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Using AI in Dance Notation and Copyright Infringement Prevention: Enhancing Creative Economy and Cultural Entrepreneurship in South Asia

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South Asia's rich dance traditions, encompassing both classical and contemporary forms, are vital to its cultural identity and creative economy. As technology integrates into artistic domains, artificial intelligence (AI) presents transformative opportunities for the region. This paper explores how AI can be employed in dance notation the systematic recording of dance movements and in detecting copyright infringement, emphasizing its potential to support cultural entrepreneurship. By addressing the challenges of documentation, preservation, and intellectual property protection, AI can catalyze a sustainable and inclusive creative economy in South Asia. Specific emphasis is placed on the SAARC countries, highlighting the role of AI in preserving and promoting the country's diverse dance heritage.

Keywords: Copyright, SAARC, Choreography, Creative Economy, Cultural Heritage

The rich cultural heritage of the South Asia is known to all of us from traditional pursuits of music, drama, dance etc., its culture is vibrant and unique. The South Asia majorly comprises of countries such as Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan who are also members of South Asian Association for Regional Cooperation (SAARC). These nations are known for their rich, shared cultural heritage, where dance as an art form holds vital place as intangible cultural heritage.[1] The nations are signatories of the Berne Convention and TRIPS Agreement under the regime of Intellectual Property. Even after all this, there is inconsistency in their domestic legislation and are inadequate in addressing the unique challenges posed by the dance industry such as of dance notation, infringement detection and royalty distribution.[2] Dance as an art form is living and dynamic in nature. As an ever-growing art form, it holds importance in South Asia's identity, encompassing classical dances such as Kathak, Bharatnatyam, Lathi Khela, Manipuri, Attan etc. Due to the unique nature of this art, its detailed and systematic documentation is vital to its preservation.[3] Any form of unauthorized usage or reproduction of it puts a lot of successful artists and their work at risk. Therefore, stronger protective measures which provide an understanding of the technological nuances are needed.

The scope of AI has expanded, and as it applies to dance, it can serve as a tool of cultural preservation, innovation, and economic empowerment. In terms of dance, AI can facilitate movement monitoring, create better mechanisms for copyright infringement, and provide safe digital storage of the art form. There are several multi-faceted gaps in dealing with these issues, but a collaborative strategy between nations will enable them to achieve the preferred outcome while nurturing creative freedom to ensure sufficiency among the creators, which is a guiding plan for sustainable development.[4] The convergence of AI with classical performing arts offers revolutionary potential for the preservation, protection and promotion of intangible cultural heritage in South Asia. Being a key form of regional identity and creativity, dance is generally not documented with standardized norms and adequate copyright protection measures, which makes it difficult to attribute and economically sustain artists. With the arrival of AI technologies in dance notation and tracking copyright, there exists an increasing possibility of digitizing choreographic works, their attribution and disallowing their unauthorized reproductions.[5]

The present research investigates in what ways AI tools are not just capable of protecting the originality of compositions for dance, but also of triggering the creative economy and promoting cultural entrepreneurship. Through the discussion of technological as well as legal aspects, the research

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aims to add to a general framework that facilitates cultural innovation without compromising artistic integrity in South Asia's vibrant cultural environment.

AI: The Game Changer in the Creative Economy and Choreographic Revolution

AI is quickly becoming a disruptor in the creative economy with acts of production and commodification of creative works in dance and choreography coming to be reconstituted. South Asia's rich and diverse dance traditions have seen new levels of precision in capturing complex movement and style, thanks to AI based software systems such as motion capture, machine learning and automated notation technologies.[6] Besides providing a way to preserve the old classical dance forms, it is also enabling the contemporary choreographers to experiment and innovate with greater freedom. Technological advancement with the introduction of AI helps in identifying movement patterns and provides new scope in generative choreographic imagination, even supporting feedback during the action, integrating past with present. AI has transformed cultural entrepreneurship, providing new markets and income opportunities for artists. AI is not just a tool, but a transformative facilitator that is changing the economy and culture of South Asian choreography.[7]

Before discussing the benefit of the creative economy, let's try to understand what creative economy means. Creative economy is growing concept which involves multiple domains of knowledge-based economies such as advertising, design, fashion, films, videos, performing arts etc. it stands on the crossroads of creativity, technology and economy. The average global contribution of creative economies to GDP stands at approx 3% and ended up making approx. 6.2 % of global employment.[8] According to the report of *World Intellectual Property Organization* (WIPO), the copyright industries when linked with creative industries, have a potential to contribute heavily to the global GDP, creating millions of employments. But this is majorly about developed nations, with respect to developing nations there is scarcity of data available but due to higher growing pace of such nations one can ascertain the potential in these nations.[9]

As *Uma Suthersanen* has observed, a more humane, equitable and inclusive intellectual property system requires that we explore intellectual property 'beyond the legal discipline'. The contemporary needs of the copyright law are to approach it with a multidisciplinary aspect such as "legal solutionism", which means that every problem can be solved via legal process.[10] There are various purposes that creative economy can facilitate. To begin, it can serve as a potential business with lucrative incentives and rewards. To investors it can be viewed as something worthy of investment with future growth. From demand side perspective there is unpredictable consumption with local and global interplay. From supply end, there are low entry barriers and high fixed cost for creation with substantial marginal cost of delivery.[11]

With reference to the works related to AI we find three categories, they are 'AI-assisted works' where AI Is simply employed as a tool to better the work and so it can be said that it still relies on human intellect. In this case it only acts as a facilitator and hence, the requirement to copyright remains intact. With the advent of technology various tools and technology have been employed to better the respective work. *Mutatis mutandis*, the same reasoning can be applied to AI-assisted works as well.[12] With respect to two other categories i.e. 'AI-generated works', the debate is still on, since at some point it departs from the idea of human intellectualism and the very idea of intellectual property relies on human original creation. The third is the fully 'AI-generated works' where one inputs choices and AI creates an outcome, here ownership is questionable due to lack of human intellect and hence not granted.[13]

With respect to the promotion of creative economy AI-assisted works are the future. It can advance industrial investments and hence is a potential tool in promoting development and research. It lays its foundations on the copyright incentive theory, rather than the more traditional one personality theory.[14] However, the direct evidence of AI in promoting copyright have not been established, but with this paper the author has tried to substantiate it claims via various case studies. AI when applied to the world of choreography can enhance cultural expression, artistic creation and boast economic growth. The aim of creative economy is the economic appreciation of cultural and artistic creation. Under the umbrella of creative economy, cultural entrepreneurship acts as a catalyst with the scope of expanding intangible creative capital into sustainable business enterprises protecting cultural heritage. The fusion of AI in

documenting and choreographic Intellectual Property management works offers spectacular possibilities for South Asian countries to solve enforcement ineffectiveness, stimulate creative artistry, and raise the standard of the industry to a global level.[15]

Scope and Objective of the Study

The creative economy of South Asia gains its momentum form its diverse blend of cultural heritage clubbed with modern artistic developments. From Avant-garde to modern day dance choreographies, this art form holds within itself profound cultural and spiritual foundations. This evolution of dance spans from the historical classical disciplines of Bharatnatyam to contemporary forms, embodying region's evolving cultural consciousness. The diverse economic significance of choreographic works manifested through performance arts, cinematic productions, and its digitalization has brought intellectual property concerns in the limelight. Today's choreographers face multifaced issues, exacerbated by outdated legal framework and unauthorized use of adaptations. The lack of standardized protection mechanism leaves original artistic works vulnerable to misappropriation, underscoring both the creative and economic potential of this sector

The nature of creative economies is individualistic, competitive and self-reliant. As the economy advances these pointers can be an aid to address the issues of unemployment in the South Asian nations as well. In short can also be called as helpful economies. With respect to developing nations such as 'India' it serves as a potential for 'Atam Nirbhar Bharat' as promoted by the Prime Minister Narendra Modi. This paper specifically examines South Asia's position within this ecosystem, analyzing how AI-driven solutions can enhance its cultural economy and empower its artists along with improvising methods of notation and infringement detection.

