Title: Substrates and Co-Adaptive Instruments to Support Creativity
Titre: Substrats et Instruments Co-Adaptatifs pour la Créativité
Thématique: Interaction Homme-Machine
Domaine: Human-Computer Interaction
Keywords: Substrates, Instrumental Interaction, Creativity, Extreme users

Lien: http://insitu.lri.fr/Main/Positions
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Profile of candidate:
Masters degree in Human-Computer Interaction or related field, experience with a creative
design practice, including music, dance, or design. Fluency in written and spoken English.
Solid programming skills, including Java, Javascript, C or C++, and web programming skills.

Summary:
The thesis will explore how the concepts of substrates and co-adaptive instruments can
inspire a novel approach to supporting the early phases of expert creative practice.

Objectives:
The goal of this thesis is to explore how co-adaptive instruments and substrates can support
the cycle of creative activity. After studying the design practices of creative professionals, the
student will design novel interactive tools that support the transition from early creative
exploration of ideas, using extreme prototyping for configurable and co-adaptive systems.
These instruments should enhance the interaction between users and the objects-of-interest,
providing a mix of user-defined constraints and flexibility.

Context:
We have well-established techniques for creating technology that supports clearly defined
tasks, but few technologies are effective in the early phases of the creative process. Here the
goal is not making users more productive, but rather helping them to more effectively explore
their ideas. We are interested in supporting the creative process of professional artists such as
musicians, illustrators and car designers, but also of other professions such as scientists and
doctors who must be creative in their everyday work. These extreme users push the limits of
current technology, but also reveal innovative new ways of expressing ideas.

Method:
This Ph.D. involves three main types of research activity:
• empirical study of creative professionals, who can be seen as extreme users who push the
limits of the technology. Techniques include observation, interviews and participatory design.
• technical development of novel technology which will be designed, implemented and
tested with users; and
• theoretical exploration and testing of the principles of co-adaptive instruments and
substrates.

Expected Results:
The thesis will result in novel interactive tools and techniques that help users express and
explore complex creative concepts in a particular field, such as music, dance, graphic design,
or scientific visualization. The thesis will also test the potential and the limits of co-adaptive
instruments and substrates.

References:


