

Design and Develop of Embroidery, Printing and Applique Techniques Inspired from Kolam Art for Application on Contemporary Outfits for Gen-z

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Abstract— This project explores the creativity of Kolam art, a traditional Indian floor art known for its geometric patterns along with the contemporary fashion for Gen-Z. Kolam is one of the most ancient, living, and mathematically sophisticated folk art traditions of South India. It is a form of ritual drawing or painting created on the ground — typically at the threshold of a home, in courtyards, in front of places of worship, and in sacred domestic spaces — using white rice flour, chalk powder, or white stone powder as the primary medium. The objective is to revitalize the traditional art form by translating its intricate patterns into textile embellishments such as embroidery, printing and applique. The study adapts for minimalist, bold and experimental aesthetics that resonate with Gen-Z's preference for cultural storytelling and modern and trending styles and silhouettes for men and women. This research aims to create a cohesive collection that celebrates Indian craftsmanship while addressing the modern consumer's demand for authenticity and expressive visual identity.

Index Terms—Kolam, Fashion trends, embroidery, printing, applique,

I. INTRODUCTION

Kolam is a traditional geometric floor drawing made with rice flour, historically used to welcome prosperity and aesthetic value into South Indian homes. While deeply rooted in heritage, these traditional folk arts are perceived as losing relevance among modern urban youth. Simultaneously, the 2026 fashion landscape is defined by bold maximalism and a rejection of "quiet luxury" in favor of personal expression.

This research aims to bridge this gap by designing a contemporary collection for Gen-Z that utilizes Kolam motifs. By applying traditional patterns through

various surface embellishment techniques, the project seeks to preserve cultural identity while meeting the stylistic and emotional needs of the modern consumer. The study of Rangoli motifs involves documentation through sketching, tracing, and photographing traditional patterns, followed by analysis of their symmetry axes, repeat units, color relationships, and cultural significance.

Appliqué, derived from the French word meaning "to apply," is the technique of cutting out fabric shapes and stitching them onto a base fabric to create patterns and pictorial compositions. The development of motifs for appliqué requires a strong understanding of form simplification, since complex organic shapes must be reduced to clean, cuttable silhouettes that retain their visual identity.

When motifs are developed for embroidery, the designer must consider how line, fill, texture, and color can be achieved through the choice of stitch type and thread. Embroidery allows for a level of detail, shading, and tactile richness that other techniques cannot replicate, making it ideal for developing motifs with depth and intricacy.

The development of Rangoli motifs through the medium of printing is a compelling and innovative area of textile and surface design that bridges the ancient tradition of Indian folk art with the technical possibilities of modern and traditional fabric printing methods. Rangoli — a vibrant, sacred, and celebratory art form practiced across India for thousands of years — possesses a rich and diverse visual vocabulary that translates with remarkable elegance onto printed fabric surfaces. This process of translation involves deep study, thoughtful adaptation, and technical skill, resulting in textiles that carry the cultural spirit and

aesthetic energy of Rangoli in a permanent, reproducible, and widely accessible form.

II. PROCEDURE

A. Typology of Kolam

The research identifies several distinct types of Kolam, each offering unique geometric possibilities for textile design:

- Pulli Kolam: Created by connecting an equidistant grid of dots with lines.
- Sikku Kolam: Characterized by "knotted" or curvilinear patterns that entwine around dots.
- Padi Kolam: Built from parallel lines and repetitive geometric shapes.
- Kambi Kolam: Highly complex symmetrical designs where lines can only cross once.

B. Mathematical Principles

Kolam formation follows rigorous mathematical logic, including Lattice patterns (paths between adjacent points), Eulerian trails (visiting every edge once), and recursion functions (sequences of repeating terms). These principles provide a structured framework for digital print development and technical embroidery.

C. Surface Embellishment Techniques

To translate these floor drawings into wearable art, three primary techniques are employed:

- Embroidery: Decorative stitching using needles and thread, one of the oldest textile arts.
- Printing: Specifically stencil printing, which has historically been used for high-quality decorative work on woven goods.
- Appliqué: The process of sewing or sticking fabric patches onto a larger piece to create patterns.

A. Phase 1: Research & Ethnography: Investigating Kolam motifs, 2026 trends, and conducting a survey of 23 responders (primarily women aged 18-29) to understand cultural perceptions. Identifying whether respondents find symmetry, continuous lines or the contrast of white powder most striking. The survey targets a Gen-z demographic that leans towards personal styles. Determining the best method for integration and placement of motifs and prints such as subtle tonal embroidery all over repeats. As per the **survey the kolam art is identified as meditative**

form as per the emotion connected towards the collection.

B. Phase 2: Concept Development: Developing mood, color, and fabric boards based on "Urban" style preferences. Reflects the mood and aesthetics of the collection

Phase 3: Design Development: Creating digital prints and conceptual sketches for Gen-Z men's and women's attire.

Phase 4: Sampling & Production: Testing surface embellishment samples and final product development.

IV. DESIGN DEVELOPMENT PROCESS

A. Inspiration

The design concept is rooted in the 2026 trend of "Hyper-individualism". The mood board focuses on "Poet-core" (romantic, prose-inspired) and "Drop waist Redux" (low-slung waistlines). These silhouettes provide the canvas for the geometric Kolam motifs.