Creativity and Intellectual Property

The first step in transcribing dance as artistic choreography filmmaking dance videos is the Intellectual Property in question. It is the creative work performed and aid by creative imagination in art of any from including dance which has legal consideration. Classical and folk-dance forms are part of heritages in South Asia. As with many cultures, creativity isn't well documented and can be 'abused' so to speak.[16] Dances are mostly taught through performing them, so there are no 'guidelines' aside from those which were internalized. The dance is subject to a lot of changes which cannot be easily recorded. In cases where a dance is being distressed, the essence of the choreography is almost always lost in translation. Any combination of steps and styles you wish to perform could get subjected to any form of interpretation based on the audience's preference.[17]

Not all dancers globally are registered under copyright till they perform. Any sole performer or registered group, within those boundaries, captures voice of a soloist of a group falling into those versatile brushes various forms their encompassing (including fashion but not limited towards it) holds. The moment breaks the guidelines becomes your own flexibility loses essence of choreography and suffers destruction as performer outline performer automatically within their scope. When clubbed together, i.e. creativity and intellectual property both tend to fuel each other.[18] Intellectual property serves as a tool to promote creativity. It transforms creative outputs into economic goods and services. It also monitors the supply and demands of creative products. In modern era, intellectual property is perceived as a crucial indicator of development. Developed nations, such as United States has been one of the leaders under the IP regime.[19]

Framework on Notation within Choreographic Works

The Notation of Choreography contains both documentation, which systematically records all movements, sequences and patterns of dancing through symbols, diagrams and even digital means, as well as written evidence of dancing that serves as a type of language. While music has one accepted way for them to notate songs which is more universal than dance notation, dance forms have their own set of notations which are more complex and differ from culture to culture and form to form.[20]

The system of notation offers various benefits to the choreographers towards protection and dissemination of their work such as preservation and sharing choreography, documenting and analyzing dance, reconstruction, educational etc. This system emerged during the 17th century called as the *Beauchamp-Feuillet* system, used primarily for *Baroque* dance.[21] Further developments under the notation system include *Labanotation* system of

1920s which was widely adopted in contemporary dance. Other examples include *Benesh notation* system, *Eshkol- Wachman Movement* etc. Contemporary methods of dance documentation involving technology have surfaced such as Dance Forms which allows 3D visualization of choreography, *Laban Writer* which has digitalized Labanotation and motion capture technology integrates with notation software has revolutionized the whole concept.[22]

Challenges in South Asian Culture with Respect to Notation System

The systematic codification of dance movements through symbolic notation method has always posed significant difficulties both in the historical and contemporary times, primarily due to the complex and transient nature of dance as an art form. Even though recognized systems such as *Labanotation* and *Benesh Movement Notation* enjoy global recognition, their specialized nature creates barriers for many South Asian dance practitioners as it becomes difficult for them to adapt and apply the same into their dance form. These foreign systems often fail to adequately record distinct features of cultural art forms and so restrict their utility in protecting the region's rich choreographic diversity.[23]

Documenting and conserving dance in South Asia is a very difficult process due to lack of broadly accepted and easy to use notation systems that are designed for the region's various cultural expressions. The Western classical dance forms are different. They use standardized systems like Labanotation or Benesh Movement Notation, but South Asian dance traditions going back to oral transmission and *guru-shishya parampara*, have never been written or symbolically recorded. The current recording methods are not capable of grasping the subtle *hand gestures* (mudras), the *mimicry* (abhinaya), and the rhythmic details, which are very important to the Indian dance styles such as *Bharatanatyam* or *Kathak.*[24] For instance, Bharatanatyam, India's one of the oldest traditional classical dance forms, adheres to the conventional *Margam* structure and uses theoretical foundation from the works such as the *Natya Shastra* and *Abhinaya Darpana.*[25]

