Sketching USER EXPERIENCES

Saul Greenberg
Sheelagh Carpendale
Nicolai Marquardt
Bill Buxton
# TABLE OF CONTENTS

**PREFACE**

- vii

**ACKNOWLEDGMENTS**

- ix

## 1 GETTING INTO THE MOOD

1.1 Introduction

- sketching the user experience

1.2 Why Should I Sketch?

- a synopsis of Buxton's Sketching User Experiences: Getting the Design Right and the Right Design

1.3 The Sketchbook

- your basic resource of recording, developing, showing and archiving ideas

1.4 10 Plus10: Descending the Design Funnel

- developing 10 different ideas and refinements of selected ideas

## 2 SAMPLING THE REAL WORLD

2.1 Scribble Sketching

- rapidly sketching out ideas – anywhere, anytime – to capture the essence of that idea

2.2 Sampling with Cameras

- capturing trigger moments

2.3 Collecting Images and Clippings

- becoming a semi-organized hunter/gatherer

2.4 Toyboxes and Physical Collections

- collecting physical stuff

2.5 Sharing Found Objects

- seeing each other's collections to encourage conversation

## TABLE OF CONTENTS
# 3 THE SINGLE IMAGE

Your typical sketch will capture a single moment in time, usually as a single scene in your envisioned user experience. While we won’t teach you how to be an artist, we will show you a variety of methods to create these sketches.

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Warm Up to Sketching</td>
<td>69</td>
</tr>
<tr>
<td>3.2</td>
<td>Sketching What You See</td>
<td>75</td>
</tr>
<tr>
<td>3.3</td>
<td>Sketching Vocabulary</td>
<td>85</td>
</tr>
<tr>
<td>3.4</td>
<td>The Vanilla Sketch</td>
<td>91</td>
</tr>
<tr>
<td>3.5</td>
<td>The Collaborative Sketch</td>
<td>95</td>
</tr>
<tr>
<td>3.6</td>
<td>Slideware for Drawing</td>
<td>99</td>
</tr>
<tr>
<td>3.7</td>
<td>Sketching with Office Supplies</td>
<td>105</td>
</tr>
<tr>
<td>3.8</td>
<td>Templates</td>
<td>109</td>
</tr>
<tr>
<td>3.9</td>
<td>Photo Traces</td>
<td>117</td>
</tr>
<tr>
<td>3.10</td>
<td>Hybrid Sketches</td>
<td>127</td>
</tr>
<tr>
<td>3.11</td>
<td>Sketching with Foam Core</td>
<td>133</td>
</tr>
</tbody>
</table>

# 4 SNAPSHOTs OF TIME: THE VISUAL NARRATIVE

What makes interaction design unique is that it imagines a person’s behavior as they interact with a system over time. Storyboards capture this element of time as a series of discrete images that visually narrate what is going on scene by scene.

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Sequential Storyboards</td>
<td>147</td>
</tr>
<tr>
<td>4.2</td>
<td>The State Transition Diagram</td>
<td>153</td>
</tr>
<tr>
<td>4.3</td>
<td>The Branching Storyboard</td>
<td>159</td>
</tr>
<tr>
<td>4.4</td>
<td>The Narrative Storyboard</td>
<td>167</td>
</tr>
</tbody>
</table>
5 ANIMATING THE USER EXPERIENCE
When a storyboard has fine-grained transitions that visually lead from one step to the next, you can transform the storyboard into an interactive movie. Such animations provide a visual narrative by playing back a story, or by illustrating different branches in a story.

5.1 The Animated Sequence
*Animating a single interaction sequence of registered images*

5.2 Motion Paths
*Smoothly animating movement emphasizes the feeling of interaction*

5.3 Branching Animations
*Animating different interaction paths in a branching sequence*

5.4 Keyframes and Tweening
*Creating more complex animations*

5.5 Linear Video
*Using a movie to illustrate an interaction sequence with paper*

6 INVOLVING OTHERS
Another use of sketches, storyboards and animations involves the ‘end user’ as an actor in the visual narrative, where they have the illusion that their actions affect the underlying dialog. That is, they are living the user experience. You can then ask them about their reactions. Alternately, you can show people your work, and ask them to critique it.

6.1 Uncovering the Initial Mental Model
*Discovering how people initially interpret your sketched interface from its visuals*

6.2 Wizard of Oz
*A human ‘wizard’ controls how your sketch responds to a person’s interactions*

6.3 Think Aloud
*Discovering what people are thinking as they use your sketched interface*

6.4 Sketch Boards
*Arrange your sketches on poster boards to share them with others*

6.5 The Review
*Presenting your ideas and getting others to react to them*

INDEX
Books come about in odd ways. This one resulted from serendipity.

