

Soft Companions: A Breathing Textile Creature for Sensory Rituals of Care

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Abstract

This paper presents *Soft Companion*, a soft, breathing textile creature designed as a sensory breathwork companion for embodied calm. The project explores how knitted textiles, pneumatic actuation, scent, and tactile interaction can evoke a sense of lifelikeness and calm. When coming into contact with the skin, the *Soft Companion* inflates and deflates in a slow box-breathing rhythm (4-4-4-4), inviting the user to synchronize their breathing. By positioning textiles as animated skin, pneumatic structures as internal organs, and simple electronics as a subtle activation system, this work proposes an approach to tangible and embodied interaction that prioritizes calm and companionship. The project contributes to TEI by exploring how sensory rituals can emerge through soft, creature-like interaction.

CCS Concepts

• Human-centered computing; • Interface design prototyping;
• Interaction design;

Keywords

Embodied Interaction, Pneumatic Actuation, Animacy, Multi-sensory Design, Knitting Technology

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1 Introduction

The Adventures of Pinocchio [1] tells the story of Geppetto carving life into a block of wood, creating a puppet that moves, acts, and eventually becomes alive. Inspired by this story, This Soft Companion prototype is created with (knitted) textiles rather than wood, exploring how softness, fluidity, and responsiveness can generate lifelike presence. Inspired by the notion of animacy and the principles of electronic textiles (e-textiles), this project explores the idea of a soft tactile creature that displays lifelike behavior when activated through touch. The Soft Companion can be worn or placed on the body and responds with a breathing motion activated by conductive textiles and pneumatic actuation. The prototype is constructed as a



Figure 1: Soft Companion Prototype on the body.

soft knitted skin containing a pneumatic lining. The knitted surface functions as skin, while the inflatable lining operates as an organ that enables breathing motion. A small air pump and valve regulate the slow expansion and contraction of the creature. Conductive yarn included in the textile allows for the activation of the pump through touch.

2 Motivation

According to the World Health Organisation, more than one billion people worldwide are living with mental health disorders. Anxiety disorders alone are among the most common mental health conditions globally [2],[3]. Research indicates that controlled breathing techniques and guiding breathing patterns can cultivate health benefits, including calmness, focus, and lower blood pressure [4],[5],[6],[7]. Research in social neuroscience and psychophysiology indicates that humans can synchronize their breathing rhythms with others during social interaction. The findings show that interpersonal respiratory synchronization is facilitated by predictable,



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Figure 2: Soft Companion prototype inflated on the back of the body.

stable breathing rhythms. These rhythms tend to emerge during conversational and collective tasks [8]. Motivated by these findings, *Soft Companion* is designed as a tactile tool to regulate breathing through sensory interaction. The companion follows a slow and stable (box breathing) pattern, making it easier for users to attune their own breathing to the rhythm of the companion. Besides breathing regulation, the project also explores the idea of companionship through reciprocal care. The knitted skin of the companion is intentionally hairy and fragile, inviting grooming and gentle attention. While the creature supports the user's breathing, the user can, in turn, take care of the creature's fur.

The inflation of the creature creates subtle lifting, folding, and settling movements. Through these movements, the creature appears to make an effort to rise and stand upright while inflating, and to collapse gently when deflating, creating a slightly clumsy and vulnerable presence. This idea reflects studies showing that caring for something or someone can enhance emotional well-being, and that perceived clumsiness in care-robot systems can evoke a tendency to help [9]. Touch plays a central role in this relationship: our sense of touch allows us to perceive qualities such as texture, weight, and temperature, and it operates as a reciprocal process in which object and body affect each other simultaneously [10]. To

deepen the sensory experience, the textile surface is infused with a calming scent composed primarily of lavender and bergamot. These notes are commonly associated with stress reduction and nervous system regulation, and inhalation of both lavender and bergamot oils has been shown to reduce anxiety and improve sleep quality [11].

3 Relation to the Theme: Sensory Rituals

The 2026 Student Design Challenge theme, *Sensory Rituals*, invites explorations of how sensory interaction can support emotional, mental, and embodied well-being. *Soft Companion* directly addresses this theme by transforming a breathing exercise into a tangible, multisensory ritual.

The ritual of breathing emerges through physical contact, shared rhythm, warmth, and scent. Repeated interaction with the creature can establish a pattern that may become part of a daily calming routine. The ritual invites slowness, closeness, and embodied attention. By framing breathwork as a gentle relationship between body and creature, the project imagines self-regulation as a form of soft companionship.

4 Use Scenario

The Soft Companion can be worn on the chest, placed on the shoulder, or held against the belly or back, depending on personal preference. When activated through touch, it begins its slow breathing cycle. The user naturally adapts their own breathing rhythm to the movement of the

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Use of AI Declaration: AI tools were used only for spelling and grammar checking during the writing process.

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