

The Interdisciplinary Dance (Shall we?)

Lauralee Alben
Jim Faris



"Will you,
won't you,
will you,
won't you,
will you
join the dance?"

Lewis Carroll,
*Alice's Adventures
in Wonderland*
1865



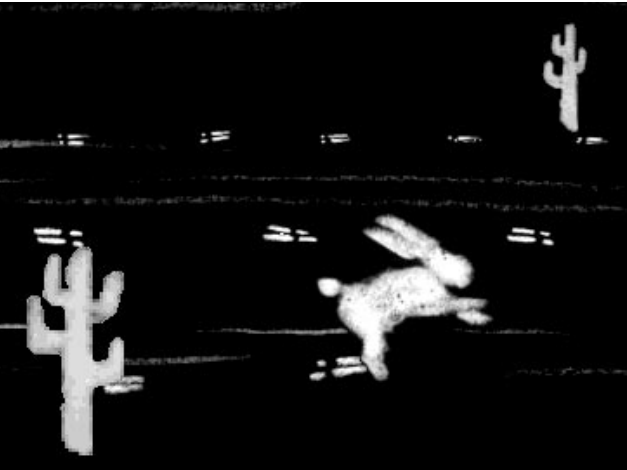
"Where there is an open mind, there will always be a frontier."

Charles Kettering

Dancing on the frontiers

On the American frontier, settlers gathered together for corn husking frolics, quilting bees and barn raisings. Once the work was done, they often turned to dancing. The human need for self-expression and collaboration is not bound by time or place. Today this need manifests itself in the new frontier of multimedia.

The creation of multimedia is an interdisciplinary dance. Depending on the scope of the project, development teams may include content experts, cognitive psychologists, graphic and interface designers, instructional designers, programmers, writers, animators, video and sound producers and "media wranglers." These experts dance in just as intricate and varied a way as any square dancers. The result in both cases is a product of how well the individuals have danced together.



The dances of the early pioneers reflected their concern with survival and daily activities like hunting for food. In the square dance called *Chase a Rabbit*, the caller beckons, "First couple out of the couple on the right; Chase a rabbit, chase a squirrel; Chase a pretty girl round the world..."

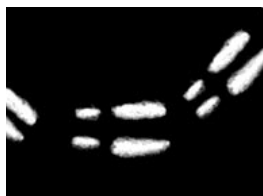
**"On with the dance!
Let joy be unconfined;
No sleep till morn,
when Youth and
Pleasure meet
To chase the glowing
Hours with flying feet."**

Lord Byron, *Childe Harold's Pilgrimage*, 1812-18, Canto 3, st. 12.

Dances made an important connection between pioneer families, friends and neighbors who often lived many miles apart from each other. "To spread the word of the upcoming event, a man might stand on the steps of the general store and shout, 'Junket! Junket!' When a crowd had gathered, he would give the details of the dance. The selected meeting place might be in the store itself, in a barn, or even in a farmhouse kitchen. When it was scheduled to be held in a kitchen, all the furniture would have to be cleaned out—even the stove. Sometimes only the woodbox would be left for the fiddler to stand on, with plenty of room for his well-rosined bow to scrape away."¹

¹ Richard G. Kraus, *Square Dancing of Today*, The Ronald Press Company, New York, 1950.

In a similar spirit of informality, invention and creative improvisation, an industry grew from the garages of Silicon Valley. Like the American frontier, the technological frontier requires rapid adaptation to changing circumstances. Often it is necessary to abandon rigid concepts and methodologies while embracing new viewpoints and new forms of cooperation. Even the definitions of technology and design and their relationship to each other are called into question.



The dances of the settlers in the seventeenth century were derived from the country dances of the old world. While the basic movements like do si do, promenade, wheel and deal, and shoot that star, remained constant, the variety and beauty of the dances evolved, becoming, not surprisingly, even wilder and more complex in the new land. In the interdisciplinary dance of multimedia design there are few prescribed step patterns. Instead new movements are required, new calls, and a new beat.

**“Not to go back,
is somewhat to advance,
And men must walk
at least before they dance.”**

Pope, *Imitations of Horace*, Horace
bk.1, Epistle 6, 1738

As software engineers, psychologists, filmmakers, and others bring their professional traditions to multimedia and software design, their practices will change to fit the new technological and collaborative necessities. There are fundamental differences inherent in this new medium, especially the need for each discipline to be in a dance with other disciplines. We can no longer work in isolation any more than a single dancer can do the Virginia Reel. This article describes our migration as graphic designers into this new territory and some of the features of the landscape we observed.

The *Making It Macintosh* dance

Whatever the constellation of a team, many disciplines are required to produce multimedia. The way in which multimedia teams work together varies widely. In most cases their “collaborative” methods are as dissimilar as a square dance is from a doodlebug.

While working on an interactive CD-ROM for Apple Computer called *Making It Macintosh: The Macintosh Human Interface Guidelines Companion*, we became part of a large interdisciplinary team. The interdisciplinary dance that we fashioned evolved over time, more or less by trial and error. In the process we examined and tried various forms of collaboration, raising and resolving many of the issues we discuss here. We focus on our role as graphic and interface designers and our relationship with Harry Saddler, our client and the project manager. Harry describes himself as an instructional designer, but on this project he also contributed (in a truly interdisciplinary fashion) to the interface design, content development, instructional design, writing, programming and “media wrangling.”



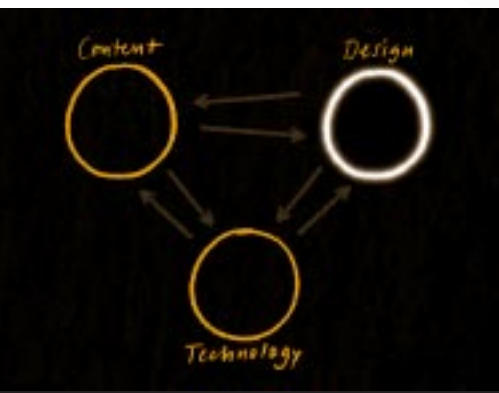
Making It Macintosh uses over 100 computer-based animations to illustrate the principles of the Macintosh desktop interface. People who use Macintosh computers want all their applications—whether they're graphics programs, statistics packages, or shareware—to have the consistency, clarity and ease of use that is characteristic of Macintosh software. *Making It Macintosh* is designed primarily to teach Macintosh software developers how to build the Macintosh "look and feel" into their applications. It can also be valuable to human interface designers, software product managers and educators in the field of human interface design. *Making It Macintosh* is a companion to the book, *Macintosh Human Interface Guidelines*, published by Addison Wesley (1993).

Apple's objective in creating *Making It Macintosh* was to increase developers' interface design competence by using interactivity to enhance the message in ways that are not possible in print. Harry states, "Enfolding the medium and the message is at the heart of the design of *Making It Macintosh*: design conveys design principles, interactivity teaches techniques of interactivity, and human interface communicates the principles of human interface."²

As Harry faced this challenge early on, he soon realized that he needed "professional communicators" on the team from the very beginning. We seized the opportunity to contribute to this product, knowing well how Apple views design as a central aspect of their products and interface design as a way to achieve competitive advantage.

In the beginning of the project, we and the rest of the team spent a lot of time defining the scope and goals of the project. Eventually we created a project plan to actually implement what we had envisioned. All of this entailed a lot of meeting, writing and sketching. It also meant figuring out how to work as a team.

We approached the team with a sense of partnership, which had proven successful in the past. At our first formal "design" presentation we felt confident, because the designs we were showing were the result of months of work with Harry. We were visualizing the concepts we had created together. We presented three alternatives for an overall design approach. As Harry remembers it, "They showed up in their dress clothes and briefcases. Putting three ideas on the table, they said, 'Choose one and we'll develop it further.'" This approach is fairly typical in the graphic design world for presentations and approvals. However, it did not fit Harry's idea of working collaboratively. After much discussion, he made a valiant



The pipeline model

"The object of the game is not simply to get from point x to z in as few steps as possible, but to cover this distance smoothly, comfortably, and to the beat of the music. Rough dancing is not good dancing. Good dancing is smooth and effortless allowing time for pleasure as one goes along."

The Basic Movements of Square Dancing,
1971 edition

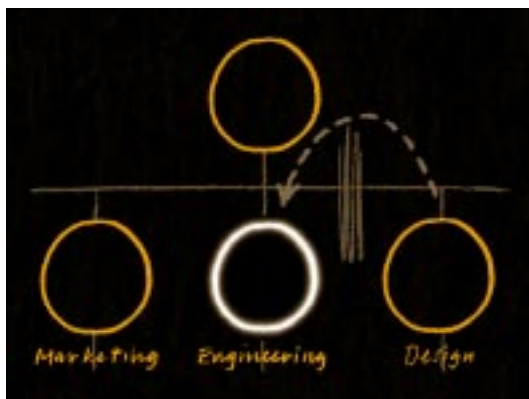
² Harry Sandler; "Making It Macintosh: Designing the message when the message is design"; Alben, Faris and Sandler, *interactions*; January 1994, Volume 1.1

“Learning to dance and joining together in the same set helps to give a group of people, no matter what their background, a feeling of cooperation and genuine oneness.”

Richard G. Kraus, *Square Dancing of Today*, The Ronald Press Company, New York, 1950.



The auteur model



The hierarchical model

effort to comply with our request and uneasily chose one of the design directions. As we were leaving, Harry said quietly, “I chose. But I reserve the opportunity to change my mind. Let’s talk about this tomorrow.” It was around this point in time when we realized we were going to have to invent or discover a new way to collaborate, one appropriate to the complexity of this interactive medium in which we were working. We needed a process that would itself be more interactive, rather than a simple sequence of research, analysis, design, refinement and implementation.

Variations on interdisciplinary dancing

The way we initially tried to work with Harry is a very common model for collaboration which we call the pipeline method. In this case, there are hand offs between disciplines as the project progresses. There may be very little dialog between the disciplines. Misunderstanding, rivalry, duplication and loss of time may result because decision making is spread out in time and space as a sequence of approval stages. This model is fairly prevalent in software and multimedia design.

Another collaborative model, the auteur model, relies on a single visionary who is responsible for directing, guiding and supervising the team. The limit of team's responsibility is to implement the auteur's vision.

A third model is hierarchical and is typically found in large companies organized along departmental (functional) lines. Often it is difficult to negotiate the corporate pathways of power and allegiance and to cross departments in order to engage in cooperative ventures. As a result of this structure, projects are simply thrown over the wall in order to move them along.

Many relationships come into play in any kind of collaborative venture. Within a corporation, for example, the roles and responsibilities of the client, inhouse departments and outside consultants can become complex. Why are outside consultants brought in? Because of their expertise, reputation, the need for a fresh viewpoint? Because the inhouse group just doesn't have time?

And how is the client involved—as an equal participant or as a reviewer? How do the client and the (design) consultant relate to each other? Is deference paid to the client on matters of project direction, budget, etc.? Is demigod status conferred upon the consultant? Or is it an equal partnership where issues are resolved within the context of trust and a shared vision?



"Honor your partner. Honor your corner.
All hands round and circle left."

Square dance call



The interpersonal model

"...square dancing can give the participants a real urge to take on responsibility as part of the group. Further, it can encourage the growth of social confidence by relaxing individual pressures and giving participants the sureness that comes with 'belonging,' with being adequate and accepted in a social situation."

Richard G. Kraus



In developing *Making It Macintosh*, we devised a collaborative model very different from the ones we've mentioned so far. We call it the interpersonal model. This model placed the team in continuous creative contact. We realized after our initial design presentation to Harry that it was appropriate to sit down at the computer and *design together*. If we couldn't sit at the same computer at the same time, we would send files to each other via electronic mail. Often we would meet Harry in the morning at Apple in Cupertino and search for a solution to some issue or other. Sometimes we would fill entire whiteboards, other times we would experiment in SuperCard, creating design iterations. Then we would leave, heading back over the hill to our office in Santa Cruz. By the time we arrived we would often find a pile of design variations from Harry waiting for us in our e-mail.

This illustrates the way we worked, communicating with one another on a day-to-day, decision-by-decision basis. We always felt that the channels of dialog were open, that we could contact one another at any hour, at any time, informally, to discuss any issue, large or small. For the key team members, this kind of contact began at the very beginning of the project and lasted until the very end. Content, design, and technical specifications all developed simultaneously, something which is hard to achieve in the pipeline and hierarchical models. As the project progressed, we grew closer and more effective as a team. This created synergistic results and the process was increasingly fast, full of surprises and fun. Differences of opinion were resolved openly and quickly.