The absence of a common notation method to document specific choreographies, mudras and abhinaya is a major limitation. The compositions are predominantly passed on orally or through video recordings and they are at risk of losing their originality over generations, in addition to making authorship claims difficult. This lack of conventional, AI-understandable notation prevents proper preservation, enforcement of copyright and international dissemination of the art form.[26] Besides, if we contrast Western classical dance traditions with South Asian ones, a primary difference is in the application of notation systems. Western dance traditions such as ballet use movement-specific systems including Labanotation and Benesh Notation, which are careful to record spatial, temporal and dynamic aspects of choreography. Such systems guarantee high degrees of standardization, reproducibility and legal certainty such that works can be reproduced precisely and safeguarded under copyright laws. Conversely, South Asian classical dances such as Odissi and Kathak make do with informal mnemonic devices or video recordings and exhibit varying teaching practices across gurus and institutions. Not having standardized notation, reproducibility is restricted, legal claims to authorship are diminished and it creates ample hurdles to the documentation and preservation of choreographic heritage.[27]

Just as folk and tribal dances, that are very diverse even within small geographic regions are known for their improvisational and communal nature, thus they can hardly be codified. The missing of a comprehensive culturally sensitive notation framework severely limits the possibilities of archiving, teaching and innovating these art forms especially when the new generation is relying more and more on digital media for learning. The high expense and technical difficulties in adopting the Western notation system and the shortage of training for the practitioners and scholars limit the use of such systems in a wider range.[28]

Conventional approaches to dance notation also struggle with issues of widespread adoption and practical application. The task of accurately recording and distributing notational systems across South Asia's varied linguistic and cultural contexts demands considerable time and infrastructure. These challenges underscore the necessity for innovative technological solutions that can simplify and broaden access to dance documentation, making it more inclusive and efficient for practitioners across the region.

A case study of Sri Lanka's *Kandyan* dance, a ritualistic and culturally important heritage genre

illuminates the urgent challenges faced due to the lack of a systematic notation system. Though it has been accepted by UNESCO as *Intangible Cultural Heritage*, there is no systematic way of representing its complex body movements, rhythmic cycles, or symbolic gestures. Therefore, tourism-mode performances tend to obscure traditional content, sacrificing authenticity.[29] The absence of standardized documentation also undermines intergenerational transmission and complicates claims of community ownership, which in turn makes it impossible to maintain and safeguard the cultural integrity of the dance against commercialization and worldwide exposure.

Legal Challenges

Under Indian legal regime, The Information Technology Act, 2000 and the National IPR Policy, 2016 provide significant legal reference points for embedding AI in dance notation and cultural conservation. The IT Act does not have direct provisions for cultural works, but its provisions, especially Sections 43 and 66, address unauthorized access, data pilferage and digital tampering. These provisions are significant for the protection of AI-created dance archives and maintaining the integrity of digital choreography databases. Such notation systems handling or publishing such notation must comply with India's data protection and cyber security standards under this act as well.[30]

To supplement the above, the National IPR Policy, 2016 highlights the digital documentation and safeguarding of *traditional cultural expressions* (TCEs). It promotes the employment of technological tools for enhancing intellectual property awareness and enforcement in the creative sectors, hence complementing efforts aimed at using AI to record, preserve and legally protect choreographic works.[31] All these frameworks identify the legal framework required to safeguard digital innovations in the cultural industry.

Despite being signatories to international intellectual property agreements and majorly of copyright Berne Convention, there are huge infrastructural and legal gaps in South Asian states. It weakens the enforcement mechanism and hampers economic growth and discourages talent in the domestic front. The present laws categorize dance as either “dramatic work” or “performance art”. Without explicit recognition there is always a room for ambiguity and hence hinders effective copyright enforcement. This legal vagueness becomes more problematic when traditional dance forms get automatically classified as public domain property, which makes is vulnerable to commercial exploitation and cultural appropriation.[32] An example of this can be the unauthorized reproduction of Bharatnatyam choreography on international platforms, without proper attribution to the original creators of the work and no compensation is given to them. However, specific provisions dealing with current scenario are still bleak and needs addressing.

