"*Sketching*" Nurturing Creativity: Commonalities in Art, Design, Engineering and Research

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Abstract
The workshop seeks to bring together researchers and practitioners from diverse creative practices such as interaction design, industrial design, architectural design, media art, music, programming, writing, and scholarly work, to gain insight into the creative process. Each of these disciplines has established ways to nurture a creative impulse through to a concrete result. This is done in part by fostering a continuing internal dialog between creative instinct and external representations. *Sketching* is an activity common to these practices that is exercised during such creative refinement. By *sketching*, we mean not only hand-drawing on paper using a pencil, but also rapid, undetailed, brief, light, informal representations that practitioners produce and interact with. By investigating the sketching process in each practice, we expect to find commonalities that will to point out essential elements for designing tools to support the creative process.

Keywords
Tools supporting creative processes, sketching, nurturing creativity, media art and design

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

Workshop Theme and Goals

Topic: Identifying Commonalities of Creative Processes
The workshop will gather researchers and practitioners in diverse areas of creative design practice. Such fields call upon a plurality of techniques and approaches to arrive at a result that is a hybridized whole.

In looking at these different practices, we find a remarkable commonality across them: the use of *sketches* as external representations of processes they engage in [6]. Architects, industrial designers, and programmers equally use hand-drawn sketches in their early stages of exploration. They often hang a number of sketches they produced around her/his desk during a project. The notion of sketching goes far beyond simply using a pencil to draw diagrams on paper. Industrial designers use clay and cardboard to quickly produce low-fidelity mockups. Programmers use shared sample code to quickly mock-up and try out functionality. Chemists use low-fidelity plastic models, changing the angle between atoms to gain insight into potential molecular formation.

While design and research methodology is well codified, we have limited understanding of how creative practitioners initiate and continue internal dialogs in which creative instinct plays a crucial role. By bringing together researchers and practitioners of diverse creative fields, we seek to understand the actual process of creation and representation they use in the early stages of design conception, that is, to characterize *sketching* in each respective domain. By understanding common issues in these different fields, the goal of this workshop is to encourage cross-fertilization pointing out new ways to conceive and develop tools that support creative processes in HCI research.

The Challenge: Characterizing "Soft" Aspects of Creative Processes
Diverse fields within design practice have come to use computational systems and environments to generate, modify, and share logical and physical representations as part of the development process [4][9][11]. More recently, supporting creativity in these practices has become recognized as essential for designing interactive systems [3].

Existing HCI approaches in support of practitioners have tended to be domain-oriented. Instead of providing low-level computational objects, domain-oriented tools have aimed at enabling human-problem domain communication for design practitioners. Domain-specific functionality, however, does not necessarily nurture creative processes. *Soft* aspects of human activity, such as emotion, motivation, inspiration and engagement, play an essential role in the creative process. However, as it is difficult to ascribe a notion of control, structure, predictability, and rigor (hence the moniker "soft"), such elements are often left uncharacterized under classical design methodology.

An Approach: Understanding the Sketching Process
Fallman identifies three cultures of design: *Conservative*, *Pragmatic*, and *Romantic,* typified by engineering, design, and art, respectively [4]. While these categories can be applied to different approaches

of design practice, they also help us to situate *soft* processes – their place at times going unnoticed when they contribute to a result that is evaluated on "harder" criteria. Scientific research, for example, can be triggered by creative insight, but is evaluated on rigorous scientific grounds. Programming may be motivated by creative inspiration, but is guided by rigid mathematical structure. Art making may begin by inspiration, then go through a technique-oriented production phase, to finally be appreciated through imaginative perception.

This workshop will focus on identifying what constitutes *sketching* in each of the respective fields we call upon. Sketching is a manifestation of making sense of the *gestalt* and the necessary *reflective iterative conversation* that takes place in the design process [8]. The soft aspects mentioned above are critical to the initial sketching phase of many practices. As stated above, the notion of a sketch goes far beyond using a pencil drawing on paper [11]. Sketches are rapid, undetailed, brief, light, informal representations that practitioners produce and interact with, which demonstrate characteristics that are "*inviting rather than attending, suggesting rather than describing, questioning rather than answering, provoking rather than resolving, and destructive rather than constructive*" [1].

How do practitioners of non-visual media like music sketch [10]? What do scholarly writers want for sketching [5]? What representations do programmers use in their sketching phase? What about sketching for conducting HCI research [4]? We know these things are practiced in each domain, but the process is not often discussed and just "seems to happen" [4]. By better understanding sketching in related disciplines, we hope to arrive at an initial specification of what constitutes a sketch-facilitating tool for HCI research. Answers to these questions will be of high relevance to the SIGCHI community.

Recent symposia on creativity [7] have pointed out the delicate nature of facilitating creativity. What can be considered a hindrance, for example time pressure, can be considered by others to be a facilitator (the ironically positive effects of an impending deadline). Csikszentmihalyi introduced the notion of *flow*, an optimal zone between challenge and mastery that catalyzes the creative experience [2]. While the fuzziness of these zones makes sketching an activity rooted in the soft, the discussions in the workshop will help to define and delimit their borders. Ultimately, we seek to put in place a specification for creativity enhancing tools that emerge not from process or domain oriented approaches, but that service these difficult to define and often ambivalent urges that nonetheless have a critical place in research practice.

Workshop Format

Participants will be asked to prepare a 2-page position paper and a 5-minute presentation followed by 10 minute Q&A and discussion. The presentation would be like a Show & Tell session about the sketching process in his/her domain, covering example representations, tools, processes and other aspects such as likely pitfalls, outlining the creation process in each respective domain. By introducing and sharing with the other workshop attendees the *sketching* techniques they use, each participant will be able to talk about how, in their field, "soft" elements of inspiration and creativity are harnessed to produce concrete results.

After initial presentations, breakout groups will be created to focus on specific aspects of the commonalties and differences among various domains. By better understanding sketching across different fields, the workshop encourages cross-fertilization with the goal of developing maps of key elements that support sketching to nurture creative processes.

The workshop web site (http://www.kid.rcast.u-tokyo.ac.jp/chi06-sketch-ws/) will be maintained by encouraging continuous revisions to positions and discussions. The outcome of the workshop will energize a transdisciplinary community around the notion of *soft* elements in the support of creative processes, and the essential place of sketching within that.

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