

# Bringing Aesthetic Interaction into Creativity-Centered Design: The Second Generation of mixDroid Prototypes

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## ABSTRACT

*The authors discuss a series of experimental studies targeting ubiquitous musical activities. The studies explore the application of time tagging as an aesthetically oriented interaction design metaphor. A new support mechanism is proposed: the stripe. The stripe works as an entry point to the sound data providing a functional unit that features both interaction and audio manipulation. A new prototype based on the stripe metaphor was implemented. Twenty four subjects participated in the assessment of three creative sonic products produced with and without support for time tagging. Results indicate that – provided equivalent conditions – creative products obtained through asynchronous activities demand a larger temporal investment but do not necessarily yield more creative outcomes. The authors discuss the implications of these results for aesthetically aware interaction design.*

**Keywords:** *Creativity Support Tools, Human-Computer Interaction, Interaction Design, Minicomps, mixDroid, Ubiquitous Musical*

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## INTRODUCTION

Departing from recent theoretical advances in interaction design (Löwgren, 2009), we discuss a body of knowledge gathered in ubiquitous music practices (Keller et al., 2011a; Keller et al., 2014a) during the last six years. New concepts and methods have been proposed to describe aspects of the ideation and materialization of experiences with technology. Pliability (Löwgren, 2007) and anchoring (Keller et al., 2010) are two of the multiple design qualities that surfaced

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in interaction design that impact information technology creative practices. We present results of experiments addressing creativity support for ubiquitous music making through the time tagging metaphor (Radanovitsck et al., 2011). The studies serve to exemplify how relational properties can be integrated within ubiquitous music research, highlighting their impact on aesthetically aware interaction design.

## INTERACTION AESTHETICS

In 2005, Udsen and Jørgensen stated: “at present, the aesthetic turn is not a full-fledged shift in paradigm. However, it is undoubtedly an indication of a new awareness of the wide-ranging dimensions of interaction between humans and computers.” We have reasons to believe this situation has changed, particularly within the practices of interaction design.

Interaction aesthetics is surfacing as a strong alternative to mainstream human-computer interaction theories and methods (Hällnas & Redström, 2007; Löwgren, 2007; Löwgren, 2009; Redström, 2007; Stolterman, 2008; Udsen & Jørgensen, 2005). Löwgren (2009) and Stolterman (2008) propose a shift in focus from task-oriented, utilitarian approaches to human-centred and experience-centred methods, described as a “rational, disciplined, designerly way.” (Stolterman, 2008). Redström (2007) suggests that a central idea is the need to create a richer relation to computational things, through the exploration of:

- Engagement rather than efficiency;
- Temporal patterns of behavior;
- Alternative forms of design that challenge expectations;
- User identities, cultural contexts and traditions, within specific design domains;
- Innovative material combinations.

Despite the significant theoretical advances in interaction aesthetics, how to approach the variety of methodological issues raised by this perspective on technology is still an open question. In one of the initial studies in this area, Redström (2007) endorsed a radical change of focus: “how to design for living with, rather than just using, computational technology.” To design for everyday life involves more than supporting people to accomplish certain tasks effectively. Designs for usability and functionality are not sufficient. This broader view of interaction explores aspects for which the traditional usability assessment methods are incapable of providing useful information. New techniques are necessary.

From an aesthetically aware perspective, Stolterman (2008) proposes the following methods: “(i) precise and simple tools or techniques, (ii) frameworks that do not prescribe but that support reflection and decision-making, (iii) individual concepts that are intriguing and open for interpretation and reflection on how they can be used, (iv) high-level theoretical and/or philosophical ideas and approaches that expand design thinking but do not prescribe design action.” Sketching and prototyping (Buxton, 2007) are examples of item (i). These techniques reduce the development cycle ensuing multiple iterations through the design process. Instead of prescribing solutions for well-defined problems, interaction aesthetics techniques may involve the application of design patterns (Borchers & Mühlhäuser, 1998), design actions (De Bruijn & Spence, 2008), and interaction metaphors to handle open-ended research problems. Personas, scenarios, probes and affordances are tools that provide inspiration to deal with situated issues, fostering reflection on the implications of each design decision. Thus, situated experience, consensual rationale and reflective practice are surfacing as key aspects of the aesthetically aware approaches to design.

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