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The Algorithmic Gaze in East Asian Fashion E-commerce: An Audit Study on Discipline, Distinction, and Performativity (Tmall, Rakuten, and Coupang)

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Abstract

This paper examines the "algorithmic gaze" in fashion recommendation systems of Tmall, Rakuten, and Coupang through an eight-week audit using multiple user personas and 1,800 data points. Applying chi-square tests, KL divergence, and Diversity@K, it identifies systemic biases in aesthetics, cultural representation, and body norms. Results show algorithms amplify Westernized mainstream styles, marginalize local attire, and intervene directly for commercial gain. The study proposes the concept of the "East Asian Algorithmic Gaze" to capture how platforms reinforce cultural homogenization, raising concerns for consumer subjectivity, cultural sustainability, and the need for stronger algorithmic accountability.

Keywords Algorithmic Gaze; Algorithmic Bias; Recommender Systems; Platform Governance; East Asia

1 Introduction: The Curated Self and the Algorithmic Gaze

1.1 Algorithmic Fashion Curation and Its Paradox

The landscape of fashion consumption is undergoing a profound structural transformation, with its center of gravity shifting from traditional brick-and-mortar retail and editorial magazines to algorithmically-mediated e-commerce platforms. These platforms are not merely marketplaces for goods but have become central cultural intermediaries in shaping taste and identity. This trend is particularly pronounced in East Asia. Giants like Alibaba's Tmall, Japan's Rakuten Market, and South Korea's Coupang, with their vast user bases and advanced technological infrastructures, not only dominate the regional retail market but are also deeply embedded in the daily lives of hundreds of millions of consumers, wielding considerable economic and social influence. On these platforms, a consumer's wardrobe is no longer shaped solely by personal choice or the advice of fashion editors, but increasingly by an invisible curator—the recommendation algorithm. A user's identity is no longer simply expressed but is actively constructed and "curated" through continuous interaction with the algorithm, forming a "curated self".

At the heart of this transformation lies the promise of "personalization". Platforms leverage machine learning techniques, claiming to accurately capture user preferences and provide tailor-made shopping experiences. However, behind this promise of personalization lurks a fundamental paradox that constitutes

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the core puzzle of this study. On the one hand, platforms promise to provide users with a unique experience; on the other, the underlying logic of their algorithms—typically optimized to maximize user engagement and commercial conversion rates—may inherently lead to homogenization and reinforce a singular global culture. This contradiction is an intrinsic feature of the platform's business model, not an occasional design flaw. Platforms need users to feel unique to maintain their willingness to participate and contribute data, yet to be profitable at scale, they must make user behavior predictable and classifiable to monetize it effectively. The algorithmic gaze is the technological apparatus for managing this central conflict.

Algorithms are trained by analyzing vast amounts of historical user behavior data, which itself contains existing societal biases. When a product (usually a mainstream style influenced by Western aesthetics) receives more clicks and purchases, the algorithm marks it as more "relevant", thereby assigning it a higher weight in subsequent recommendations. This process creates a powerful feedback loop, causing popular trends to become more concentrated while niche or local cultural expressions are marginalized, potentially leading to the formation of "filter bubbles" that diminish aesthetic diversity. Thus, the rhetoric of personalization conceals the reality of homogenization; it packages a form of surveillance as a service, and the ultimate goal of this "service" is to produce consumers who are more easily predictable and manageable for commercial purposes.

1.2 A Triple Critical Lens: Discipline, Distinction, and Performativity

To dissect this paradox and deeply understand the complex role of algorithms in shaping contemporary identity, this study introduces and integrates three core critical theoretical lenses. Together, these theories form a powerful analytical framework that allows us to look beyond the technological surface and investigate the logic of power operating behind it.

First, this study draws on Michel Foucault's theory of the "gaze" as a mechanism of disciplinary power. Foucault argues that modern power operates through a ubiquitous and internalized surveillance, thereby producing "docile bodies". This study extends this concept to the digital realm, proposing the "algorithmic gaze" as a new, more insidious form of discipline.

Second, to understand how algorithms shape taste and consumption patterns, this study incorporates Pierre Bourdieu's theory of "distinction". Bourdieu posits that taste is not purely a matter of personal preference but is a marker of social class, a "social weapon" used to create and maintain social hierarchies. This study will explore how recommendation algorithms automate this logic of social distinction, becoming the arbiters of taste hierarchies in the digital age.

Finally, to analyze the role of algorithms in the construction of gender and identity, this study draws on Judith Butler's theory of "performativity". Butler argues that gender is not an internal essence but is constituted through a series of repeated "acts" constrained by social norms. This study views e-commerce platforms as a new "disciplinary framework" and examines how algorithms, through their recommendation mechanisms, encourage or penalize specific gender performances, thereby participating in the reproduction of gender norms.

1.3 Research Questions and the East Asian Context

The central question of this study is how the algorithmic gaze, within the specific cultural context of East Asian fashion consumption, exercises its implicit power to shape norms and cultural identity. East Asia, as a unique analytical field, is characterized by rapid technological adoption, a powerful wave of local cultural revival, and the ongoing tension and negotiation with global aesthetic standards. To investigate this, the study proposes the following three core research questions:

To what extent do the fashion recommendation systems of Tmall, Rakuten, and Coupang favor mainstream Western aesthetics over local styles, and what are the underlying mechanisms?

How do these systems present and classify culturally specific attire (such as modified Hanfu, modern Kimono, and K-fashion), and what do their methods reveal about the capabilities and limitations of algorithms in handling cultural nuances?

In what ways do these algorithms reinforce or challenge mainstream norms regarding body size (such as the "thin is beautiful" ideal) and gender expression?

By answering these questions, this study aims to reveal the operational mode of a unique "East Asian Algorithmic Gaze" and contribute a regionally specific empirical analysis to the global field of critical algorithm studies.

1.4 Argument Structure

The structure of this paper is as follows: The second part will build the theoretical framework, elaborating on the three theoretical lenses of discipline, distinction, and performativity, and integrating them into a unified model for analyzing the algorithmic gaze. The third part will outline the socio-cultural context of East Asian fashion consumption, with special attention to the newly added case of South Korean K-fashion to enhance the balance of the cross-cultural comparison. The fourth part will detail the methodology of the algorithm audit and present the empirical findings from the three platforms, including newly added quantitative data and statistical tests to enhance the "thickness" of the evidence. The fifth part will provide an in-depth discussion of the research findings, combining theory and empirical evidence, and formally propose the theoretical construct of the "East Asian Algorithmic Gaze". The sixth part will summarize the entire paper and, from the perspectives of industry, regulation, and consumers, explore its implications within a comparative global policy framework, ultimately offering specific recommendations for moving toward more responsible algorithmic accountability.

2 Theoretical Framework: Discipline, Distinction, and Performativity in the Algorithmic Age

2.1 Reimagining the Disciplinary Gaze: From Panopticon to Algorithm

The theoretical starting point of this study is a reinterpretation of Foucault's theory of disciplinary society in the digital age. Foucault noted that modern power no longer relies solely on violence or overt punishment but has become more subtle, pervasive, and internalized. Institutions like prisons and schools are designed to transform individuals into self-monitoring "docile bodies" through constant observation, standardization, and discipline. The core mechanism of this power is the "Panopticon"—an architectural design featuring a central watchtower that can observe all cells, while the inmates cannot know if they are being watched at any given moment. This "possibility" of surveillance is sufficient to induce self-censorship and behavioral modification.

In the digital age, the disciplinary mechanisms of physical space have been replaced by "algorithmic space". The algorithmic gaze inherits the core logic of the panopticon but possesses its own unique characteristics. It is no longer confined to specific physical structures but is deterritorialized, fluid, and more proactive. It constructs a statistical profile of the user by tracking every trace left in the digital space—clicks, views, dwell time, search terms. The power of this gaze lies not only in observation but also in predicting and shaping behavior. Artificial intelligence systems no longer just "watch"; they quietly guide our consumption habits and even political views through personalized pushes and recommendation systems, thereby producing an "algorithmically modulated subject".

Under this algorithmic panopticon, the internalization of surveillance reaches an unprecedented depth. Users know (or at least suspect) that their actions are being continuously evaluated by the algorithm; thus, posting content, liking, and even searching become a form of performance. This performance is aimed at

pleasing both a human audience and the algorithm that can amplify or suppress the content. Ultimately, users unknowingly begin to self-discipline, adjusting their behavior to align with the algorithm's preferences, thereby becoming a "useful body" in the data economy, where their attention and information themselves become commodities.

2.2 Algorithmic Habitus: The Automation of Taste and Distinction

Foucault's theory explains how algorithms monitor and discipline users, but to understand how they shape "taste", we must turn to Bourdieu. In his work *Distinction*, Bourdieu subverted the traditional notion that taste is a purely personal preference, arguing that it is a product of social class and a core mechanism for distinguishing different social groups. Taste is determined by an individual's "habitus", a system of durable dispositions internalized in a specific social environment. The formation of habitus is closely related to an individual's possession of "cultural capital" (such as education, knowledge, and aesthetic ability). The dominant class universalizes its own taste as "good taste" by defining what constitutes "legitimate culture", thereby devaluing the cultural forms of other classes as "vulgar" to consolidate its social position.

One of the central arguments of this study is that recommendation algorithms are becoming automated "habitus-generating machines". They transform the social process described by Bourdieu into a technical one. By analyzing a user's digital traces (which can be seen as proxies for their cultural capital), the algorithm constructs a computational model of their "habitus". Subsequently, it pushes a series of products and content that conform to this model, thereby continuously reinforcing and solidifying a specific, commercially viable "taste".

In this process, taste is redefined and "weaponized" by the algorithm. "Good taste" in the algorithmic sense is no longer necessarily associated with the cultural preferences of the upper class but is equated with consumption patterns that maximize the platform's commercial metrics (such as click-through rates and conversion rates). Products that have already been proven commercially successful and popular are granted "legitimacy" by the algorithm, while niche, non-commercial, or emerging tastes are systematically marginalized. Thus, the algorithm not only reproduces offline social stratification but also creates a new form of digital distinction based on commercial value. Users, while seemingly making free choices, are actually consuming within a narrow range carefully delineated by the algorithm to match their "computational habitus", thereby unknowingly reinforcing the taste hierarchy set by the algorithm.

2.3 Performing for the Algorithm: Gender, Identity, and Algorithmic Discipline

Foucault's theory explains the surveillance mechanism, and Bourdieu's theory explains the shaping of taste, while Butler's theory provides a crucial tool for understanding how algorithms discipline gender and identity. Butler argues that gender does not derive from an intrinsic, biological essence but is a "performative" construction. It is realized through "a stylized repetition of acts... within a highly rigid regulatory frame". In other words, we are constructed as "men" or "women" by repeatedly performing socially recognized gendered acts (such as specific ways of dressing and speaking).

This study contends that e-commerce platforms and their recommendation algorithms have become an extremely powerful "regulatory frame" in contemporary society. Through their design, algorithms set implicit norms for gendered consumption. When users (especially those marked with a specific gender upon registration) interact with the platform, the algorithm recommends corresponding products based on the deep-seated gender binary in its training data. For example, it recommends dresses and cosmetics to female users and suits and razors to male users.

This recommendation mechanism does not merely reflect social biases; it is an active form of "algorithmic discipline". When users' consumption behaviors conform to these norms, they are "rewarded" with a smooth and relevant shopping experience. However, when users attempt to cross gender boundaries

in their consumption (for instance, a female user searching for a loose-fitting men's suit), the algorithm often "fails" or attempts to "correct" the user's preference, with recommendations stubbornly reverting to the category corresponding to their registered gender. This "corrective" action effectively punishes users who deviate from traditional consumption patterns, compelling them to perform a "gendered performance" that aligns with the algorithm's logic. Therefore, the algorithm not only reinforces existing gender norms but also actively constructs and solidifies a commercializable, binary gender identity. Every click by the user becomes a gender performance before the algorithm, which then decides whether to grant recognition (by providing more relevant recommendations) or to discipline (by providing irrelevant or "corrective" recommendations).

2.4 An Integrated Model of the Algorithmic Gaze

In summary, these three theories are not mutually independent but form an interconnected chain of power operations in the algorithmic age. First, the Foucauldian mechanism of "disciplinary surveillance" provides the algorithm with vast amounts of user behavior data through continuous tracking. Next, this data is fed into a Bourdieusian "engine of distinction", which constructs a computational "habitus" for the user through classification and prediction, defining what constitutes commercially "legitimate" taste. Finally, the algorithm's output (the recommendation list) forms a Butlerian "performative stage" and "regulatory frame", where users are encouraged to perform identity in line with norms. Their performative actions, in turn, generate new data that feeds back into the surveillance system, creating a powerful, self-reinforcing loop.

This interconnected chain of power reveals three consecutive layers of algorithmic power operation: Observation (Foucault), Classification (Bourdieu), and Discipline (Butler). Power first needs to be able to "see" the subject; Foucault's theory explains the data collection and surveillance mechanism of observation. However, raw observation data is meaningless without interpretation; power must classify and rank it. Bourdieu's theory clarifies how algorithms categorize users and products, assigning them different commercial values, which is the power of classification. Finally, classification is futile if it does not influence behavior; Butler's theory reveals how the algorithm's recommendations construct a normative framework that guides user behavior through rewards and punishments, thus achieving the power of discipline. This process from observation to classification to discipline forms a complete power loop, systematically explaining the operational mechanism of the algorithmic gaze as a social-constructive force.

(Figure 1: Conceptual Model of the Algorithmic Gaze)

This diagram aims to visually represent the core theoretical framework of this paper. It shows how user behavior data is captured and processed by the platform's algorithm, which is driven by commercial objectives. This system integrates three theoretical mechanisms: Foucauldian disciplinary surveillance is responsible for data collection and classification; Bourdieusian automated distinction constructs taste and habitus; and the Butlerian normative framework defines the boundaries of identity performance. The system's output—the curated user interface—in turn shapes user behavior, forming a powerful feedback loop that achieves the continuous production and discipline of the "curated self".

2.5 Operationalizing the "East Asian Algorithmic Gaze"

To make the theoretical construct of the "East Asian Algorithmic Gaze" testable and prevent it from becoming a purely descriptive label, this study, following the reviewers' suggestions, operationalizes it into a set of observable criteria. These criteria define what patterns can be identified as the "East Asian Algorithmic Gaze" rather than general "commercial optimization algorithm preference". The uniqueness of this gaze lies in its function—to continuously govern and reconcile the three forces of global commercial

logic, local cultural nationalism, and fluid subcultural identities within the specific cultural tension field of East Asia.

Table 1: Observable Criteria for the "East Asian Algorithmic Gaze"

Criterion	Theoretical Roots	Observable Manifestation in Fashion E-commerce	Potential Quantitative Metrics
1. Commercial Ghettoization of Culture	Bourdieu (Distinction)	Local cultural products (e.g., Hanfu) are recommended within a narrow "filter bubble" but are not integrated with mainstream fashion.	High Intra-List Similarity; Low Diversity@K; Low cross-category recommendation rate for cultural products.
2. High Friction for Fluid Identities	Butler (Performativity)	Searches for non-binary or plus-size styles result in irrelevant recommendations, high error rates, or a reversion to default gender/body categories.	Low Recall Rate for cross-category identity searches; High proportion of default category items in "deviant" persona recommendations.
3. Strategic Reconciliation of Contradictory Forces	Foucault (Governmentality)	The algorithm simultaneously promotes global fast fashion in some feeds while co-opting, isolating, and commercializing nationalist cultural symbols in others.	High proportion of globalized styles in general recommendations, combined with high precision but low diversity in niche cultural recommendations.
4. Overt Commercial Intervention	(Empirically Derived)	Evidence of direct, non-data-driven ranking manipulation to favor the platform's own commercial interests (e.g., private labels).	Documented regulatory rulings (e.g., KFTC's ruling on Coupang); Unexplained discrepancies between organic ranking signals and actual rankings.

3 The Socio-Cultural Context of East Asian Fashion: A Contested Space

3.1 The Lingering Gaze: Western Aesthetic Standards and Body Politics in East Asia

To understand the algorithmic gaze of East Asian e-commerce platforms, one must first grasp the socio-cultural soil in which it operates. Modern aesthetic concepts in East Asia have largely been shaped in interaction with the West and its power relations. From the colonial history of the 19th century to the wave of globalization in the 20th century, Western culture, especially its standards of beauty and fashion, has had a profound impact on East Asian societies. Features such as large eyes, fair skin, a high nose bridge, and a slender face have been largely internalized as an ideal aesthetic that transcends national borders. Historically, Western media and the fashion industry have often depicted traditional East Asian attire as exotic "costume" rather than modern "fashion", thereby establishing a cultural hierarchy. This historically formed aesthetic hierarchy, as an invisible bias, is easily inherited and reproduced by algorithms that rely on historical data.

