

## Mutant Education: Signs of Graphic Design Found in New-Media Programs

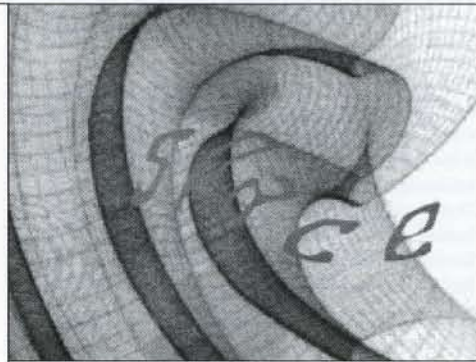
**U**p goes that hand and out pops that dreaded can opener of a question: "Why aren't we learning programming in this class?" A litany of responses begins to unfold in my now Prozac-pleading brain: because it's not graphic design; because it's too specialized; because graphic designers won't be doing it or shouldn't be doing it because they'll end up as hacks if they do it and the profession will go to hell; or because it's another program—maybe even a department—unto itself. I'm feeling queasy. It used to be so simple, so clear: We knew what graphic design was and what it wasn't.

But there I was, telling him contradictorily that when designing for computer environments, you can't separate the representation of the data from the data itself—the content from the form from the technology from the function. Writer and designer J. Abbott Miller makes the comparison between graphic design as style and as structure. Structure as the heart and soul of design, where true innovative design really stems from. In computer environments structure in part implies programming—the very nature of how and when data will appear and in what form. To separate programming from any of the other components is like trying to distinguish the dancer from the dance. So why shouldn't designers learn programming?

Whether graphic design students should learn programming is just the tip of the proverbial iceberg. The question I'm dreading is, What should constitute an education for graphic designers in the digital age? When about 70 percent or more of the students I teach in Los Angeles will end up doing some form of digital work, ranging from Web design to motion graphics to software interfaces, it's a question that confronts me daily.

When looking at what it takes to prepare students to handle the broad spectrum of new media, what's already widely acknowledged is that it's not just about programming, but sound, the content/editorial, and usability concerns. But then there's also the development of custom applications and tools. And what about the development of new forms that haven't yet been determined? Suddenly the domain is looking less and less familiar.

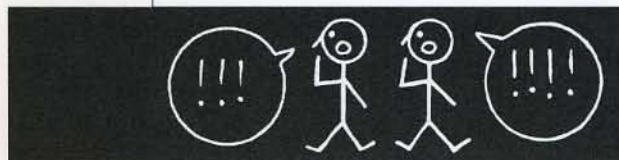
The easy answer is we've got to team up with other departments. Institutional hell. No way. Next response is to expand the existing program by adding more classes—but then at some point there may be so many distantly related classes that this program's identity as a course of study in graphic



Above: screen grab from "letter+space," motion graphic piece by Saeri Cho, 1998. CNMD, Art Center College of Design.

design may be questionable. And then you find yourself trying to conceive of some very broad definition of graphic design just to salvage your department. Finally, you conclude that the response is to start a new program. But will that be a graphic design program?

Now, I don't mean to argue that this is necessarily the outcome, or that these are necessarily new questions. But what about these new-media programs that are cropping up like weeds in the educational landscape? In this article, I survey a few to check out their DNA. In the following roundtable, chairpersons and/or directors of various programs—in three universities and two art schools; one British, four American; two from West Coast, two from the East—are asked to supply a sense of what these programs are about. This may seem like a sweeping overview—because it is. That's the point. At



this moment, new-media education is a broad entity, unsure of a singular framework.

We are indebted to the following participants: Dr. Peter Lunenfeld from Art Center College of Design, Professor Dan Boyarski from Carnegie Mellon University, Professor Red Burns of New York University, Professor Gillian Crampton Smith of the Royal College of Art, and Professor Diane Gromala from the University of Washington, Seattle.

**ART CENTER COLLEGE OF DESIGN,  
PASADENA, CA**

Program: Graduate Program in Communication & New Media Design  
Established in 1995

Chair: Andrew Davidson

Responses prepared by Dr. Peter Lunenfeld,  
Director, Institute for Technology and Aesthetics  
Type of Degree Offered: M.F.A.

