Image-Enabled Discourse:  
Investigating the creation of visual information as communicative practice  
Jaime Snyder  
Syracuse University, School of Information Studies

1.0 PROBLEM STATEMENT

The proposed study focuses on the role that the creation of visual information plays in communication. It contributes a theoretical framework and methodology for studying image creation as a communicative, information-driven activity in the context of face-to-face conversations. Images are increasingly ubiquitous in our daily communication, in part due to advances in information and communication technologies (e.g., information visualizations tools, image retrieval systems and collaborative work environments). We show great facility in deploying image-based strategies, exhibiting subtle understanding of the ways that images can be used to express information. The disparity between the ease with which this occurs in face-to-face conversations and the awkwardness of many visually enabled applications indicates that innate human abilities are far more sophisticated and nuanced than our current technology-enabled tools.

One could easily argue that this gap could be addressed with better technology: “smarter” interfaces, more sensitive input devices or more robust 3D visualizations. However, a deeper understanding of visually enabled face-to-face communication will greatly support the development of these enhancements. The ultimate goal of these tools is to achieve the fluency and fluidity of face-to-face interactions, therefore developing theory and methods to understand that baseline visual experience is essential.

Much information science research reflects a pervasive assumption that information is text (Buckland, 1991) and has benefited greatly from foundational work in sister disciplines such as linguistics and communication. Image-centered research has not yet coalesced around integrated and accepted concepts regarding the role images play in communicative practices.
and culture. This is evident in the tendency for information scientists working with images to inappropriately apply analytic schemas originally developed for art objects to visual information artifacts. These constructs are often taken as credible and absorbed into a social science methodology without validation, even though they may have been developed for entirely different purposes. The proposed study will develop an alternative approach to the study of visual information that sees the creation and use of images as an information-driven activity. Although this perspective has not been completely absent from information science scholarship (Dervin, 1999), the creation of information has rarely been a topic of focused investigation, although Rubin includes creation, followed by production, distribution, dissemination and use, as one of the primary stages of the information lifecycle (2004, p. 3).

The study’s research design will provide empirical evidence to support a unified model of image-enabled discourse by creating opportunity for consistent observation, documentation and analysis of conversations involving creation and use of visual information during face-to-face interactions. Data collection will yield a standardized dataset of recorded conversations. Multimodal interactional analysis will be used to create a comprehensive analytic scheme for the identification of image-enabled communication activities, including the role(s) played by the creation of visual information during conversations and any salient affordances supporting the use of particular image-enabled strategies.

2.0 RESEARCH QUESTIONS
Marks on a napkin or sketches created on a white board are information artifacts embodying a particular type of communicative practice that has a specific role in the exchange of meaning between individuals. Image-enabled discourse is the term introduced to refer to this phenomenon in a broad sense. Discourse, in this instance, refers primarily to dialogic communication. Image-enabled discourse encompasses both the creation and use of images in dialogue. Ad hoc
visualizations, or drawings created for a particular purpose within a specific context without consideration for wider application (i.e. a napkin drawing), are highlighted as one type of image-enabled practice (Figure 1). This ubiquitous type of information creation activity consists of making marks on an available surface during the flow of a conversation. Spontaneously created visualizations can anchor, bridge, and facilitate the flow of information at crucial moments in a conversation. The creation of such visualizations can be seen as part of a broad communicative landscape, alongside linguistic and other non-textual modes of conversation.

This study will specifically focus on the creation of visual information during face-to-face conversations. This interactive phenomenon is inherently dynamic and bi-directional, therefore a contextual discourse-oriented perspective will be adopted to address the following research questions:

• RQ1: In what ways does the ad hoc creation of images contribute to the exchange of information during face-to-face conversations?

• RQ2: What communication strategies are associated with the creation and use of ad hoc visualizations in these interactions?

• RQ3: Which characteristics of visual modes of communication are most salient to the use of ad hoc visualization strategies?

Figure 1. Examples of ad hoc visualizations.

3.0 LITERATURE REVIEW

This very brief survey of image-related research conveys a sense of the range and diffuseness of work in this area. In spite of methodological and theoretical differences across disciplines, a
dominant characteristic of research in this area is a near universal focus on the image artifact as the unit of analysis. In contrast, this study will focus on the activity of image creation. The following review will highlight existing image research that, while still focusing on the artifact, reflects openness to learning more about situated factors related to the use of visual information. These studies mark areas of potential impact for the proposed research. The proposed discourse-oriented study will supplement these studies with a practice-based framework for the study of image-making.

The works of Arnheim, Elkins and Ware are three examples of image typologies that rely on situated criteria related to the role or function of the image (Arnheim, 1969; Elkins, 1999; Ware, 2000). The study of visual grammar attempts to identify structural rules or patterns of use in visual communication similar to those developed in structural linguistics, for example, Goodman (1968), Bertin (1983), and Tufte (1983, 1990, 1997). Contemporary studies in visual culture generally rely on theories of sign and signifier to explain the intersection of various social/cultural systems through visual artifacts. In this sense, visual semiotics refers to the study of how images influence social and cultural interactions (Rose, 2007). None of these approaches illuminate the creation of images in a communicative context.