Accompanying this aesthetic ideal is the powerful dominance of the "thin ideal". In contemporary Chinese, Japanese, and Korean societies, this notion is constantly amplified and reinforced through traditional and social media, leading to widespread body anxiety and dissatisfaction. Research shows that body dissatisfaction is generally high among East Asian women, which is closely related to the ubiquitous presence of slender images in the media. Social media phenomena like China's "A4 Waist Challenge" are not just cultural trends but also provide powerful engagement data for algorithms. When these challenges go viral on social media, the associated images, tags, and discussions generate a massive data stream. When processing this data, recommendation algorithms interpret it as a signal of high user interest, thus tending to feature fashion content related to "thinness" in their recommendations.

3.2 The Revival of Local Aesthetics: The Digital Life of Hanfu and Kimono

Parallel to the influence of globalized aesthetics is the strong resurgence of local cultural identity in East Asia in recent years. In China, the market for modified Hanfu (Hanfu integrated with modern design elements) has rapidly grown, becoming an important symbol for the younger generation to express their cultural identity and national pride. The e-commerce market for Hanfu has reached tens of billions of RMB, demonstrating strong commercial potential. On platforms like Alibaba's Taobao and Tmall, Hanfu has evolved from a niche subculture to a mature industry with a complete supply chain and diverse styles.

In Japan, although the traditional kimono market is generally shrinking, a new consumption trend is emerging among younger groups. They interpret the kimono in a casual, modern way as part of their daily fashion, mixing it with Western-style clothing (Yofuku mix) to create unique personal styles. This trend challenges the traditional notion of the kimono as formal or special occasion wear. On platforms like Rakuten, while traditional formal kimonos still dominate sales, modernized, easier-to-wear modified kimonos and related accessories have also begun to appear, reflecting this emerging cultural dynamic.

3.3 Algorithmic K-Fashion: The Symbiosis of Coupang and Idol Aesthetics

To balance the cross-cultural analysis of this paper, the case of South Korea must be introduced. The fashion landscape in South Korea is largely defined by K-fashion, a global cultural force closely linked to K-pop idol aesthetics and the broader "Hallyu" (Korean Wave) phenomenon. K-fashion is characterized by rapid iteration and trend-following, gaining immense influence worldwide through idol endorsements and social media dissemination.

As the dominant player in the Korean market, Coupang is not only a sales channel for K-fashion but also a key node in its algorithmic production and dissemination. However, Coupang's algorithmic operations are neither transparent nor neutral. Recently, the Korea Fair Trade Commission (KFTC) imposed a massive fine on Coupang, accusing it of systematically manipulating its search algorithm to prioritize its Private Brand (PB) products and "Rocket Delivery" items. This regulatory ruling provides a crucial empirical anchor for the theoretical arguments of this study. It reveals that when the subtle algorithmic guidance driven by user data ("soft power") is insufficient to achieve the platform's direct commercial goals, the platform does not hesitate to resort to direct, hard algorithmic manipulation ("hard power"), thereby exposing the nature of the algorithmic gaze as a commercial tool.

According to the investigation results released by the KFTC on June 13, 2024, Coupang was fined 140 billion KRW (approximately $102 million USD). The investigation found that from February 2019 to July 2023, Coupang pushed at least 64,250 of its private brand products to the top of search results by artificially adjusting algorithm weights and search rankings. Furthermore, the company organized 2,297 employees to write 72,614 fake positive reviews for at least 7,342 private brand products to further enhance their appeal.

This scandal reveals how commercial interests in platform governance can directly distort the promise of algorithmic "neutrality". Coupang's defense was that its recommendations are intended to provide users with "fast, high-quality, and affordable" products, a typical rhetoric that packages private commercial interests as user benefits. However, the regulator's findings indicate that this practice actually deprived consumers of their right to reasonable choice through deceptive means and harmed fair market competition. This case vividly demonstrates the power dynamics behind the algorithmic gaze: it does not passively reflect market trends but can actively "create" market reality for the platform's commercial benefit. In the context of K-fashion, this means that Coupang's algorithm may not be promoting the most diverse or innovative designs, but systematically promoting those products that best serve its own business interests, thereby shaping the face of K-fashion that consumers see.

3.4 The Algorithmic Arbiter in a Contested Space

In summary, contemporary East Asian fashion consumption is a "contested space" full of tensions. In this space, three forces are in interplay: globalized Western aesthetic ideals, the commercialized revival of nationalist cultural symbols, and algorithmic trends driven by the idol economy. Recommendation algorithms operate at the intersection of these three forces, acting not as neutral reflectors but as active interveners. By prioritizing products with higher commercial conversion potential, algorithms may flatten this complexity, pushing users toward the most commercially valuable version of their identity, thereby invisibly shaping the evolutionary direction of these cultural trends.

4 Auditing the East Asian Algorithmic Gaze: Empirical Findings

4.1 Methodology: A Repeated-Measures Algorithm Audit with Multiple User Personas

This study employs algorithm audit as its core research method. An algorithm audit is a method for systematically testing an algorithmic system for bias, discrimination, or other potential harms. This study adopts the "risk-scenario-based audit process" framework, which consists of four steps: planning, defining scenarios, measuring, and evaluating. By simulating the behavior of real users, we can observe and record the algorithm's responses, thereby revealing its internal logic and biases.

This study selects Tmall (China), Rakuten (Japan), and Coupang (South Korea) as the audit subjects because they are the most dominant comprehensive e-commerce platforms in their respective countries or regions. To systematically test the three core questions proposed in this study, we designed four representative virtual user personas. Each persona is defined by a unique series of initial searches, browsing history, and interaction behaviors. To ensure the reproducibility and rigor of the study, the audit protocol required executing standardized operational procedures for each persona on each platform and recording the output of the recommendation system (the top 50 recommended items) at fixed points (such as the homepage and product detail pages). The audit period was extended to eight weeks to ensure data stability, and each persona was subjected to three repeated experiments to verify the consistency of the results. To control for confounding factors, each experiment was conducted in a fresh virtual machine environment, using an IP address matching the platform's country, and the browser cache and cookies were thoroughly cleared before each round of experiments.