Several years ago, **Bill Buxton** decided to aggressively advocate design as fundamental to how companies should develop software for people to use. The problem, he realized, is that most interaction designers (and their managers as well) are not trained as designers. His solution was to write a book *Sketching the User Experience*, where he advocated sketching as a simple way for people to start thinking about the design process. He then pressed this message to academics and practitioners through an aggressive speaking tour, and by influencing Microsoft staff via his job as Principle Researcher at Microsoft Research.

Somewhat at the same time, **Saul Greenberg** was teaching an introductory course on Human Computer Interaction. His concern was that his students would typically start programming the first thing they thought of. Since coding is labour intensive, they often stuck with their initial idea. Most produced variations of traditional designs. A few did add creative aspects to their works, but when they started running usability studies, those aspects invariably suffered from usability problems and were discarded. This wasn't because their ideas were fundamentally bad; they just weren't very well thought out. So Greenberg started a new course that emphasized design over usability, done in the form of a limited design studio. Students were given unfamiliar technologies and ask to create interesting concepts around those technologies. Their first deliverables were a series of sketches, where they had to produce and present many different ideas. They were not allowed to commit to any idea until they explored the design space. Yet almost universally, most students were concerned about their lack of sketching skills, typically saying ‘I can't draw’. Consequently, Greenberg started emphasizing a few simple sketching methods suitable for non-artists.

It turns out that Bill and Saul are also outdoor enthusiasts, where they back-country ski and mountain bike together a few times a year. During their trips, they would chat (occasionally) about their work. Saul really liked Bill's book, but thought that it didn't have quite enough on the 'how-to' side. It was one thing to get people to want to engage in design, but quite another to give them the skills to actually get started. Bill really liked Saul's exercises, but thought it needed intellectual framing. Thus the concept of this Workbook emerged, where it would be a 'how-to' sequel to Bill's book. While each book could stand by itself, the two would work best as companions.
Also at the same time, Sheelagh Carpendale – who together with Saul started the Interactions Laboratory at the University of Calgary – was somewhat disgruntled by the divide between the University encouraging cross-discipline activities vs. the near impossibility of having non-Computer Scientists accepted to a traditional computer science program. She created the Computational Media Design program, where students from various backgrounds – arts, design, music, computer science – could pursue graduate work at the union / intersection of Computer Science, Art, and Design. Sheelagh’s background began as a professional artist, and then shifted directions into Computer Science. It was only natural that she would come on board as an author, where she would not only bring her dual backgrounds into play, but also her thoughts about how to engage people from different disciplines into the process of design and sketching.

Nicolai Marquardt, a PhD graduate student of Saul’s, was observing all this from the periphery. Trained as a Diplom (Masters) student at Bauhaus University Germany in the Media Systems program under Professor Tom Gross, he was experienced in both design and hard-core computer science. Sketching was a way of life for him, and a natural part of how he thought as an user experience designer. He not only had a huge amount of experience sketching ‘in the wild’, but often collected other people’s sketches for inspiration. So we asked him to join us, and we became a foursome.

The best way to summarize the above is that all authors are passionate about design thinking as a way to craft the user experience, and about sketching as a way to start thinking as a designer. This book is our attempt to give you the tools to sketch, and thus to design, your own user experiences.

The Sketches in This Preface

Are you experiencing a sinking feeling looking at the sketches of the four authors in this preface? While far from high art, you may think sketches like these are beyond your abilities. Like most people, it could be that the last drawing you did was in Grade 5.

Don’t lose heart. These sketches were actually made by one of the authors who has – to be frank – quite pathetic artistic skills. He used a method called photo traces to quickly generate these sketches, where he simply traced over existing photographs. We’ll introduce you to photo tracing and many other methods that you – the non-artist – can use to generate your own passable sketches.
Books like these go well beyond the authors.

- Annie Tat was our original layout designer. She sketched and crafted multiple designs, and produced an exemplar chapter whose look would be applied to all subsequent chapters.

- June Au Yeung and Lindsay MacDonald transformed our rough drafts – raw text and images – into this layout. They were the ones in the trenches, where both worked hard at tuning each chapter’s layout to fit our material, and at responding to all the other chores given to them.

- The students in the Interactions Laboratory at the University of Calgary were a constant source of inspiration: sketching and designing was fundamental to how they produced beautiful systems. We learned from them, and we use some of their work as examples in this book.

- More broadly, the HCI community and the Design community are an incredible intellectual source. We don't pretend to have invented all the methods in this book. We read many articles and books that spoke about sketching and design. We cruised the web and saw wonderful examples of sketches and videos that people had made. We looked at other educators' web sites to see how they taught design. We spoke to colleagues and professionals, and soaked in their knowledge.

We thank all those involved in this book – either directly or indirectly – profusely.