B. Print and Pattern Development

Six distinct prints were developed by translating the mathematical symmetry of Kolam into digital formats

- Development of motifs based on embroidery and printing

The development of Rangoli motifs through the mediums of embroidery and printing represents a fascinating evolution of a traditional Indian art form into textile and surface design. Rangoli, originally created as ephemeral floor patterns using colored powders, rice flour, and flower petals, carries deeply symbolic geometric and floral vocabularies that have inspired craftspeople and designers to translate these visual languages into more permanent and wearable forms. Rangoli motifs are deconstructed into repeatable units suitable for yardage or placement prints. Designers study the geometry of traditional Rangoli layouts, such as the mandala-like circular expansions or the dot-grid (pulli kolam) structures, and develop them into print-ready artwork. When Rangoli motifs are adapted into embroidery, the flowing symmetry of traditional patterns is reimagined through needle and thread. Scale, proportion, and color palettes are adjusted to meet the technical requirements of embroidery thread counts or printing screens. Both mediums encourage a dialogue between

tradition and contemporary design sensibility, resulting in products that honor cultural heritage while appealing to modern aesthetics.

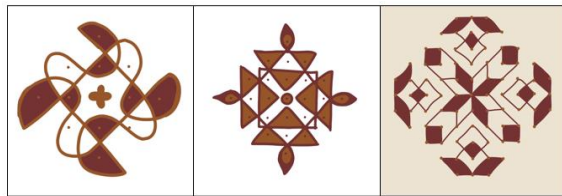


Fig no 1: Development of motifs based on embroidery and printing

- Development of motifs based on applique and embroidery or printing

The development of Rangoli motifs through the craft techniques of appliqué, embroidery, and printing is a deeply engaging and culturally significant area of textile and surface design. It involves the thoughtful translation of a living, ephemeral folk art tradition into permanent, wearable, and decorative textile forms. Each regional tradition carries its own distinctive motif vocabulary, geometric logic, and symbolic meaning, offering an extraordinarily rich source of design inspiration for textile development. These motifs are inherently symmetrical, rhythmic, and compositionally balanced — qualities that translate beautifully into textile techniques. Appliqué is perhaps the most visually dramatic way to translate Rangoli motifs into textile form. The bold, graphic quality of Rangoli — with its strong outlines, flat color fields, and clear compositional structure — lends itself naturally to the cut-and-stitch logic of appliqué work.



Fig no 2: Development of motifs based on applique and embroidery or printing

C. Inspiration

The design concept merges the mathematical precision of traditional South Indian Kolam with the fluid, expressive nature of Gen-Z "Urban" aesthetics to create a culturally rooted yet modern wardrobe. Integration of Pulli (dotted), Sikku (knotted), and Padi (line-based) patterns as primary visual elements.

Application of motifs onto modern styles such as drop-waist dresses, oversized jackets, and utilitarian coordinates.



Fig no 3: Concept sketches developed for women



Fig no 4: Concept sketches developed for men

V. RESULTS AND ETHNOGRAPHIC FINDINGS

The survey revealed that while traditional art is perceived as fading, there is a strong emotional connection to it among youth. Key findings include symmetry and geometric complexity were cited as the most visually appealing aspects of Kolam. There is a clear willingness to spend on art-inspired, culture-heavy fashion within a specific price range.

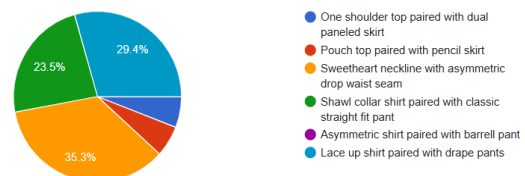


Fig no 6: Design selection



Fig no 7: Finalized sketches for based on the results of ethnography survey

VI. CONCLUSION

This project demonstrates that the 5,000-year-old art of Kolam can be successfully revitalized for the modern market. By integrating intricate Pulli, Sikku, and Padi patterns into contemporary Gen-Z silhouettes through embroidery, printing, and appliqué, the collection preserves cultural heritage while embracing 2026's hyper-individualist trends. The final products bridge the emotional connection youth have with their heritage and their desire for modern, "Urban" fashion

REFERNCES

- [1] Wikipedia, "Kolam," [Online]. Available: <https://en.wikipedia.org/wiki/Kolam>.
- [2] A. Sarin, "The Kolam Drawing: A Point Lattice System," Design Issues, MIT Press, vol. 38, no. 3, pp. 34-44.
- [3] Sahapedia, "Significance of Kolam in Tamil Culture," [Online]. Available: <https://www.sahapedia.org/significance-of-kolam-tamil-culture>.
- [4] Wikipedia, "Embroidery," [Online]. Available: <https://en.wikipedia.org/wiki/Embroidery>.
- [5] Wikipedia, "Appliqué," [Online]. Available: <https://en.wikipedia.org/wiki/Appliqué>.
- [6] Vogue, "Spring 2026 Fashion Trends," [Online]. Available:

<https://www.vogue.com/article/spring-2026-fashion-trends>.

- [7] A. Sarin, "Typoday 2023," [Online]. Available: https://www.typoday.in/2023/spk_papers/Anika_%20Sarin_Typoday2023.pdf.
- [8] Z. Rahbarnia and P. Chadha, "'Kolam' Hindu Earth Graffiti as Land Art in the Field of New Art," Bagh-e Nazar, vol. 12, no. 36, pp. 15-22, Dec./Jan. 2015/16.
- [9] A. Sarin, "The Kolam Drawing: A Point Lattice System," Design Issues, MIT Press, vol. 38, no. 3, pp. 34-54, 2022.
- [10] S. Chenulu, "Teaching Mathematics through the Art of Kolam," Mathematics Teaching in the Middle School, National Council of Teachers of Mathematics (NCTM), 2006.