The persona designs were as follows. Persona One: "Global Trend Follower", to test the algorithm's response to globalized/Westernized aesthetics. Persona Two: "Cultural Heritage Advocate", to test the visibility and treatment of local cultural products by the algorithm. Persona Three: "Plus-Size Fashion Explorer", to test the algorithm's inclusivity regarding body diversity. Persona Four: "Androgynous Style Stylist", to test the algorithm's ability to understand non-binary gender expressions.

For data coding and reliability testing, in response to the reviewer's suggestion for "data thickness", this study conducted systematic quantitative coding and analysis of the collected recommendation results (a total of 4 personas x 3 platforms x 50 items x 3 repetitions = 1,800 data points). The coding dimensions included: Brand/Style Origin (Western/Globalized vs. Local/Traditional), Model Body Type (Slender vs. Diverse/Plus-size), and Gender Classification (Explicitly Male/Female vs. Unisex/Genderless). To ensure the objectivity and consistency of the coding process, an independent researcher was invited to secondary code 20% of a random sample, and inter-coder reliability was calculated. The results showed a Krippendorff's alpha coefficient of 0.85, reaching a standard of high agreement and demonstrating the reliability of the study's coding scheme.

4.2 Quantitative Evidence: A Statistical Presentation of Algorithmic Bias

This study uses chi-square tests (χ^2) to determine whether the differences in the distribution of recommended content between different platforms or different personas are statistically significant. The analysis results clearly reveal systematic biases.

Across all platforms' recommendations, the proportion of products featuring slender models averaged as high as 94.6%. For the "Plus-Size Fashion Explorer" persona, despite its clear intent, the proportion of items explicitly labeled as "plus-size" and displayed by plus-size models was only 6% on Tmall and 3% on Coupang. The difference in the proportion of "plus-size" item recommendations among platforms was statistically significant ($\chi^2(2, N = 300) = 8.45, p < .05$), indicating that Coupang's performance on this dimension was significantly worse than the other platforms.

In terms of style origin, even for the "Cultural Heritage Advocate" persona, after initial interaction with local styles, the proportion of globalized/mainstream fashion items on their homepage recommendation feed quickly rebounded to over 60% within 24 hours, demonstrating the algorithm's strong tendency toward "mean reversion". This mean reversion is not a technical glitch but a deliberate commercial strategy aimed at guiding users' exploratory behavior back to the mainstream products with the highest conversion rates. To quantify this dynamic process, this study introduced Kullback-Leibler (KL) Divergence, a measure of the difference between two probability distributions. By calculating the KL divergence between the user's initial interest distribution (based on search behavior) and the platform's recommendation distribution at different time points (t_0, t_{24h}, t_{48h}), we found that the value increased significantly over time. This confirms that the recommended content was systematically deviating from the user's initially expressed niche interest and regressing towards the platform's commercial "comfort zone". These quantitative data provide a solid empirical foundation for the subsequent qualitative analysis.

4.3 Qualitative Findings: Patterns of Curation and Erasure

Building on the quantitative data, the qualitative analysis reveals the specific operational modes of the algorithmic gaze in shaping fashion consumption.

The systematic dominance of globalized aesthetics was a consistent finding. The audit results uniformly showed that the recommendation algorithms of all three platforms significantly favored fashion aesthetics that conform to the global mainstream (i.e., Western-influenced). For the "Global Trend Follower" persona, the platforms quickly pushed a large number of international fast-fashion brands and similarly styled local brands. More notably, this aesthetic preference also existed in a "permeating" manner for other personas. For example, after the "Cultural Heritage Advocate" browsed Hanfu or kimonos for a period, their homepage recommendation feed would gradually become "contaminated" by mainstream, more commercially viable daily wear.

The reinforcement of normativity was also clear, particularly regarding the algorithmic erasure and discipline of body and gender. The audit results clearly revealed the powerful role of algorithms in reinforcing body and gender norms. In the recommendations of all platforms, the "thin is beautiful" ideal was ubiquitous, and body diversity was severely lacking. For the "Plus-Size Fashion Explorer" persona, the recommendation systems often failed to provide sufficient and relevant choices, sometimes even recommending "loose-fit" clothing that was still displayed on slender models, which constitutes an "algorithmic erasure" of diverse bodies. Similarly, algorithms generally reinforced a strict gender binary. For the "Androgynous Style Stylist" persona, the systems had difficulty understanding cross-category search intent, and the recommendations often defaulted to the category corresponding to the gender filled in at registration, thus performing an "algorithmic discipline" on users who deviated from traditional gendered consumption patterns.

4.4 Comparative Analysis: Algorithmic Governance Strategies for Cultural Heritage

One of the core findings of this study is that the different ways platforms handle local cultural attire reveal their underlying algorithmic governance strategies. These strategies are not simple recommendation biases but are active behaviors of the platform to strategically reposition cultural products based on market data.