Issues of Plagiarism

The issue of plagiarism is very high especially under the entertainment industry, which frequently uses choreographic works without proper attribution. There have been various national and international examples of this. In the case of *Martha Graham*, there rose battle regarding the ownership of her works, which later settled down to the fact that the dance company was entitled to the right case the works were made for hire.[33] In another issue choreographer *Kyle Hanagami* sued Epic Games for copying their registered choreography. While the district court rejected their claims stating individual poses are not protected under the copyright law. But the decision was reversed by the Ninth circuit which held that reducing chorography to poses is like reducing music to notes.[34]

The field of dance undergoes from plagiarism issues, especially today with the ease of capturing video performances that can be shared without permission. Unlike musical and written works, choreography is often not verified and does not come with registration procedures making proving ownership and unauthorized copying tricky. The problem is even more complex in South Asia where traditional forms of dance as art transcend to the realm of culture and the strategy to draw the line between copying and drawing inspiration becomes blurred.[35] The lack of standard systems of notation does not do much good to the problem since choreographers have no means to prove they are the original authors of the material. The ability to analyze movement and recognize patterns digitally for easy retrieval enhances capture of evidence of choreographic sequences substantiating with claims of plagiarism made as counterclaims in court. They aid in legally proving plagiarism as well as defending

legal battles on ethical grounds set toward creative work and offering proper unadulterated attribution.

Lack of Awareness and Accessibiilty among Artists

A huge disparity exists between the law and reality. Most choreographers in South Asia, particularly those who come from rural areas, do not possess knowledge of their Intellectual Property Rights. The lack of available systems and the low levels of literacy needed to record and register choreography only make matters worse. One of the primary barriers to using AI for copyright enforcement and facilitating creativity in South Asia is the rampant unawareness and the absence of reach or scope among the artists, notably those involved in traditional and grassroots movements. Several dancers and choreographers do not know about the rights that protect their intellectual property, nor do they know the options that exist to protect their works, software disabling options leads to a legal protection system which is voluntarily forfeited along with economic opportunities.[36]

The restriction of prerequisites such as cost, digital skill, language and infrastructure in rural and semi-urban areas limits the access to AI-based technologies like motion capture systems, dance notation software and platforms for copyright registration. This technological gap severely disadvantages self-employed artists and other underrepresented groups whose cultural contributions are important but remain unacknowledged.[37] Smoothing out this imbalance requires deliberate attempts, educational programs, and legislative guides that can widen the access to these technologies and teach them about the law. If artists are equipped with the tools, skill information to document and commercialize their work, integration of AI in South Asia's economy can become more holistic and promote real change to the creative and cultural sectors across South Asia.

Role of AI in Preserving and Innovating South Asian Culture and Heritage

AI has the potential to transform, both conserve and innovate South Asian heritage and of culture, particularly the performing arts, especially dance. Older dance forms such as Bharatanatyam, Kathak, Kandyan and folk dances from the region, carry centuries-old narratives, knowledges and symbolic content that is passed through oral teachings and live practice. But without organized records, many of these art forms have been in danger of being watered down or wiped away. Motion capture, machine learning, digital archiving the tools of artificial intelligence can accurately record and analyze the intricacies of movement patterns, facial expressions, rhythm structure etc. as resulting in fine-grained databases that store these art forms in their entirety, preserving them in the embodiment they once were.[38]

There is so much AI has to offer all of us. With everything advancing at such a fast pace in this field, it is certain that the power of AI would be utilized in every way and every iteration of life. Speaking of the choreographic works, AI can also be a game-changing tool when it comes to notating, documenting and worldwide detection of infringement. For dancers and choreographers, AI can open a plethora of tools and tech, including motion capture, gesture recognition and *Natural Language Processing* (NLP).[39] These innovations should aid traditional and contemporary forms of dances and will not only safeguard intangible heritage but also enlarge the scope of creativity ensuring a healthy future for the sustenance of the rich South Asia's dance traditions in the contemporary world.