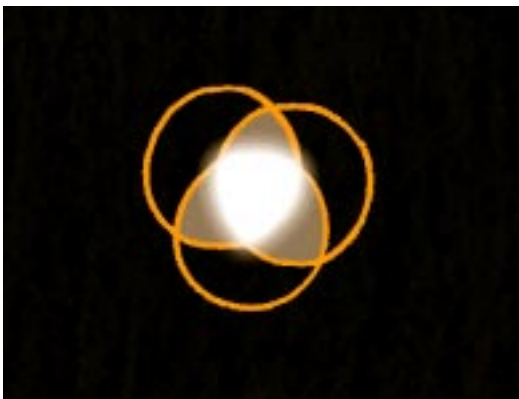
Ours was a large and diverse team of disciplines. This makes for a stronger team than one which is composed of people with nearly identical knowledge and ability. Especially on "lean and mean" teams and in small start-up companies, it is critically important to build teams with fewer people who have complementary, specialized knowledge.

It is also common in the world of multimedia to find generalists, who do a little bit of this and that. They don't necessarily have very extensive experience or training in any one area. A team of generalists just doesn't have the same depth as a team of specialists who share a common vocabulary. Even if all the work could be done by a single genius who has mastered multiple disciplines, should it be? Could it ever be as rich as when individuals, with all their human differences, work together?

As with any team, our *Making It Macintosh* team was subject to many outside influences such as budgets,

**"We dance round in a ring
and suppose,
But the secret sits in the
middle and knows."**

Robert Frost, *The Secret Sits*, 1942



"Although there are literally thousands of terms connected with square dancing, only a certain number of 'basics' form the necessary language, which is used by the callers in directing the dancers through endless combinations. ...just as it is important to learn the new contemporary movements, so is it especially important to master some of the grassroots calls and expressions which have long been a part of this activity."

The Basic Movements of Square Dancing

schedules and corporate politics. By communicating openly with each other in a spirit of cooperation and commitment, we were able to answer the questions that inevitably arise in such a project.

How much time is there? Time is always a factor, often a critical one. The scope of a project is determined largely by the amount of time available until the product release date. Coordinating the timing of each team member's deliverables is imperative. If one dancer missteps, the timing of the others may be thrown off.

What is the budget? Good design is possible whether the budget is large or small, as long as the work is scaled to fit the funding available. Translating a budget into feasible and manageable project parameters requires skilled and careful thought.

Who has final authority to make decisions? How are the interests of the team members, the client, the corporation, and other stake holders represented on the development team?

Who is doing what? How many hats will each team member wear? How will the responsibilities shake down? Can everyone really work *together*? Who is the caller for the interdisciplinary square dance? And can the caller respond to the abilities, strengths and weaknesses of the dancers? Usually these questions are answered in the process, often in surprising ways.

Our interpersonal model of collaboration is centered on a clear vision which is created by and shared by the team. It is greater than personal gain and glory, though every team member becomes fully vested in it. The vision is the context in which problems are solved and opportunities are met.

In order to realize the vision for *Making It Macintosh*, our team developed a common vocabulary. This shared language evolved in the development process as each team member's area of specialized knowledge partially blended with the others'. This common language was spoken, written and visualized. Our team used whatever method worked at the moment, whichever offered the best formulation, for everyone at the table. Often, after sitting around discussing a design issue for awhile, we would realize that we just needed to see the problem visually to resolve it, so we shifted to the white board or the computer. As the graphic and interface designers on the team, the most visible part of our responsibility was to produce design iterations, looking simultaneously at the details and the whole.



As the team worked, we identified issues and opportunities and created solutions. It rarely happened that any issue belonged exclusively in the domain of a single discipline. Most of the time, the issues were complex and had implications for content, technology and design. The use of color in *Making It Macintosh*, for example, involved *technical* aspects relating to the operating system and software applications. Color was also a *content* issue because it concerned the relationship of color in the Macintosh desktop interface to our use of color in product interface. There were also aesthetic and communication issues which belonged primarily to *design*. Our process of very frequent, informal communication between disciplines on the team enabled us to reach collective decisions on issues in an efficient way. On a separate interactive CD-ROM, we discuss several of these issues and illustrate how they were resolved.