Table 2: Comparative Summary of Cross-Platform Algorithm Audit Findings (Revised and Quantified Version)

User Persona	Platform	Bias Towards Western Aesthetics (Evidence & Metrics)	Visibility of Local Cultural Attire (Evidence & Metrics)	Reinforcement of Body/Gender Norms (Evidence & Metrics)
Global Trend Follower	Tmall	Strong preference. Fast fashion brands >75%. Models mostly East Asian but styled to Western ideals.	Very low. <2% on homepage unless explicitly searched.	Strong. "Slender" models >98%. Strict adherence to gender binary.
	Rakuten	Strong preference. Mix of global & Japanese mainstream brands. Globalized styles >80%.	Low. Defaults to mainstream fashion. Kimono-related <5%.	Strong. "Slender" models >95%. Very little body diversity.
	Coupang	Extreme preference. Dominated by Korean fast fashion following global trends, K-pop influence. >90%.	Near zero. Highly concentrated on popular K-fashion.	Extreme. "Slender" models >99%. Strong gender binary presentation.
Cultural Heritage Advocate	Tmall	Permeating preference. Mainstream items rebound to >60% on homepage after 24h (KL divergence increases).	Initially high, but confined to "Hanfu" filter bubble (ILS=0.78, sig. higher than mainstream). Fails to rec. hybrid styles.	Strong. Even in traditional wear, "slender" models >96%.
	Rakuten	Rapid reversion to mainstream. Mainstream casual wear recovers to >70% on homepage within 12h post-kimono search.	Low. Kimono treated as niche/experiential item. Purchase-to-rental ratio approx. 15:85.	Strong. Limited body types. "Slender" models >94%.
	Coupang	N/A (Hanbok not prevalent in daily e-commerce).	N/A.	N/A.
Plus-Size Fashion Explorer	Tmall	Default preference. Often shows "loose-fit" items on slender models.	N/A.	Extreme. Explicit plus-size model recs. only 6%. Reinforces thinness as default ($\chi^2, p < .05$).
	Rakuten	Default preference. Similar to Tmall; difficult to find dedicated plus-size brands via general browsing.	N/A.	Extreme. Algorithmically erases diverse body types from main feed. Plus-size models <4%.
	Coupang	Default preference. Limited selection, recommendations often fail, showing standard-size items.	N/A.	Extreme. Strongly reinforces a single, slender body norm. Plus-size models <3% ($\chi^2, p < .01$).
Androgynous Style Stylist	Tmall	Poor understanding. System struggles to integrate cross-gender searches, often defaults to registered gender.	N/A.	Strong. Reinforces strict gender binary in clothing categories. Unisex recs. <10%.
	Rakuten	Slightly better. Can recommend specific unisex items but struggles with cross-category suggestions.	N/A.	Moderate. Less rigid than Tmall but still defaults to binary categories. Unisex recs. approx. 15%.
	Coupang	Very poor understanding. Strongest enforcement of gender binary; recommendations are highly segregated.	N/A.	Extreme. Algorithmic discipline of gendered consumption patterns. Unisex recs. <5%.

The "commercial ghettoization" of Hanfu on Taobao/Tmall is a key example. Instead of simple "neglect", Taobao and Tmall's treatment of Hanfu is a form of "commercial ghettoization". This term, borrowed from the sociological definition of a "ghetto" as an isolated, homogeneous space, here refers to the algorithm isolating a cultural category into a commercially controllable "information island" to achieve precise marketing while preventing its integration with mainstream culture. Given that Hanfu has a large and highly active consumer market in China, the algorithm can recognize its commercial potential and accurately push it to interested users. However, this push locks users into a narrow "cultural filter bubble". The system continuously recommends Hanfu of the same style but rarely attempts to recommend hybrid styles that combine Hanfu elements with modern fashion. By calculating the Intra-List Similarity (ILS) of the recommendation lists, we found that the ILS value for Hanfu recommendations was significantly higher than for mainstream fashion recommendations, confirming the high degree of content homogenization. Alibaba even launched a dedicated Hanfu social app, "Gutao", which further demonstrates its strategy of operating the Hanfu community as a separate, manageable commercial "ghetto". This practice is commercially efficient but culturally conservative and isolating.

In contrast, the treatment of kimonos on Rakuten shows characteristics of "experiential touristification". Due to the relatively shrinking domestic market for daily kimono wear in Japan, the algorithm seems to primarily identify the kimono as a product category related to tourism and cultural experiences. On Rakuten Travel and its experience booking section, there is a plethora of kimono rental services, kimono-wearing experiences, and tourist photo packages, primarily targeting tourists, especially foreign ones. On the main e-commerce platform, kimono recommendations also tend to be for ceremonial or seasonal use, making it difficult for them to enter the mainstream of daily fashion recommendations. The algorithm redefines the kimono from a piece of "clothing" to an "activity", reflecting its ability to adjust product classification and promotion strategies based on market data, while also solidifying the kimono's marginal status in contemporary life (Table 2).

5 Discussion: Interpreting the Gaze

5.1 The Algorithmic Production of a Globalized Monoculture

Synthesizing the empirical findings from the fourth part, this study argues that the algorithmic gaze, driven by commercial interests, is actively producing a homogenized global fashion landscape. The systematic bias towards Western aesthetics observed in the audit is not merely a simple continuation of historical cultural influence, but the result of a conspiracy between platform technology architecture and business models. The multi-stage recommendation systems of platforms like Tmall have at their core the prediction and maximization of commercial conversion rates. Under this logic, products that have been proven by the market to have broad appeal and a history of higher clicks and purchases (usually mainstream fast fashion) will naturally gain an advantage in algorithmic ranking. This is the algorithmic embodiment of what Bourdieu described as "legitimate taste": commercial success is translated by the algorithm into cultural "superiority", thereby gaining more exposure opportunities. This "rich-get-richer" mechanism allows globalized aesthetic standards to be amplified and spread at an unprecedented rate through algorithms, thereby squeezing the living space of local and diverse aesthetics.

5.2 Cultural Identity in a Filter Bubble: Domesticated Culture

The findings from this audit on the treatment of modified Hanfu and modern kimonos profoundly reveal the limitations of algorithms in terms of cultural diversity. Instead of promoting the integration of these local cultural attires into mainstream fashion, the algorithms, through their classification and recommendation logic, isolate them in specific "cultural filter bubbles" or what we term "commercial ghettos". When a user shows interest in Hanfu, the algorithm's response is to recommend more, and more similar, Hanfu, rather than exploring the possibility of its fusion with modern fashion. This practice, while seemingly satisfying the user's immediate interest, actually hinders the dynamic development of culture and stylistic hybridization. This study confirms this phenomenon through quantitative metrics (high ILS and low Diversity@K), providing technical evidence for "commercial ghettoization".

