Chapter 56

Back to the Future: Exploring the Untapped Potential of Freehand Weaving

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Abstract

This chapter presents a speculative, practice-based body of research investigating indigenous weaving, one of the earliest forms of architectural technology, as a material practice of architecture rather than a decorative one. Focusing on freehand weaving traditions from the Middle East and North Africa (MENA), the study explores how ancestral techniques can be reimagined for contemporary architectural design, in ways that support cultural continuity, socio-economic opportunity, and environmentally responsive making.

The research proposes repositioning the artisan as a central figure in the design and construction process—one who operates across scales, from object to space, in collaboration with architects and designers. It asks whether the same techniques and hands used to weave baskets might be extended toward the construction of space, and what architectural possibilities emerge through such a shift. The study argues that sustainable futures may lie in reviving overlooked, environmentally sensitive, and contextually specific techniques rooted in indigenous traditions.

Material collaborations with a multi-generational family of Egyptian weavers investigate the translation of basket-weaving techniques into architectural applications. Through experiential, auto-ethnographic research, and cycles of creative production, this chapter demonstrates how design can elevate craft by expanding its applications and reinforcing the knowledge embedded within traditional practices. By cultivating exchanges between designers and artisans, this research positions freehand weaving as a viable, living material technology for contemporary architectural design.

Keywords: *Indigenous Weaving, Ancestral Intelligence, Ancestral Technology, Artisanal Architecture, Craft-based Design*

Introduction

Weaving is among the earliest technologies developed by humankind[1,2], with deep historical roots in utilitarian function, cultural expression, and spatial innovation. Knowledge embedded in weaving has been transmitted across generations through embodied practice, shaping both material artefacts and

[1]Edward A. Jolie et al., "Cordage, Textiles, and the Late Pleistocene Peopling of the Andes," *Current Anthropology* 52, no. 3 (June 2011): 285–96; Jiří Svoboda et al., "Palaeolithic Textiles and Basketry Impressions from Dolní Věstonice," in *The Dolní Věstonice Studies*, vol. 4, ed. Petr Škrdla (Brno: Institute of Archaeology, 2005).

[2]Jolie et al., "Cordage, Textiles"; Svoboda et al., "Palaeolithic Textiles and Basketry."

the social structures that sustain craft traditions. Initially used for basketry, shelter, and textiles, weaving technologies became foundational to construction and social organisation[3].

The artisan embodies an ancestral intelligence transmitted through the hands, the oldest human tools.[4] Through sustained engagement with natural materials and environmental conditions, craftspeople developed making practices that were materially efficient and environmentally responsive. The work of Egyptian architect Hassan Fathy demonstrates the architectural potential of such relationships. In projects such as the *Village of New Gourna* (1948) and the *New Baris Market* (1967), Fathy collaborated with skilled earth masons to produce affordable, climatically responsive architecture rooted in local material culture[5]. However, industrialisation has progressively distanced society from material knowledge and making, marginalising many artisanal practices.

This research argues that sustainable futures in architecture and design may lie in the reactivation and evolution of overlooked, environmentally sensitive, and contextually specific ancestral practices rather than in entirely new inventions. It proposes reintegrating the artisan into contemporary design practice by advancing indigenous freehand weaving traditions, particularly those native to the MENA region, and translating them into spatial design as the basis for a culturally rooted, materially intelligent, and environmentally responsible architectural language.

Materials and Methodology: Closed-circle Technology

Khoos is a freehand weaving practice using dried palm fronds, widely practiced across the MENA region and rooted in Bedouin and coastal communities[6]. Closely tied to the date palm, a tree central to sustenance in arid environments, khoos employs locally available, unprocessed plant fibres that are abundant, renewable, biodegradable, and inexpensive. Practiced without tools, the technique relies solely on the hands, coiling split palm leaves around a core of rice or oat grass through an additive process. Form emerges directly through the act of weaving, producing inherently three-dimensional structures in which process and product are inseparable. Rooted in local ecological rhythms, khoos requires minimal resources, leaves no waste, and remains widely accessible, operating as a closed-circle material technology. Its spatial logic, the capacity to generate structure, surface, and volume from a single material system, offers a compelling framework for sustainable architectural exploration.