**CARNEGIE MELLON UNIVERSITY,  
PITTSBURGH, PA**

School of Design

Program: Interaction Design

Director of Graduate Studies: Professor Dan Boyarski

Established: 1994 (first class)

Degree Offered: Master of Design

**NEW YORK UNIVERSITY**

Tisch School of the Arts

Program: The Interactive Telecommunications Program

Chair: Red Burns

Established 1979

Degree Offered: Master of Professional Studies

**ROYAL COLLEGE OF ART, LONDON**

Computer Related Design

School of Architecture and Design

Course Director: Professor Gillian Crampton Smith

Established in its present form 1990

Degrees Offered: M.A., M.Phil., Ph.D.

**UNIVERSITY OF WASHINGTON, SEATTLE**

School of Communications

Program: New Media

Program Director: Professor Diane Gromala

Established 1994.

Degrees Offered: Undergraduate and Ph.D. Prof. M.A.

planned, 1998. (This is a professional degree program, and differs from the M.A./Ph.D. we offer in that its focus is professionally oriented. Thus, we'll have theoretical and professional advanced degrees.)

**Before we go too far, I want to survey the term "new media"—that ubiquitous catchall phrase used to refer to computer-based products as well as to the technology itself. Is "new media" an adequate term for the moment or would something else be more precise?**

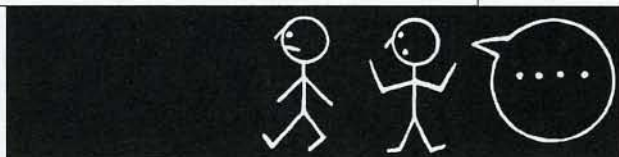
**ART CENTER:** The phrase "new media" is linked to other terms, such as "electronic," "cyber," "interactive," "telematic." These expressions are more than technological nomenclature; they are being tested to serve as overarching descriptions of a moment. Is video still "new"? Are operating systems media? ... In the end, "new media" turns out to be a placeholder for whatever we eventually agree to name these cultural forms.

**CMU:** The term "new media" is rather ambiguous—is it computers, networks, handheld devices, television, special effects, science fiction come true? The emphasis tends to be on technology and means of delivery. The term fails to include the activity, the purpose, and the context of use for any given experience and any given device. If we focus on the who, what, where, and why of the activity, terms like "digital communication," "dynamic information," and "interactive media" emerge as more appropriate terms. Given the fact that we're still in the infancy of this field, we're bound to experiment with a number of monikers for a while longer.

**NYU:** I believe that the form, or convention, that will result from these new technologies isn't here yet and so it is difficult to know what to name it. I believe that while computing will sit at the center, the form will be closer to media than computing.

**RCA:** I'm not too happy with the term—it's rather vague, yet carries connotations that differ according to people's backgrounds. To begin with, rather than the fact of their newness, the critical thing about these media is that they're interactive. Interactivity blurs the traditional boundaries between the visual, tactile, auditory and kinesthetic senses. Secondly, when I think of the term "media," I think of books, film, TV, where the important thing is the "message"—the idea, information, emotion, enjoyment being communicated. But I think there is another important area that the term doesn't cover: "soft tools." These are tools for making and doing things, like word processors, browsers, or Web tools, and tools for the mind, such as software for managing or visualizing large amounts of information.

**UW:** Terms like "multimedia" and "new media" change as rapidly as the technologies do. For the moment, it seems adequate, if short-lived. However, it doesn't imply the rest of what we do in our program, such as creating interfaces, content, and multiuser environments for immersive virtual and augmented reality; experimenting with fringe ideas related to



ubiquitous computing or nanotechnology; or questioning the relationship of technology to human thought, perception, and cultural change.

**I'm going to assume that you've chosen your program name to nail down the concerns you're dealing with. So what was the rationale in choosing the name and how was it intended to indicate what you feel is relevant to educating someone in the arena you've chosen to focus on?**

**ART CENTER:** We chose to call the program Communication and New Media Design (CNMD) to be as broadly inclusive as possible. The curriculum spans graphic design, packaging, visual communication, and computer-based media. Student projects range from issue-oriented productions based on traditional, 2-D graphic design practice through problems concerned with the integration of design and technology to investigations into the ever-expanding possibilities of digital communication. These include explorations of hypertext, online comics, interactive installations, and telematic communication systems like the Web and immersive VRML environments.