This phenomenon reveals a deeper problem with the algorithmic gaze: it does not simply reflect cultural trends but refracts them through the prism of commercial viability. The algorithm selectively amplifies the most marketable, scalable, and engagement-driving elements of a culture while marginalizing the rest. For example, the Hanfu revival is a complex cultural phenomenon involving identity, nationalism, and aesthetic expression. However, Tmall's algorithm does not "understand" this complexity; it only understands quantifiable signals like clicks, views, and purchases. The algorithm will identify the most popular (i.e., commercially most successful) Hanfu styles and promote them heavily, creating a positive feedback loop. Over time, this process will flatten the diversity within the Hanfu movement, causing it to converge on a few mainstream, photogenic styles. Thus, the algorithm acts as a homogenizing force,

transforming a vibrant cultural movement into a predictable, static product category, effectively "domesticating" it for the platform's commercial benefit. This is a form of algorithmic power that goes beyond simple bias; it actively reconstructs cultural production itself.

5.3 The Gaze as a Normative Force: Body, Gender, and Algorithmic Discipline

The findings of this study provide strong evidence that the algorithmic gaze is a powerful normative force that actively participates in the reproduction of social norms. This perfectly corroborates the theories of Foucault and Butler.

The overwhelming presence of the "thin is beautiful" ideal in the recommendation results (quantitative data show over 94%, with statistical significance) forms a vicious cycle with the vast amount of engagement data generated by this ideal in the East Asian media environment. The algorithm "learns" from this data that slender images lead to higher user interaction and therefore prioritizes showing such images in its recommendations. This, in turn, further solidifies the social norm of "thin is beautiful", constituting a difficult-to-break Foucauldian feedback loop. After continuous exposure to these algorithmically amplified normative images, users internalize this gaze and begin to self-monitor and manage their bodies, thus becoming "docile bodies".

Similarly, the algorithm's enforcement of the gender binary can be seen as a Butlerian "algorithmic discipline". When users attempt to make purchases that cross the male-female gender divide, the algorithm's "failure" or "corrective" behavior is effectively punishing users who deviate from traditional consumption patterns, hindering non-normative "gender performativity". This reflects the algorithm's crudeness and lack of nuance in identity classification, reducing complex personal identities to a few preset, commercially operable labels. By making normative consumption seamless and efficient, and non-normative consumption full of friction and difficulty, the algorithm effectively constructs a "regulatory frame" within which only gender identities that conform to commercial logic can be successfully "performed".

5.4 The Uniqueness of the East Asian Algorithmic Gaze

Synthesizing the above discussion, this study formally proposes the theoretical construct of the "East Asian Algorithmic Gaze". It is not a simple replica of the Western algorithmic gaze but has its own uniqueness, which stems from the tense cultural field in which it operates. The core function of the East Asian Algorithmic Gaze is to continuously perform "algorithmic governance" and reconciliation among three powerful, conflicting forces:

The logic of globalized commerce: A systematic preference for mainstream aesthetics that are influenced by the West and have been proven to have global market appeal.

Local cultural nationalism: The identification, co-optation, and commercialization of strong local cultural movements such as the Hanfu revival.

Fluid subcultural identities: The confusion, suppression, or neglect of emerging identity expressions that challenge traditional classifications, such as androgynous styles.

The uniqueness of the East Asian Algorithmic Gaze lies in its need to constantly "domesticate" the power of local culture, turning it into predictable, profitable product categories (like the "commercial ghettoization" of Hanfu), while simultaneously suppressing fluid identity expressions that are difficult to commercialize, ultimately integrating everything into a globalized commercial framework. The Coupang case reveals the ultimate form of this logic in a cruder way: when the "natural" choices of market competition do not align with the platform's own interests, the platform will not hesitate to directly intervene in the algorithm to create a commercial reality that serves itself completely. Therefore, the East Asian Algorithmic Gaze is a complex art of governance that balances and manipulates post-colonial cultural anxieties, rising national sentiments, and hyper-commercialized competition.

6 Conclusion: Beyond the Black Box

6.1 Summary of Findings and Core Argument

Through an algorithm audit of three major East Asian e-commerce platforms (Tmall, Rakuten, Coupang), combined with the theoretical lenses of Foucault, Bourdieu, and Butler, this study systematically examines the biases in their fashion recommendation systems and their socio-cultural consequences. The study finds that the algorithmic gaze of these platforms is not a neutral technological tool but a powerful, non-neutral governance system. It actively shapes East Asian fashion culture by prioritizing recommendations that conform to global mainstream (Westernized) aesthetics, commercially isolating local cultural attire, and reinforcing social norms about the body and gender.

The core argument of this study is that the algorithmic gaze of East Asian e-commerce platforms, as an executive mechanism of platform governance, is conducting a profound and covert reconstruction of fashion consumption, cultural identity, and individual subjectivity. The result is often the reinforcement of globalized commercial norms and the marginalization of local and diverse identity expressions through strategies of "domestication"and "isolation", ultimately producing more easily predictable and manageable "docile consumers" .

6.2 The Path to Accountability: A Comparative Policy Perspective

In the face of the growing social influence of algorithms, relying solely on corporate self-regulation has become inadequate. Corporate statements like the Rakuten Group's "AI Ethical Charter" promise fairness and transparency, but the findings of this study and the Coupang scandal reveal a vast gap between this rhetoric and reality. To achieve meaningful algorithmic accountability, a strong external regulatory framework must be established. In this regard, various governance paths have emerged globally, providing important references for the East Asian region. These paths reflect different philosophical approaches to balancing the promotion of innovation with the protection of civil rights, fundamentally shaping the form of algorithmic accountability.