Now, how about real life and working, how AI can be useful in the dance world. AI can be utilized to generate precise and accurate skeletal data which can form a unique digital sensitive for choreography. Inside the courts, this data can be botted as an admissible proof during infringement cases. Some projects that are based on this technology are *Open Pose* and *Media Pipe*. For example, if YouTube trend x copies a Kathak sequence without giving proper credits, AI will automatically track how the x copy impacted the original due to detection which otherwise would have been hard to track. It can help judicial systems that go far beyond a question of subjective human judgement but also provides clear evidence of measurement that can aid judges in making the litigation.[40]

Another way can be of *Gesture Recognition*, which can be applied in the cases of theft. This a version of machine learning model and can be used to feed extensive datasets of various South Asian dance forms and can detect signature movements of each such as "Bharatnatyam's mudras and Kathak's spins. This can also inhibit the commercial appropriation of the art form. Also, with gharanas in a dance form like Kathak, multiple gharanas behave like more degrees of freedom compared to a single gharana in the much

singular style of dance (like a folk in some regions) making AI a suitable platform to suit regional aspirations as well.[41] *Smart contracts* can be made through *Blockchain technology* which can automate the royalties against licensed choreography in performances, movies or any other content formation. Artist compensation is made possible through royalties, as is the financial protection of the original creator. AI can also function as a tool in digital copyright disputes. Platforms can, in fact, have their own choreography specific Content ID systems in place that can automatically screen the infringement of unauthorized dance sequences. It is need of hour to update and assimilate current legal system with technological infusion.[42]

AI Technology Copyright Protection and Detecting Infringement

Modern technology has brought convenience to every aspect of our lives for everyone. Digital platforms have helped share and promote dance performances while also increasing the threat of unauthorized usage. Multiple access barriers in different areas prevent choreographers and performers from obtaining necessary resources to monitor and protect against copyright violations leading to financial and reputational damages. It is crucial that we direct all our focus toward AI-enabled solutions. This technology enhances dance art by offering protection and identifying social media infringements.[43]

Choreographic work protection utilizes multiple AI systems including[44]:

(i) *Content Matching Algorithms*: AI- powered algorithms can assist in analyzing video and audio features to detect unauthorized reproductions of dance performances. These systems use already existing databases to identify infringement and then compare the same with the uploaded content.

(ii) *Blockchain Integration*: Merging AI with blockchain technology assures and secures transparent records of the choreography ownership. Advanced and smart contracts can help automating licensing processes and reduces the risk of disputes.

(iii) *Deep Learning Models*: Neural networks trained on large datasets of dance videos can recognize patterns and movements that are unique to specific choreographies. This allows for precise identification of copied content.

(iv) *Real-Time Monitoring*: AI can be utilized in continuous monitoring of digital platforms continuously by providing alerts for potential infringement activity. This proactive approach minimizes the time and resources for manual surveillance with is also more difficult than the formal.

Legislations and Case Studies of SAARC Nations

SAARC countries maintain unequal choreographic protection standards despite being Berne Convention signatories. SAARC countries majorly are developing nations and so lack adequate infrastructure and technology for safeguarding their cultural heritage at times. *The Indian copyright Act, 1957* includes choreography as part of dramatic works. The legal framework fails to deliver sufficient protection for choreographers at times. Even under the *Pakistan's Copyright Ordinance, 1962* allows dancers and choreographers to register their works, provided they can be reduced in tangible medium. The similar is the situation of Bangladesh, Sri Lanka, Bhutan which has poor enforcement mechanism. In Maldives most of the dance forms remain under communal ownership, making claims difficult. In Afghanistan, due to political instability the entire copyright enforcement is very weak.[45]