**CMU:** For us, the term "Interaction Design" covers the various concerns and activities that one deals with when designing how people interact with devices that have embedded computing in them. This design activity is interdisciplinary, collaborative, and human-centered, with a concern for psychological, social, and cultural factors. The projects we deal with span the range from software interfaces to wearable computers, from visualizing information spaces to expressing emotion through kinetic typography.

**NYU:** Our name—Interactive Telecommunications Program—was chosen because we wanted to imply "new" without naming it "new" and at the same time wanted to indicate interactivity. We also wanted to stress the production, as well as the electronic distribution, of information.

**RCA:** Our program is called "Computer Related Design" because when it started, over ten years ago, it was concerned with exploring the potential of CAD for industrial design. Later we decided to broaden it, to draw not just from product design and graphic design (my own background) but a wide range of other design disciplines as well. By then students were already becoming interested in interface design (the natural reaction of designers put in front of hideously complex computer tools!). The design of computers rather than with computers became more challenging and intriguing.

**UW:** Even though we call our program "New Media," a term such as "Media, Culture, and Technology" would be more appropriate. In the best case, such a program would transgress traditional disciplinary boundaries, departments, and colleges. Within the realistic context of existing institutions

and academic turf, however, "New Media" was negotiated as the most acceptable term in our institution.

**I'm wondering if this "new media" program is perceived or was arrived at consciously as a hybrid of another program, a mutation of an existing program or a totally new enterprise. If it's a hybrid, what is it a hybrid of? The same goes for mutants. Finally, if the program was started from scratch, why?**

**ART CENTER:** Convergence is more than a catch phrase: As publishers merge with television studios and magazines create integrated web-sites, the designer must be able to move from print work to dynamic media, from two dimensions to three, and sometimes even four. Because a world awash in media requires a redefinition of information design, CNMD (Communications & New Media Design) combined previously separate graduate programs in graphic design and computer graphics. Digital tools and media demand a dynamic aesthetic to replace the static model, one that anticipates interaction, nurtures narrative and supports movement. Prior to the establishment of Communication & New Media Design, no single program at Art Center addressed these often conflicting aims.

**CMU:** It was a response to changes we believed were needed in design education and practice—changes that pointed to the blurring of boundaries between graphic and product design, theory and practice, word and image... the list goes on. We were starting a brand-new graduate program, not having had one like this in the School of Design previously. We built the program on expertise developed by our faculty in areas of communication theory, information design, and interface/interaction design.





**NYU:** The program was built as a totally new initiative.

**RCA:** Originally CRD was a specialization within the industrial design program. When I took it over I wanted designers from all kinds of backgrounds to be able to explore how their first discipline could relate to the design of interactive products and experiences (as I had myself several years earlier). I also thought that in this very new field we would each gain different perspectives from the contributions of disciplines not our own.

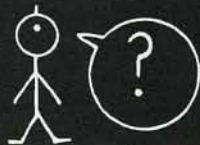
**UW:** The program is a new initiative, though it's often considered to be a reconfigured instantiation of the area of radio, television, and film (RTF), an area common to schools of communication.

Communications has always been a diverse synthesis of many disciplines, so it is not a radical change or a program without roots. In terms of communications, new media is a natural outgrowth of ever-changing cultural production (RTF), along with an examination of its social, political, and economic effects (media studies). What is "new" is perhaps our moment in time, which necessitates experimentation and exploration, rather than a reification of a specific media form.

**For a graphic design program we can say the general concerns are with communication and representation—how one turns ideas into meaningful form. Our goal is to educate our students as to what they need to know in order to get messages across within particular contexts to particular audiences. Type and image, once the pretty much exclusive means of message delivery for graphic designers, are now joined by the elements of motion, sound, and interactivity. Where does your "new media" program pick up from these goals or leave off from them? By comparison, what are you trying to accomplish with your program—what's the goal?**

**ART CENTER:** We seek to increase the designer's ability to generate projects, to create intellectual capital and utilize it, rather than coming in at the end as a surface treatment. The program has a strong entrepreneurial approach to design, exposing students to other models of intellectual property systems—the film and software industries prime among these—in which creators have been able to wrest a degree of autonomy, control, and, equally important, equity in the projects toward which they contribute. Although individual creativity is stressed, more and more of the graduate studios are also engaged in team projects, as in the outside world.