We usually think of each person on a team as a specialist in one particular area. "This is our content expert, this is our designer..." We imagine that when they work together, they share their expertise with the other people on the team, but they have a reserve of specialized knowledge which the other team members probably don't understand (or need to).

Our interpersonal, collaborative process extends this view. As the project progresses, team members gain a growing understanding of the other disciplines. Problems are not delegated to or solved solely by the appropriate "expert." The designer may contribute to the resolution of a programming issue, the content expert to the visual design. Everyone participates in creating and solving all the problems on the table. The process demands more learning and growth, which is probably what makes the collaboration so rewarding.



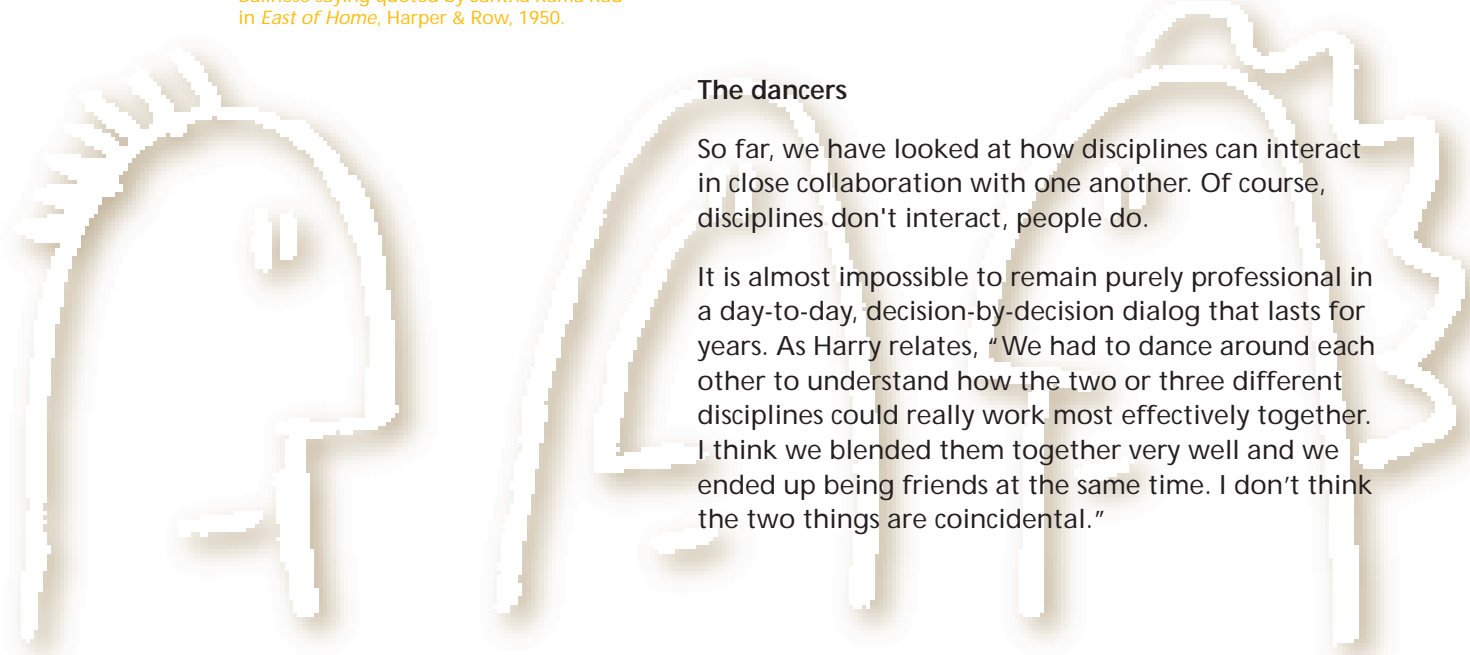
"If you are happy you can always learn to dance."

Balinese saying quoted by Santha Rama Rau in *East of Home*, Harper & Row, 1950.

The dancers

So far, we have looked at how disciplines can interact in close collaboration with one another. Of course, disciplines don't interact, people do.