Khoos also holds cultural significance as a form of intergenerational knowledge, traditionally transmitted through women in many Gulf communities[7]. Its material properties provide shade and ventilation, making it climatically responsive and well-suited to hot and arid environments. Harvested

[3]Erik Andersson Strand et al., "Textiles, Cordage and Basketry from Çatalhöyük," in *The Matter of Çatalhöyük: Reports from the 2009–2017 Seasons*, ed. Ian Hodder (Ankara: British Institute at Ankara, 2021).
[4]Richard Sennett, *The Craftsman* (New Haven: Yale University Press, 2008).
[5]James Steele, *The Hassan Fathy Collection: A Catalogue of Visual Documents at the Aga Khan Award for Architecture* (Singapore: Concept Media, 1997).
[6]Peter Vine, *Traditional Crafts of Saudi Arabia* (London: Stacey International, 1986), 43–47.
[7]UNESCO, "Date Palm, Knowledge, Skills, Traditions and Practices" https://ich.unesco.org/en/RL/date-palm-knowledge-skills-traditions-and-practices-01902.

from date palm waste without damaging the tree, the craft aligns with natural cycles of renewal and supports environmentally sensitive modes of making.

The research methodology is grounded in practice-based, auto-ethnographic inquiry through sustained collaboration with a multi-generational family of Egyptian weavers. Central to this work is Laila Mohammed Saeed, an experienced Upper Egypt khoos weaver who learned the craft from her mother and has transmitted it to her daughters. The research unfolds through episodic cycles of hands-on material experimentation, critical reflection, and creative production. Analogue weaving experiments are documented and translated into digital three-dimensional models, which are further developed into modular systems and construction typologies capable of defining space. This hybrid analogue–digital workflow enables the investigation of khoos as a scalable material technology, demonstrating its potential to produce robust, volumetric forms and spatial surfaces through both modular and in-situ architectural applications (Figure **1** and Figure **2**).

Figure 1: Material experimentation and prototyping with khoos in collaboration with weaver, Laila Mohammed Saeed (Credit: Tania Ursomarzo).

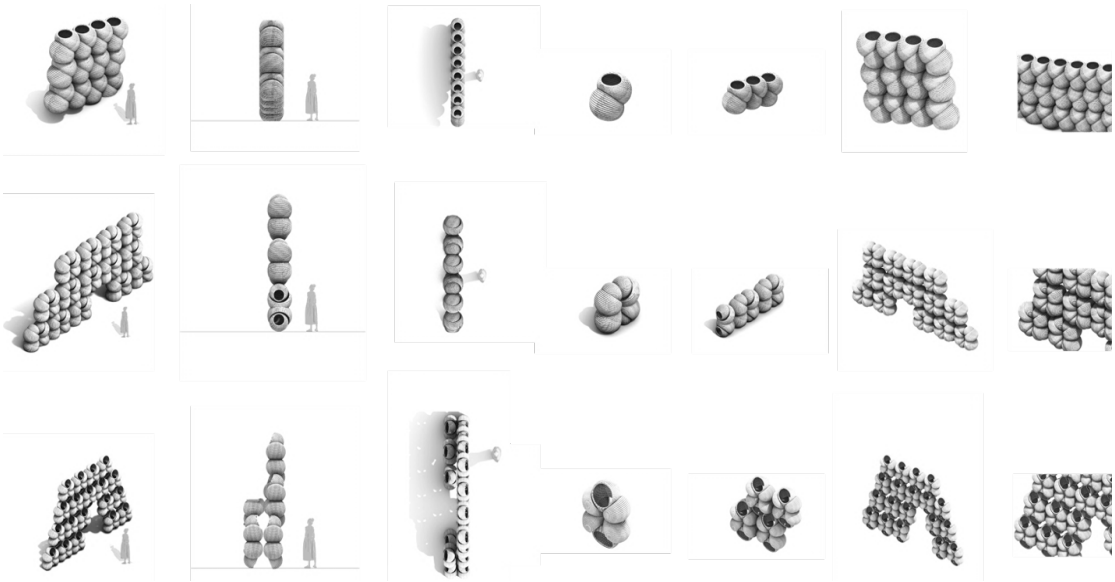

Figure 2: Digital translation and evolution of handwoven prototypes in three-dimensional model to study modular spatial assemblies (Credit: Tania Ursomarzo).