**CMU:** This program is for students who want to expand the creative potential of the relationship between words, images, sound, motion, time, and space in the context of interactive integrated media. It focuses on human-computer communication, kinetic information display, new narratives, wayfinding through new data spaces, and a collaborative design process.



We try to provide a balanced integration of theory, practice, and production, with ample opportunity for solo as well as team work, and on self-directed as well as externally sponsored projects.

**NYU:** The overall goal is to encourage students to think, experiment, and create something that did not exist before. We encourage risk and failure as one of the means of discovery.

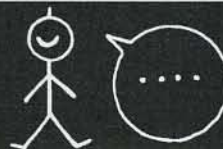
**RCA:** What we're trying to accomplish is first to develop students' skill and imagination in designing for new technology; and second to help them apply these skills to a wide range of problems and opportunities within the professional context they've chosen.

**UW:** The goal of our program is to provide an innovative environment for the study of new media, culture, and technology. In turn, we encourage our students to become active participants in and contributors to contemporary American culture, both as thoughtful critics and creative cultural workers. We emphasize the convergence of traditional media forms (such as graphic design, television, film, photography, and journalism) in relation to contemporary society and to such other cultural products as literature, art, and philosophy. Implicit is an analysis of the ways in which technology has influenced social, political, and economic change. As terms such as "new media" imply, we feel it necessary to look at the divisions between disciplines as fluid, dynamic, and necessary.

Our goals also include looking forward to the implications of technological advancements that are not yet widely available. In this regard, we have affiliations with the Human Technology Lab, where students do research in areas such as immersive virtual reality, interface design, and wearable computers (technomads). Because technology increasingly changes at an accelerated pace, we focus on an atmosphere of invention and innovation—essentially facilitating students in learning how to learn and to adapt to radical change with a critical eye.

**Is there also a graphic design program at your institution? If so, is there a link—formally or informally—between the two programs? In either case, what do you see as the relationship between what you perceive as a graphic designer's contributions to new media and the type of work taking place in your program?**

**ART CENTER:** There is an undergraduate graphic design program at Art Center, with a track in new-media design. In addition there will be an undergraduate major in digital media established in 1998. When appropriate, we can commingle faculty, lab space, seminars and studio classes. The graduate program wanted to directly address the changing geographies of technology and media, while at the same time drawing from the traditions for which the



school is known. The skills developed in a strong education in the classics of design—form, type, image composition, et cetera—are the foundation upon which our graduate students build. That they already possess finely honed graphic and visualization skills is precisely what allows them to actively explore the farthest reaches of the new media—they are not reinventing the wheel from lack of expertise or familiarity with that which has preceded them.

**CMU:** The School of Design offers two undergraduate programs in communication design (formerly graphic design) and product design. There's a link between the undergraduate and graduate programs with the sharing of faculty, some elective courses, and a few facilities. There's an integral link since this graduate program grew out of pedagogical, theoretical, and practical work and discussions of the faculty in the School of Design over many years. Graphic designers, we believe, are planners and shapers of communication. Traditionally bound to printed matter, graphic/communication/information designers are now planning and giving form to a range of communication pieces that are delivered through a variety of media, including electronic media. At the heart of this activity is communication. Yet this activity is not the sole domain of graphic designers.

**NYU:** We have scheduled "Elements of Visual Language" as a core class since many of our entering students have no graphics background. In the elective tier of classes we have several classes in design, typography, visualizing concepts. Clearly, design is an important part of the curriculum but it is a part and not the whole.

**CMU:** There is a graphic design department at the RCA and we have informal links, mostly

through student-initiated collaboration. As we have a range of disciplines in our own program we haven't felt the need for more formal arrangements.

Graphic design has an important contribution to make because of its understanding of communication and expression through the visual and the symbolic. But as interactive media brings together design for all the senses, graphic designers don't have all the answers.

**UW:** There are formal links between the graphic design program and ours in that we are adjunct faculty in each other's departments. While more formal links such as classes are in the planning stage, most interaction occurs informally. Students who cross over often become a tight-knit community who hang out in the lab and often end up working together after graduation. It seems a common occurrence at this university and others that students tend to make connections, and make transdisciplinary ideas actually work, well before any institutionalization of them occurs. Graphic design is an implicit component of our program, but not its focus. It should be noted, however, that design shares significant historical bases with and goals of communications. Similarly, communications and graphic design evolved as discrete professions and areas of study in the context of industrialization. Will graphic design be reintegrated or redefined in emerging cultural productions? Perhaps, but I prefer to see that not as a loss, but as a positive phenomenon. New media, for example, demands more of a synthetic convergence of form-giving, content production, and technical understanding, allowing designers to become authors and, potentially, technological innovators.