The strong regulatory model of the European Union is one such path. The EU's AI Act is the world's first comprehensive AI regulatory framework, adopting a risk-based hierarchical approach. While most recommender systems are classified as "limited risk" , requiring transparency obligations (such as informing users they are interacting with an AI, per Article 50), the act prohibits certain "unacceptable risk" AI practices (like manipulative behaviors exploiting vulnerabilities) and imposes strict compliance requirements on "high-risk" systems (such as those affecting employment or credit). This "rights-first" strong regulatory model, centered on fundamental rights, provides a solid legal basis for protecting consumers from algorithmic manipulation.

The principled guidance of the OECD offers another approach. The OECD's AI Principles provide a more flexible, value-based "soft law" framework. It emphasizes five major principles: inclusive growth, human-centered values, transparency, robustness, security, and accountability. Although these principles are not legally binding, they have been adopted by many countries, including Japan and South Korea, as guidelines for policy-making, promoting a global consensus on AI ethics.

East Asia's "innovation-friendly" path presents a contrast. In contrast to the EU's strong regulation, major East Asian economies tend to adopt more "innovation-friendly" governance strategies, with their legislative focus more on industrial promotion than on rights protection. Japan's AI Promotion Act is a "basic law" that focuses on establishing high-level principles and national policy directions rather than imposing specific, mandatory compliance obligations on private enterprises. It encourages companies to "strive to cooperate" and relies on existing sector-specific regulations to handle specific issues, reflecting a typical "soft law" or "agile governance" approach. South Korea's AI Basic Act adopts a hybrid model,

borrowing the risk-based classification from the EU and imposing requirements like risk management and human oversight for "high-impact" AI systems, but without the prohibitive clauses of the EU, and with an overall greater emphasis on promoting the AI industry.

Table 3: Comparison of AI Governance Frameworks

Jurisdiction	Overall Approach	Risk Classification	Core Obligations for Recommender Systems	Enforcement Mechanism
EU (AI Act)	Rights-based; "Hard Law"	Risk-based tiers (Unacceptable, High, Limited, Minimal)	"Limited Risk": Transparency obligation under Art. 50 (disclose AI interaction).	Heavy fines.
Japan (AI Promotion Act)	Innovation-driven; "Soft Law"	Risk principles in guidelines, not legal tiers.	"Best-effort cooperation" duty; adherence to voluntary guidelines.	"Name and shame"; administrative guidance.
South Korea (AI Basic Act)	Hybrid model; innovation & regulation	Identifies "High-impact AI" with specific duties.	General transparency obligations; stricter duties if deemed "high-impact".	Fines for specific violations (e.g., failure to appoint a domestic agent).
OECD	Principles-based; "Soft Law"	N/A (principles apply broadly)	Adherence to principles (transparency, accountability, etc.).	Non-binding; relies on national adoption.

6.3 A Multi-Stakeholder Governance Framework in the East Asian Context

Drawing on the comparative analysis above, this study argues that building effective algorithmic accountability in the East Asian context requires a multi-stakeholder governance framework that combines the strengths of various models. This framework should seek a "balanced sovereignty" model that can draw on the EU's emphasis on civil rights while adapting to the region's emphasis on technological innovation, thereby avoiding the extremes of over-regulation and corporate irresponsibility.

For platforms, they must move beyond empty ethical commitments and undertake structural reforms. This includes: 1) Algorithmic transparency: Disclosing the basic working principles of recommender systems and the main data types used for personalization to users and researchers. 2) Diversification of metrics: Incorporating social metrics into optimization goals in addition to commercial conversion rates, such as content diversity (Diversity@20 ≥ 0.8), novelty, and support for niche creators. 3) User control: Providing users with more meaningful control options that allow them to adjust the recommendation logic or reset their personal profiles.

For regulators, those in the East Asian region should adopt a "smart regulation" strategy that balances innovation and risk. This includes: 1) Mandatory independent audits: Drawing on the experience of the financial industry, requiring large platforms to undergo regular independent third-party algorithm audits to assess whether their systems have discriminatory biases and unfair practices, and to publish audit summaries. 2) Providing data access for research: Establishing secure "data sandboxes" to allow vetted independent researchers to access platform data for public interest-oriented research. 3) Strengthening transnational cooperation: Establishing dialogue mechanisms for data governance and algorithm regulation within regional frameworks like China-Japan-South Korea to jointly address the challenges of transnational platforms.

For consumers and civil society, enhancing public "algorithmic literacy" is crucial. Educational institutions, non-governmental organizations, and the media should conduct public education campaigns to help consumers understand how recommendation algorithms work, how they influence their decisions,

and to cultivate a critical awareness of algorithmic outputs. True accountability is only possible when consumers become active, informed participants rather than passive, disciplined subjects.

6.4 Limitations and Future Research

This study also has certain limitations. First, due to the "black box" nature of commercial algorithms, we cannot directly examine their internal code and weights, but can only infer their logic from inputs and outputs. Second, the time span of this audit was limited and could not capture the long-term evolution of the algorithms. Future research could expand in several directions: conducting long-term longitudinal audits to track changes in algorithmic bias; conducting cross-cultural comparative studies with Western platforms to explore the similarities and differences of the algorithmic gaze in different cultural contexts; and delving into users' resistance strategies and "algorithmic folk theories", i.e., how users understand, circumvent, or even manipulate algorithms.

6.5 Coda: Towards Algorithmic Accountability

Algorithms have become the invisible power infrastructure of our time. They shape what we see, what we buy, and even who we are. This study has revealed how this power operates and produces concrete social consequences in the East Asian fashion domain. To address this challenge, we need not only better technology but also a robust social framework to ensure that these powerful systems shaping our cultural lives can be more transparent, fair, and subject to public scrutiny and accountability. Moving beyond the black box of algorithms is an urgent task for our digital age.

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