It is almost impossible to remain purely professional in a day-to-day, decision-by-decision dialog that lasts for years. As Harry relates, "We had to dance around each other to understand how the two or three different disciplines could really work most effectively together. I think we blended them together very well and we ended up being friends at the same time. I don't think the two things are coincidental."



"As an old Scot once said,
'Ye canna fight a man
ye've danced wi'."

Richard G. Kraus



"This innermost being of a people—its soul, as one might say—manifests itself...in its celebration of festive occasions, in its songs and dances—in short, in all the ways in which it responds quite frankly and naively to the unwritten laws of custom and tradition, thereby lending dignity and substance to the life of the people."

Elizabeth Burchenal, *Folk Dances of Germany*,
New York: G. Schirmer, Inc. 1938

The experiences, quirks and interests of the individuals on a team add a rich and unpredictable resource for the creation of new things. In addition, each person's share of self esteem, motivation, willingness to take risks, ability to empower others—all these things and more contribute to the unique results the team will produce. Equally important is the forging of trust, respect and friendship. Getting personal, sharing experiences, learning about one another's idea of a good time or their favorite foods provides a balance and a relief from the intensity of professional pressures. It is in this personal domain where truly solid and lasting bonds are formed. Disagreements or difficulties that occur in the professional realm can be better withstood and resolved because of the resilience of the personal foundation.

There is another person who is important to any development team whose role is unique—the end user. Putting the user into the development process helps keep the vision in focus. How the user is represented may vary from user observation and periodic usability testing to having the user participate as an active team member from the start of the project. As Harry states, "caring about users, discovering and responding to the complexity of their needs and tasks, is not an option. After all, software design is design that the user participates in long after the team is done."

So, shall we dance?

People have always danced, for reasons consistent with their culture and time. People have danced to aid in matters of survival—for control of the elements, food and procreation. They have danced to summon strength, courage, control and power. There are those who have danced for release and comfort, and those who have danced in celebration and elation. Some have even danced, as used to be the custom, on station platforms while waiting for a train. And people have also danced just to have some plain, old-fashioned fun.

The new interdisciplinary dance will evolve in response to the needs, concerns and opportunities of this day. As we reach for new means of self expression and new ways to enrich our lives, our challenge is to use technology and design to empower people, and to do this collaboratively, in a dance with one another.

So, shall we dance? Perhaps it's really not a question of dancing or not—our human nature compels us to move forward—but instead, what sort of dance shall we dance on this new frontier?



Reprises from the *Making It Macintosh* dance:

Commenting on Luke

Lauralee: At the heart of *Making It Macintosh* are over 100 interface examples.

Harry: A number of these start out by showing a less than perfect interface design in examples that we've gleaned from existing software. We then show over a number of steps how the interface could be improved without sounding like the interface police. We needed a way to distinguish good examples from bad ones.

Jim: When we first started looking at a way of labeling good and bad, I started to sketch some very cliché ideas which didn't internationalize too well: a turkey, a trash can, a lemon, and a squashed tomato. An obvious answer was the international no symbol. Then we started looking at sets to create a continuum from good to bad.

We liked this personality that we discovered, one which was well known to Macintosh users, the smiling Macintosh who greets you every time you turn on your computer. We tried combining some symbols with this character, who became known to the team as Luke, and then we user tested them.

Lauralee: For instance, we put little lines radiating from Luke, to denote a glow, to say this is the best solution to this example. But users thought that Luke had been irradiated. This didn't exactly communicate what we had in mind.

Harry: I don't think we tried a halo over his head at all because we knew that it probably wouldn't localize too well.

Jim: We eventually tripped on the idea of saying good, lukewarm and bad by giving this Macintosh character we called Luke a range of expressions.

Lauralee: We redrew him and evolved this humorous little character. Beginning the search for the right visual voice for Luke, we originally gave him a thought balloon with his comments handwritten inside it. Eventually we went away from handwriting because it was too informal. It seemed obvious to me that the right choice should be the Chicago typeface since it was the computer talking.

Harry: But I really felt that Chicago didn't work well with the visual style of Luke. Maybe it gave a sense that this little guy belonged to the Macintosh but it's too clean.

