warm-up-and-recovery.
	lmage, p. 23	<i>Image of Nike and Hyperice boots on feet.</i> Photograph, https:// about.nike.com/en/newsroom/releases/nike-and-hyperice-unveil-tech- enabled-boots-and-vest-designed-to-boost-athlete-warm-up-and-recovery.
	Quotes, pp. 22-23	"Nike and Hyperice Unveil Tech-Enabled Boots and Vest Designed to Boost Athlete Warm-Up and Recovery." Nike, Inc., June 21, 2024. Accessed March 4, 2025. https://about.nike.com/en/newsroom/releases/nike-and-hyperice- unveil-tech-enabled-boots-and-vest-designed-to-boost-athlete-warm-up- and-recovery.
	Works consulted, text	"Nike and Hyperice Unveil Tech-Enabled Boots and Vest Designed to Boost Athlete Warm-up and Recovery." Nike, Inc., June 21, 2024. Accessed March 4, 2025. https://about.nike.com/en/newsroom/releases/nike-and-hyperice- unveil-tech-enabled-boots-and-vest-designed-to-boost-athlete-warm-up- and-recovery.
		"Nike and Hyperice Unveil the Ultimate Wearable Technology for Athletes." Nike.com, Nike Inc., June 21, 2024. Accessed March 4, 2025. https:// nike.com/a/nike-hyperice-boot-release-info.
		Terry, Liz. "Nike and Hyperice Collaborate on Paris 2024 Recovery Concept." <i>HCM Magazine</i> , Cybertrek Ltd., June 22, 2024. Accessed March 4, 2025. https://www.healthclubmanagement.co.uk/health-club-management-news/ Nike-and-hyperice-collaborate-on-Paris-2024-recovery-concept/353476.
		Vlahos, Nicholas. "Nike and Hyperice Unveil Revolutionary Recovery Boot and Vest." Sole Retriever, June 21, 2024. Accessed March 4, 2025. https:// www.soleretriever.com/news/articles/nike-hyperice-recovery-boot-vest- release-date-2024.
pp. 24-25	lmages pp. 24-25	Image of STARCK Smart Shoe with packaging, image of Baliston app, image of STARCK Smart Shoe deconstructed. Photographs, https://baliston.com.
	Quotes, pp. 24-25	Suhrawardi, Rebecca. "Philippe Starck On How Boredom With His Creativity Led Him To AI, And His New Baliston By STARCK Shoes." <i>Forbes,</i> May 11, 2023. Accessed April 9, 2025. https://www.forbes.com/sites/ rebeccasuhrawardi/2023/05/11/philippe-starck-on-how-boredom-with-his- creativity-led-him-to-ai-and-his-new-baliston-by-starck-shoes/.

