PatternPursuit: A Collaborative Tool for Graphic Pattern Design

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Abstract

This paper presents a co-creative system that starts from the exploration of pre-digital design work to create graphic patterns. The system uses design principles to guide its contributions. Promoting different types of creativity and levels of autonomy, the system adapts to users' needs and encourages reflection on the creative process.

Keywords

Creative Support, Human-computer Interaction, Design Principles, Computational Design, Creative Process

1. Introduction

The growing role of digital tools in creative tasks has driven the development of systems that stimulate human creativity more effectively. However, these systems still face challenges related to the unpredictable nature of human creativity and the diversity of strategies used in creation [1]. Thus, the development of co-creative tools must consider not only the technical aspects, but also the subjectivity and singularity of these processes [2], especially in design, where the balance between scientific rigour and creative practice is particularly complex [3].

2. PatternPursuit

PatternPursuit is a collaborative ideation system that allows innovative graphic patterns to be created through a co-creative process between human and computer [4]. It is based on the conceptual and visual exploration of pre-digital references, in this case by Sebastião Rodrigues [5], reflecting all the phases of graphic design: research, experimentation and the creation of artefacts. The system's modularity promotes personalised and iterative collaboration, supporting divergent and convergent thinking [6]. This system uses design principles to guide the contributions of the computational agent, while allowing the exploration of various processes with different levels of autonomy.

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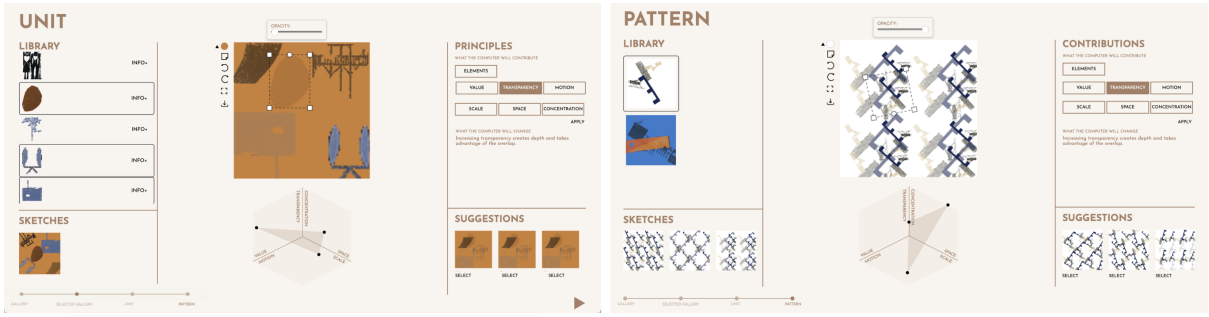

Figure 1: PatternPursuit Interface.

Figure 2: Reference image and its decomposed elements.

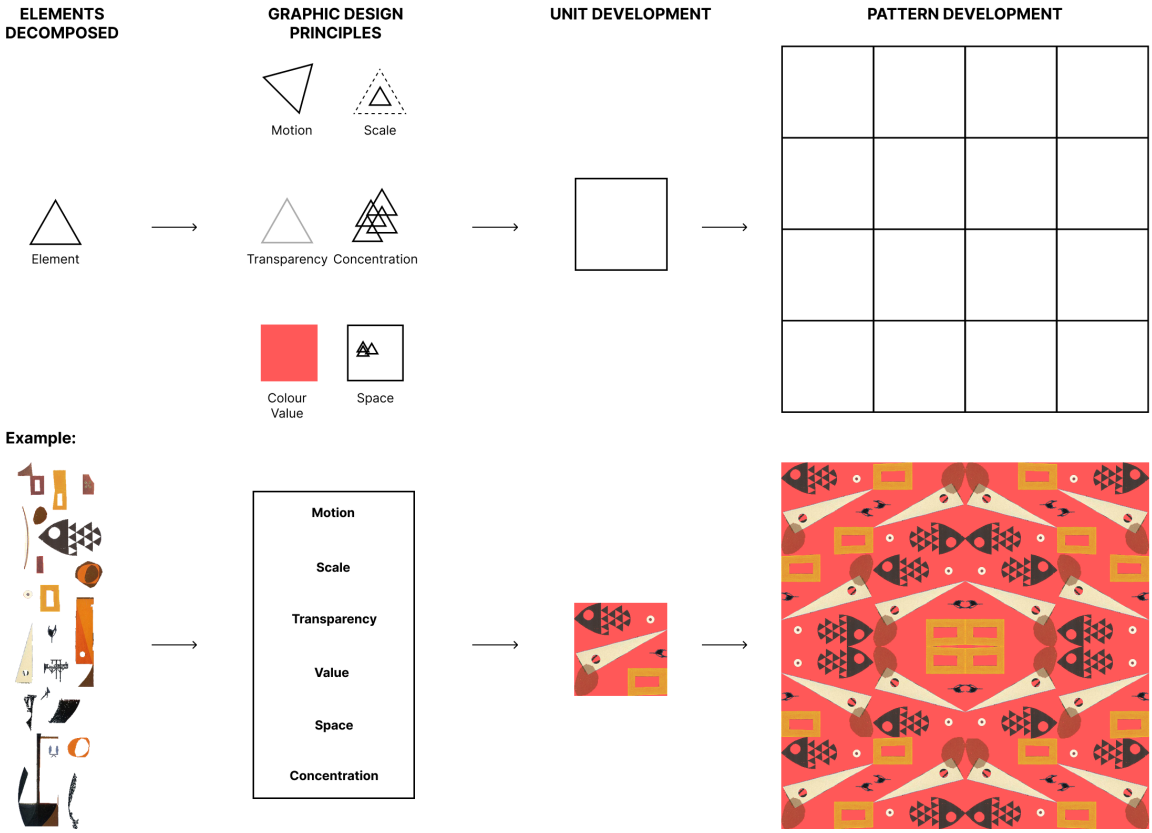

Figure 3: Process of developing graphic patterns using design principles.

3. Results

The system has shown that integrating design principles effectively improves the creative process, enabling the generation of innovative patterns and encouraging deeper reflection on visual decisions. By supporting different types of creativity and levels of autonomy, it adapts to different user profiles, from those who need more guidance to those who prefer an autonomous experience.

Figure 4: Collaborative human-computer patterns made by our study participants using the system implemented.

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