**What kind of disciplinary background/interests do students who enter your program generally have? Why are they coming?**

**ART CENTER:** (Graduate) Many of our students are graphic designers who have been working and want to return to an academic environment to open themselves up to new approaches to the field and to have the opportunity to pursue a major research project that the commercial world simply offers no space to pursue. The program also attracts those trained in other aspects of visual culture—the architecture and environmental design fields, especially. Students usually have strong liberal arts backgrounds and have come to the program from fields as diverse as engineering, scenic design, software design, animation, fashion, photography, and fine art.

**CMU:** (Graduate) Our students have a variety of backgrounds, which include graphic design, product design, art, psychology, professional writing, computer science, biology, drama, and music. They're interested in career adjustments, as well as an expertise in interaction design. We look for "older" students who have at least two years beyond undergraduate school. Many of our students have more than that.



**NYU:** (Graduate) Our students are selected for their very different disciplines—we invite architects, painters, composers, writers, scientists, filmmakers, designers, installation artists, etc., to work together collaboratively to define the new form that new technologies might give way to.

**RCA:** (Graduate) We accept students from any art or design discipline but mostly from product and graphic design, architecture, fashion, fine art, film. We also take a few students with experience in the computer industry and backgrounds in engineering or psychology. Many students are returning to study after a time in practice.

**UW:** (Undergraduate, Graduate and Ph.D.) Generally, we see a mix of students who have backgrounds in cultural production (English, journalism, graphic design, art, film, architecture), cultural theory (media studies, comparative history of ideas), engineering and computer science. Students focus in their area of strength, but are exposed to all areas.

**Obviously there are other disciplines that are highly influential and significant to what you're doing. What are these disciplines of interest and what do you find relevant about them?**

**ART CENTER:** Graphic design's obsession with the word/image relationship is important because electronic textuality is central to new media design. Architecture deploys elements in space and forces the designer to think in three dimensions. Film and animation, on the other hand, arrange elements in the fourth dimension of time, sustaining narrative. Software engineering cycles between prototyping, testing, and refining, focusing on user response to the design of the interface. Each of these modalities—textual, spatial, temporal, solution-oriented—feeds the creative processes. Of course, our students are influenced by the culture around them: everything from painting to music, from graffiti to poetry. Contemporary critical theory offers conceptual tools to approach these modalities and cultural products.

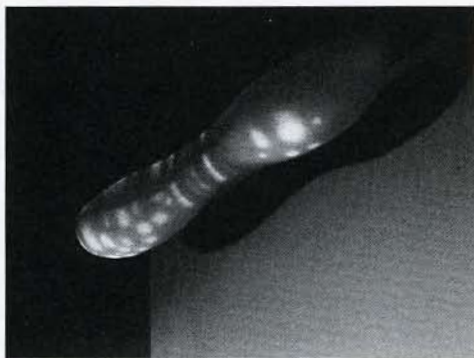
**CMU:** Cognitive psychology tells us about human behavior and how we process information. Computer science tells us about data structures and how programming turns our ideas into operating systems. Rhetoric tells us about the context and content of communication. Filmmaking tells us about storytelling, synthetic movement, sound, and sequencing. Drama tells us about integrating real-time movement and storytelling in real spaces. Cultural studies tells us about the cultural and social impact of communication and technology. Anthropology tells us about the people we are designing for. History helps us situate what's come before and where we might be heading. Business tells us about the commercial context of some communication.

**NYU:** Architecture is one discipline that's highly relevant. Architects have a very good spatial sense. Industrial design is useful in physical computing. Almost any discipline is relevant because each brings a different sensibility to the process and if we are looking for new forms, then collaboration with others from different disciplines is crucial.

**RCA:** Other influential disciplines are sound design, hard and soft engineering, and anthropology. Sound because it's important at every level in the interactive experience; engineering because without it none of this would happen and because designers need to understand the engineers' preoccupations and constraints in order to design well; and anthropology because its techniques of observation and reflection are invaluable for understanding and being inspired by the people who will use what we design.