India: Integration of AI and Bharatnatyam Archiving

With its abundance of classical and folk-dance varieties, India has taken the lead in using technology to document and preserve culture. Organizations like the *Indira Gandhi National Centre for the Arts* (IGNCA) and private startups, have experimented with AI-driven tools for motion capture and digital archiving of classical forms such as Bharatanatyam, Kathak and Odissi. There are interesting projects such as computer science developers partnering with classical dance academies to develop Intelligent Notation System based on Labanotation and Benesh Movement Notation that is modified for the Indian forms. These tools allow the machine learning algorithms to learn from hand gestures (mudras), facial expressions (abhinaya), and body movements and develop digital scores of choreographies. Initiatives such as Navya-Natya, an experimental lab based in Bengaluru have started using AI-generated choreography to enable dancers to innovate against tradition, while maintaining the grammar rooted in classicism. But the access is restricted to big institutions, and, at the ground level of dancing, the

suffering is for lack of infrastructure and lack of awareness.[46]

In case like *Academy of General Education* v *B. Malini Mallya* (2009), it was acknowledged that choreographed work is protected under the Copyright Act, 1957 if it can be reduced to a tangible form such as notation or recording. Thus, if an AI generated form accessed in a tangible form it can be protected under the said legislation. Similarly, The case of R.G. *Anand* v *Delux Films* (1978 AIR 1613) enunciated the test of substantial similarity and originality, which is applicable to choreographic works too. Although the case involved dramatic works, it explained that there could be protection only for the expression of an idea and not for the idea itself. AI-based notation in dance can assist in establishing the choreography fixed, which would be easier to establish originality and authorship in cases of plagiarism or unauthorized exploitation.

Sri Lanka: AI and Kandyan Dance

Sri Lanka has attempted to digitize its most popular classical form, the Kandyan dance, which is highly ritualistic and codified based on the region from which it hails. The University of the Visual and Performing Arts in Colombo, meanwhile, has started working on digitization with AI-driven video archiving and motion analysis. Sri Lankan scholars, aided by cultural grants from UNESCO, have used AI to interpret Kandyan movements and to encode them as a distinct set of movements that now exist in a searchable online repository of variations. It also helps in differentiating temple-based rituals and secular performances enabling researchers and practitioners to uphold the authenticity of the form with the help of the AI. Furthermore, attempts have been made to fuse traditional Kandyan with modern dance, at virtual choreography labs, in racy musicals which promote exciting cultural expression for younger people.[47]

Bangladesh: Community Centered AI Applications

In Bangladesh, where folk practices like Jatra, Baul, and Gambhira are culturally significant ethnically, utilizing AI is still an emerging field but with great potential. NGOs and academic organizations including BRAC University have been working with a diverse group of cultural organizations to document the endangered dance forms in the region by utilizing AI tools. Specific projects have included documentation and digitizing community performances of the practices, recording and utilizing AI for identifying the movement patterns used repeatedly, and developing metadata for differentiating the styles. Community is the focus here. They make efforts for a community-oriented approach by working in this practical context to support local artists to train them in digital documentation and some fundamental copyright arguments, enabling them to assert their ownership over their work (cultural/creative expression, practice). Although the infrastructure is still a limitation, the introduction and use of mobile-based AI applications for documentation and learning have begun to alleviate some of the digital divide difficulties.[48]

Nepal

Nepal has used AI and GIS technologies in cultural mapping of intangible heritage including indigenous dance forms, such as Lakhey, Charya Nritya and Ghatu. The Nepal Academy of Music and Drama has worked with technology startups to document sequential movements using AI-assisted visual recognition technology, especially documenting dance practices in rural and Himalayan areas where oral transmission is predominant. AI has been used to not only document but also to analyze regional variations in dance practice, resulting in a dynamic, layered understanding of cultural expressions.[49]