Lauralee: So Harry kept on saying 'It's boring, it's boring! I don't want Chicago!' And I kept saying 'Harry, I've been through twenty typefaces. There aren't any more. It's just the obvious one. All right, then you come up with something!' So he said, Okay, I've got it solved—here, have this typeface.

Jim: Espy sans bold. Created for Apple. It fit the illustrative style of Luke very well. It had the right weight and it also had a more casual look.

Lauralee: So Harry was right and it worked much better. We decided as we developed the examples that Luke needed to have a lot of different moods, that there were more nuances than good, bad and don't even think about it. We included Best, Good, OK, Hmm, Oh no!, Yow!, and Don't do this!

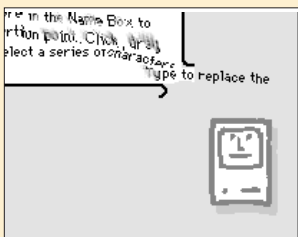
Jim: We also found that it was useful to actually get Luke to move around and he's pretty active in a few of the examples.

Harry: There's a number of elements that comment on what's going on with the depicted interfaces and Luke is one of them. The others are the user thought balloons and the circles that we use to point out things that are being described in the text. All of them live in a layer that is spatially above the content.

Lauralee: Luke's function is largely instructional and yet he's very amusing when you see him in action.



GOOD ↔ BAD



Designing the right look

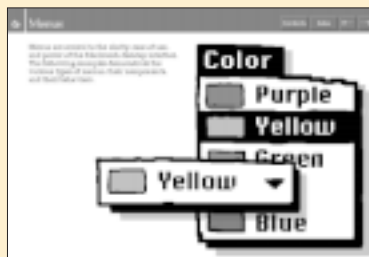


Lauralee: In one of our early meetings at Apple, Harry proclaimed abruptly and loudly, This product must be fun and we're going to have fun doing it!

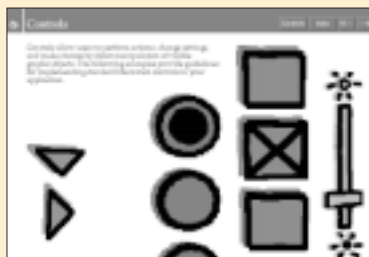
Harry: It was hard work ending up with a fun looking interface, but I think it was really important. I was very insistent that we have fun because I knew how hard it is using these tools, running a project, trying to run a tight ship. It's very difficult not to squeeze all the fun out. I was also well aware that the subject matter is something to be avoided by a lot of people. It's the guidelines; the book of rules; the tome that gets slammed down on your desk that you have to follow. So, we wanted to have a reason to entice people to look at this material, and to use it. I think we succeeded—people really do respond to the colorfulness and funness of it.



Lauralee: Ironically, I was the insistent one at the end of the project. We had developed the product identity using elements from the Macintosh interface, reinterpreting them in an illustrative style that was humorous and quirky. We applied this look to all parts of the product from the packaging to the splash screen, from the section titles to the icons. And yet as we were nearing completion, I really felt that the opening title screen and section title screens needed to animate, to balance the technical nature of the interface examples, to give it that final touch, that sense of aliveness.



Harry: Up until that time I was uncertain that QuickTime could handle that large an area of animation. And it is true that in the heat and panic of a product nearing Golden Master, all thoughts of innovation and fun are most likely to fly out of the window. There is little time for yet another good idea, and probably little resources as well.



Lauralee: But in spite of all those good reasons, we animated the screens. We were true to our vision.

Lauralee Alben and Jim Faris are principals of Alben+Faris, a firm specializing in graphic and interface design for interactive multimedia, software applications, and emerging technologies. Their clients include Apple Computer,

Inc., GAP, Inc. and IBM Corporation. Lauralee and Jim have lectured for numerous professional groups, conferences and universities, including Carnegie-Mellon, Stanford and Yale. They both completed post-graduate studies in

graphic design at the School of Design in Basel, Switzerland. One of the guiding visions in their work is to humanize the experience of using computers.

Alben+Faris Inc.
Designers

317 Arroyo Seco
Santa Cruz CA 95060-3142

Tel: 408.426.5526
Fax: 408.426.6334
E-mail: mail@albenfaris.com
WWW: <http://www.albenfaris.com>