The Contemporary Position of Indigenous Weaving

Despite the continued presence and practice of indigenous weaving across North Africa, the skills of highly knowledgeable craftspeople remain underutilised in contemporary contexts. Their work is primarily directed towards the production of decorative objects destined for export to home furnishing markets abroad or for sale in local tourist economies. In some instances, foreign merchants have facilitated wholesale contracts with international retailers, enabling artisans to secure broader distribution of their work[8]. While such arrangements provide valuable economic opportunities for remote craft communities, they also generate a dependence on external markets and the success of foreign businesses. Moreover, the products created for export are typically limited in type, design, and function, often differing only in colour or surface pattern, resulting in minimal diversification of the craft[9] (Figure **3**).

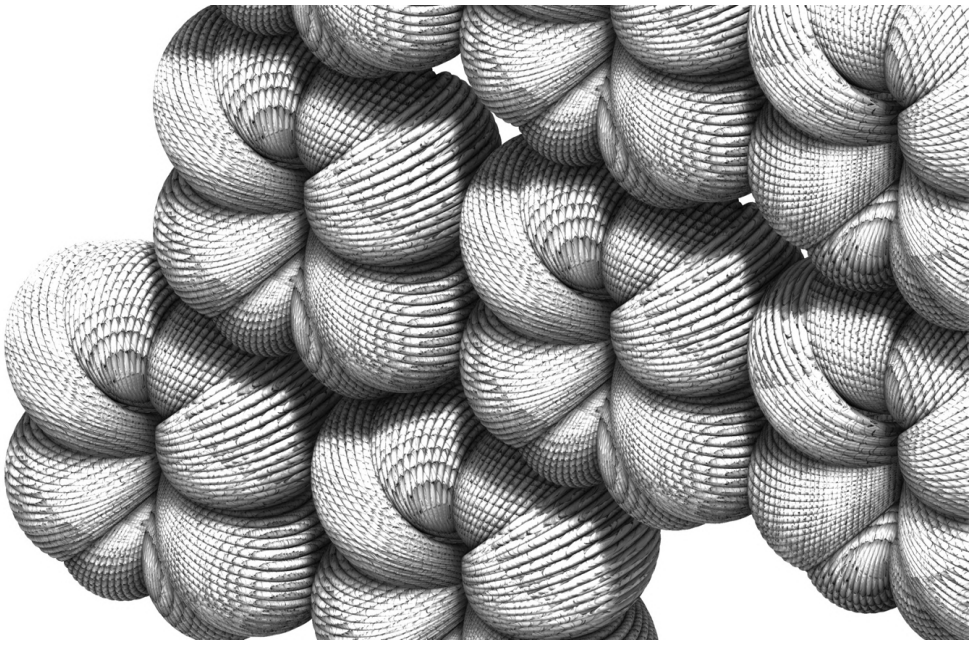

Figure 3: Detail of a digitally evolved prototype exploring a modular spatial assembly (Credit: Tania Ursomarzo).