References continued

pp. 24-25	Works consulted, text	Baliston. "Baliston." Accessed April 10, 2025. https://www.instagram.com/p/ DIJEJPsMxge/.
		Baliston Footwear (@balistonfootwear). 2025. "What's your Walking Quality Score?" Instagram, April 7, 2025. https://www.instagram.com/p/ DIJEJPsMxge/.
		"Baliston by STARCK Releases First-Ever Tech-Augmented Footwear Service." Media release. May 11, 2023. https://www.prnewswire.com/news- releases/baliston-by-starck-releases-first-ever-tech-augmented-footwear- service-301822172.html.
p. 26	Image	Imagen 3. Response to "Make a photo of a runner woman in a track race." Google LLC, March 5, 2025.
p. 31	Image	Imagen 3. Response to "Make a realistic image of a young group of runners." Google LLC, March 5, 2025.
	Data	"Inside the Growing Sneaker-Resale Market." Leaders, Leaders Media, April 7, 2023. Accessed March 4, 2025. https://leaders.com/news/business/inside- the-growing-sneaker-resale-market/
pp. 32-33	Images, pp. 32-33	Image of Sneakertopia Museum in Los Angeles, image of Sneakertopia Museum in Singapore, image of Infinite wall at Sneakertopia Museum in Singapore. Photographs, https://sneakertopia.com.
	Quote, p. 32	Chikhoune, Ryma. " <i>Sneakertopia</i> Opens in L.A. on Oct. 25." <i>Women's Wear Daily</i> , Penske Media Corporation, Oct. 17, 2019. Accessed April 23, 2025. https://wwd.com/fashion-news/fashion-scoops/sneakertopia-opens-in-l-a- on-oct-1203348402/.
	Quote, p. 33	Carrere, JD. " <i>Sneakertopia</i> LA Provides Platform for Artist's Love of Sneakers." Spectrum News 1, December 17, 2019. Accessed March 12, 2025. https://spectrumnews1.com/ca/southern-california/style/2019/12/18/la- artist-shows-off-love-for-sneakers-at-new-exhibit.
pp. 32-33	Works consulted, text	Carrere, JD. " <i>Sneakertopia</i> LA Provides Platform for Artist's Love of Sneakers." Spectrum News 1, December 17, 2019. Accessed March 12, 2025. https://spectrumnews1.com/ca/southern-california/style/2019/12/18/la- artist-shows-off-love-for-sneakers-at-new-exhibit.
		"Calling All Sneakerheads and Art Lovers: Here's Why You Can't Miss <i>Sneakertopia." SNKRDUNK Magazine</i> , February 24, 2023. Accessed March 12, 2025. https://snkrdunk.com/en/magazine/2023/02/23/calling-all- sneakerheads-and-art-lovers-heres-why-you-cant-miss-sneakertopia.
		"Museum Musings: <i>Sneakertopia – Step Into Street Culture</i> at the ArtScience Museum." <i>Bakchormeeboy</i> (blog), March 5, 2023. https:// bakchormeeboy.com/2023/03/05/museum-musings-sneakertopia-step- into-street-culture-at-the-artscience-museum.
		<i>"Sneakertopia: Step Into Street Culture</i> Kicks off at ArtScience Museum." Marina Bay Sands. Accessed March 12, 2025. https:// www.marinabaysands.com/content/dam/revamp/company-information/ media-centre/2023/feb/sneakertopia-kicks-off-at-asm.pdf.
		"Unleashing the Sole: A Branding Case Study for <i>Sneakertopia</i> , Where Sneaker Culture and Streetwear Collide." The Branded Agency Inc., April 12, 2023. Accessed March 12, 2025. https://www.brandedagency.com/our-work/ sneakertopia.
pp. 34-35	lmages, pp. 34-35	Image of Puma and Bumble Run Finish Line, image of Puma x Bumble Run runners in Bengalru, India. Photographs, https://www.puma-catchup.com/ puma-and-bumble-team-up-for-unique-singles-run-in-bengaluru-india/.

pp. 34-35	Data, p. 34	"Puma Partners with Bumble to Tap Millennials and Gen Z." <i>The Economic Times</i> , Nov. 6, 2024. Accessed April 23, 2025. https:// economictimes.indiatimes.com/tech/technology/puma-partners-with- bumble-to-tap-millennials-and-gen-z/articleshow/115023777.cms?from=mdr.
	Data, p. 35	NewsDesk. "Puma India Partners with Bumble for Singles-Only Running Event Ahead of Singles' Day." MediaBrief, Nov. 6, 2024. Accessed March 14, 2025. https://mediabrief.com/puma-india-x-bumble.
	Works consulted, text	Afaqs! News Bureau. "Puma India and Bumble Celebrate 'Singles Day' with a Running Event." afaqs!, Nov. 6, 2024. Accessed March 24, 2025. https:// www.afaqs.com/news/brands/puma-india-and-bumble-celebrates-singles- day-with-a-running-event-7560411.
		BestMedialnfo Bureau. "Puma and Bumble Introduce 'Rundowner.'" BestMedialnfo, February 20, 2025. Accessed March 24, 2025. https:// bestmediainfo.com/mediainfo/mediainfo-marketing/puma-and-bumble- introduce-rundowner-8738312.
		BW Online Bureau. "Puma India, Bumble Partner for Joint Singles Run, Combines Fitness with Social Engagement." BW Marketing World, Nov. 7, 2024. Accessed March 24, 2025. https://www.bwmarketingworld.com/ article/puma-india-bumble-partner-for-joint-singles-run-combines-fitness- with-social-engagement-538392.
p. 36	Image	Imagen 3. Response to "Make photo of happy person buying new running sneakers at a store." Google LLC, March 5, 2025.
pp. 38-39	lmages, pp. 38-39	Courtesy of Kirsten Warkow.



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SCADask

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