**UW:** The most useful and relevant areas are those programs that are attempting similar goals, including interdisciplinary programs. By interdisciplinary or transdisciplinary, I am not referring to closely related disciplines within the arts and the humanities, but more broadly, including disciplines such as the social sciences, computer science, and engineering. What most of our students find in the interdisciplinary program in CS&E is that there are enormous epistemological divides to be bridged, but also some familiar approaches. The methodologies of engineering, for example, are very close to the problem-solving orientations of graphic design. Nonetheless, students are forced to define the assumptions of different fields, and to collaborate in the true sense of the word—an enormously difficult task. While we build on the legacy of traditional disciplines, it is most useful to look at their assumptions, methodologies, theories and





philosophies. The roots of new media are not as new as most of us are led to believe, and the tools of diverse disciplines are necessary.

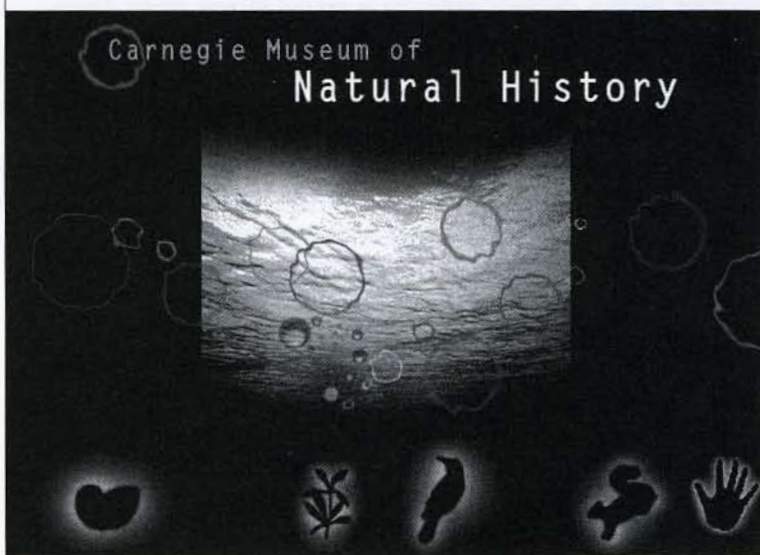
**Has anything radically changed your opinion of what the program is, where it's going, and what's important since its inception?**

**CMU (1994):** Nothing radical has changed. But what *has* happened over the four years of the program's existence is a confirmation that interaction design covers the entire experience of use for a product. It has also confirmed that human beings are the center of this design activity, not the technology.

**NYU (1979):** Since the program's mission was communication with new and developing tools, our philosophy has remained constant throughout the changes in software and hardware. When we initiated the program, the tools were video, cable, and telephone. Mainframes, the computers of the day, were guarded by the priests of high science in their white lab coats. It was uncommon for artists to think about computing. In the early 1980s microcomputers and authoring programs invited a media constituency. Today, the Web offers opportunities for communication that did not exist before.

**RCA:** When I started in 1990 our tools were pencil, paper, Post-Its, and a paint program. Hypercard and Supercard were just out; Director was a little black-and-white animation program. Visual browsers for the Internet didn't exist. Both the tools and the world have completely changed. But our basic aims haven't changed—to get students to think imaginatively and critically about new technologies and how to design for them.

**UW (1994):** We've learned important lessons from what I considered the unlikelihood of working with the military, which is keenly interested in technology transfer, to keeping a close eye on the industry, especially in our backyard of Seattle and the West Coast. Microsoft, for example, is backpedaling from their experiment with "creating content" and having "creative people" work with technologists. Clearly, there is a great demand for skills and ways of thinking that exceed the great cultural rifts between disciplines, between research and corporate interests, between the demands of corporations and users, and among governmental, public, private, and corporate interests. Finally, our emphasis on providing students with the tools to think critically, historically, and globally are increasingly important. The giddy enthusiasm of the industry, more than ever, needs a counterbalance that looks at the powerful, global effects and implications of capital, power, and technological change.



Top left: Prototype capable of sensing movement, sound levels, and computers logging onto the network links the Royal College of Art's two CRD sites, giving users a subtle peripheral awareness of the presence of others. Designed by Mina Hagedorn and Heather Martin. Above: Digital museum catalogue, Carnegie Mellon University.