From Function to Ornament: The Changing Role of Craft

The manner in which woven objects are presented in international markets has contributed to a significant shift in their cultural perception. Handwoven baskets and bowls, for example, are marketed and displayed as wall-mounted or shelf-based décor, categorised within store offerings as 'decorative' accessories rather than as functional items of daily use[10]. This practice distances the artefacts from their utilitarian origins, reframing them as exotic commodities defined by geographic and cultural otherness. Historically, craft has been understood as the production of objects whose artistry lies in the mastery of

[8]Kanju Interiors, "Woven Baskets," accessed August 2, 2025 https://kanjuinteriors.com/collections/woven-baskets.
[9]Baskets of Africa, "Zimbabwe Masterweave Binga Bowls," accessed August 2, 2025 https://basketsofafrica.com/product-category/masterweave-binga-bowls/.
[10]SAFFRON + POE, "Art and Décor," accessed August 2, 2025 https://saffronandpoe.com/collections/decor.

skill and the functionality of the final product[11]. By this definition, the specialised fabrication techniques employed in weaving should be recognised as a form of advanced technology, comparable to industrial processes, capable of producing both utilitarian and aesthetically rich outcomes. Today, however, craft is often reduced to ornament.

Stagnation, Technological Resistance, and the Need for Innovation

While many weavers possess a sophisticated repertoire of techniques, their application has been largely confined to a narrow range of products with limited evolution over time. Rather than advancing towards new forms or markets, the practice of freehand weaving has focused on continuity and refinement of ancestral skill. An examination of products created by artisans such as Laila and her family reveals minimal differentiation or formal innovation; the woven goods they produce today closely resemble those made by preceding generations. This continuity is further reinforced by a broader cultural resistance to integrating new weaving technologies into traditional practices. As Soliman et al. observe, contemporary weaving in Egypt still adheres to ancient processes, with many craftspeople reluctant to experiment with technological adaptation[12]. This lack of progression perpetuates the perception of craft as an outdated or irrelevant technology, diminishing both its economic value and its potential to contribute to contemporary design and architecture.

Repositioning Indigenous Weaving as a Contemporary Design Technology

Expanding artisanal production beyond traditional objects enables craft to be repositioned as a relevant and adaptable design technology capable of addressing contemporary challenges. This shift creates opportunities for meaningful collaboration between designers and artisans, with design operating as a tool to cultivate traditional processes, extend their applications, and build upon the artisan's technical expertise.

Advancing woven handicraft into product and spatial design generates new economic opportunities while transforming the role of the artisan. Craftspeople traditionally engaged in small-scale production can also participate in the fabrication of spatial systems and architectural elements, operating as specialised collaborators alongside designers, architects, and builders across scales. Reframing woven processes as technology rather than product positions craft as a versatile contemporary method of making. The advancement of weaving as a modern material technology supports the emergence of a regionally rooted architectural language and construction methodology, situating craft as both cultural heritage and an active agent in contemporary design production.

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[11]Lucy Donkin, *Crafts and Conservation: Synthesis Report for ICCROM*, Version 1.0 (Rome: International Centre for the Study of the Preservation and Restoration of Cultural Property, February 2024), 5–6.

[12]Dalia Soliman, Gamal El-Din Abdel Razeq, and Youmna Zaki, "Spinning and Weaving as Ancient Egyptian Inherited Crafts," *Pharos International Journal of Tourism and Hospitality* 1, no. 2 (2023): 18–32.

Conclusions: Design Futures Informed by Ancestral Knowledge

The marginalisation of craft within contemporary design discourse has contributed to the perception of handmaking as static or irrelevant. This research challenges that view by demonstrating that indigenous weaving practices, when critically and collaboratively engaged, possess significant potential to inform sustainable, locally grounded architectural solutions. Woven handcraft must be repositioned as a purposeful, forward-looking practice that is economically viable, technically relevant, and culturally resonant.

Integrating ancestral technologies into contemporary design requires approaches that respect their origins while enabling adaptation to new contexts and demands. Design plays a critical mediating role in this process, creating new applications, markets, and modes of transmission for artisanal knowledge. Through such exchanges, traditional practices can be translated into architectural strategies capable of addressing pressing challenges, including material scarcity, climate responsiveness, and social equity.

Ultimately, this research proposes that sustainable design futures depend not solely on new technologies but on the reactivation and evolution of ancient knowledge systems, where tradition and innovation operate as mutually generative forces shaping a more sustainable and equitable built environment.

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