Pakistan

While there has been exploration of blockchain technologies to protect copyright and ensure that choreographers and their communities maintain ownership of their digital content, in Pakistan where, in many cases, dance is only performed within the sphere of religious and cultural limitations, AI is being cautiously adopted in the field of heritage conservation. The *Lok Virsa Museum* and independent cultural scholars have begun to adopt AI-based video annotation tools to document cultural practices, such as Sufi whirling and Bhangra, to more tribal dances in Balochistan and Gilgit-Baltistan. In the absence of any state funded digital infrastructural planning, however, individual artists continue to apply social medial AI tools to promote their work and monetize it, but usually with little possibility for copyright protection. In Pakistan, there is low legal literacy and limited institutional support which

means the opportunity for AI to fill enforcement mechanisms for intellectual property remains largely unrealized, making this an important locus for policy action.[50]

The Pakistani Intellectual Property Tribunal, Lahore case of *Iftikhar Arif* v *Imran Shahid* (2020 LHC 4435), while focused on poetry, highlights the significance of fixation and originality in giving legal protection to cultural works under Pakistani copyright law. This ruling makes it clear that once an original work of expression is fixed in a material medium, it is entitled to legal protection. This principle is echoed throughout SAARC nations and supports the contention in favor of documenting digital dance notation as an essential tool to prove originality and fixation in dance compositions, thereby consolidating intellectual property enforcement in the region.

Afghanistan, Bhutan and Maldives

In this regard, Afghanistan, Bhutan and the Maldives are the lowest exposed to AI dance and copyright. Afghanistan's political turmoil and low internet penetration rates, and Bhutan and the Maldives' lack of institutionalized infrastructure contribute to this. However, much like the international NGO support for digitally documenting at-risk performance heritage, there is community engagement. In Bhutan, masked religious dances are assessed through AI visual documentation during the *Tsechu Festival* as part of the larger Digital Heritage Initiative by the Department of Culture. In the Maldives, where the *Bodu Beru* dance is part of island life, tourism boards are investigating potential AI programs for better cultural tourism but have not yet pursued formal IP protections with the government.

Comparative Insight

India's efforts have been championed by the courts and the legislature, implying similar sentiment regionally, although few have engaged in the digital realm yet. AI dance copyright and notation exists regionally based upon technological access, natural equity and community engagement efforts, legal integrations, cultural receptivity and policy advocacy. India is the preferred nation for technological developments and legislative policies by both the court and governmental assent. Yet Bangladesh and Sri Lanka advocate community engagement as symbols of grassroots activism and championing potential for inclusion. Many examples are promising support of artists, maintenance of cultural identity and ethos, even an eye toward entrepreneurial pursuits however, others expose gaps in access, lack of policy harmonization and need for IP education that call for concern before society can operate with an educated understanding of what it means to implement such an inclusive form of cultural capital.

Conclusion

Well, after understanding the trend of SAARC nations we can ascertain various issues that needs to be addressed to enhance the growth of cultural economy.

(i) Firstly, SAARC nations can collectively work towards harmonizing their regional Intellectual Property Laws which will create a unified framework for protecting choreography across borders. This can include recognizing dance notations as copyrightable work and. establishing regional databases for choreography registration.

(ii) The government should work effectively towards promoting traditional knowledge. This can be ensured by granting community-based rights to traditional practitioners and by providing equitable benefit-sharing for cultural appropriations.

(iii) For capacity building awareness campaigns and training programs should be organized as they are essential to educate choreographers about their rights and technological tools. In achieving this the institutions can help by offering workshops and integrating IP education into dance curricula.

(iv) Both the government and the private sectors must provide grants, subsidies and infrastructure to help them in becoming entrepreneurs. This can be done by creating incubators for cultural startups which will also drive innovation in the dance industry.

(v) By investing in education in creative fields, both technical skills and entrepreneurial capabilities can be achieved. Partnership with international institutions can bring best global practices to the region.

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