With the rapid development of interactive tools and technology, the ability to create and share images has increased exponentially, radically expanding what Elkins refers to as the domain of images (1999) where visuality, technology and information are deeply integrated. Humanities researchers have developed socially and culturally driven interpretative frameworks for analysis of visual artifacts, but they are of limited utility for information and system-driven applications, in which the study of images has taken a different form. Specific topics addressed by this research include: representation, indexing and query matching of visual artifacts in retrieval research (as with image retrieval); system design, building, and evaluation in information visualization, human computer interaction (HCI) and computer
supported collaborative work (CSCW) research (e.g., user interface design, distributed work tools, visualization software); computer vision and the nature of human perception; and the role of images in education, especially in the sciences. Studies focused on the informative aspects of images are often limited by two issues: 1) prioritization of building systems over constructing comprehensive conceptual models of associated visualization practices, and 2) primary focus on the image artifact to the exclusion of the behaviors associated with creation and use of artifacts within communication. While information science provides some frameworks for studying visual information, this work has yet to develop into a unified set of methods or theories for investigating information visualization processes, including creating, accessing and using images within communicative interactions.

Broadly speaking, research in this area can be grouped into four categories related to information studies: systems, task, education and perception. Within in each of these categories, there are notable examples of studies that signal a growing interest in moving beyond the image as an isolated artifact (e.g., Carberry, Elzer, & Demir, 2006; Cook, 2006; Datta, Joshi, Li, & Wang, 2008; Ellis & Dix, 2006; Gergle, Kraut, & Fussell, 2004; Jorgensen, 2003; Knox, 2009; Kraut, Gergle, & Fussell, 2002; McCay-Peet & Toms, 2009; Naps, et al., 2003; Shneiderman & Plaisant, 2006). A model of image-enabled discourse will unify this disparate work by systematically integrating contextual and situational factors into the way we think about, work with, and create visual information.

4.0 THEORETICAL FRAMEWORK

For this study, drawing is viewed as a dialogic, functional meaning-making activity with a specific role in multimodal information exchange. This reflects a discourse-oriented perspective on image creation and allows connections to be drawn between sociolinguistic theories of interaction and language use and visual communication practices. The theoretical framework
devised for the proposed research makes these connections explicit using, primarily the work of
linguistic anthropologist William Hanks.

Hanks’ theory of *communicative practice* is operationalized as a semistructured, semiformal
three-way intersection between three aspects of language use: form, ideology and activity
(Hanks, 1996, p. 230). *Form* acknowledges that language is a system with predictable elements
and structural regularities such as grammar. *Ideology* is the collection of norms, positions,
expectations and consequences brought to the interpretation of the utterance. And *activity* is the
improvised and interactive nature of communication. We can understand each other and
exchange meaning (or information) through language because of the *combination* of these three
dimensions of communication. Regularities across these three dimensions define
communicative practices.

Hanks discusses communicative practice in the context of a range of research from the
field of discourse studies, all of which is focused on verbal communication; likewise, a model of
image-enabled communicative practice can be positioned in terms of existing research in image
studies. *Ideology* relates to the roles that images play in cultural contexts, which is the focus of
research in the area of visual culture. *Form* corresponds to the structural content of an image as
studied in by researchers working in the areas of visual grammar and typologies. However,
there is currently limited empirical research focused on understanding image-enabled
communicative *activities* in this sense. This will be one of the main contributions of this research,
enabling an explicit connection to Hanks’ notion of communicative practice.

The theoretical framework for this study is further bolstered by three complementary
perspectives on language interactions that include (or at least acknowledge) non-verbal modes
of exchange: Herbert Clark’s work on “language as action,” specifically his notion of *common
ground* and external representation (1996); a discourse strategy identified by John Gumperz
called *code-switching*, which shows how deployment of a code switch (or a mode switch, in
image-enabled discourse) can be communicative in and of itself (1982); and the work of Sigrid Norris in the emerging field of multimodal discourse studies which demonstrates multimodal social interactional analysis for integrating communicative practices across multiple modes of communication (2004).

The application of these theories in the domain of visual communication is supported by findings from the preliminary empirical investigation conducted in 2008 that focused on narratives about conversations where drawing occurred. In a series of semi-structured interviews, respondents described a face-to-face conversation in which a drawing was created during the course of the interaction. Five tentative image-enabled communication strategies were identified (consensus building, persuasion, verification, visualization and synchronization) along with five associated visual affordances (plastic, mutually accessible, symbolic, authoritative, visual). The proposed study will augment, refine and possibly redefine entirely these preliminarily identified dimensions of visual communication practices. By creating a rich understanding of image-enabled communication activities, this research will result in a unified model of image-enabled discourse that can be applied to a range of situations where information is exchanged through the creation of images.

5.0 METHOD

The goal of the research methodology described here is to provide opportunity for consistent observation and documentation of communication strategies associated with the creation and use of visual information in face-to-face conversations. To achieve this goal, it will be necessary to:

• Make systematic and rich observations of instances when drawings are created during conversations
• Perform analysis of interactions to identify the role that drawing plays in the evolution and/or outcomes of conversations
• Generalize across multiple conversations to categorize individual instances of drawing in terms of types of communication strategies deployed
• Confirm, revise, or reconstruct the scheme identified in the preliminary study by conducting confirmatory data analysis.

The design for the study was inspired by research on the social dimensions of deception in dyads (Burgoon, et al., 2002; Burgoon, Buller, & Floyd, 2001; Hancock, Curry, Goorha, & Woodworth, 2004). It has been crafted to systematically document image-enabled conversations in a naturalistic, observable environment. Participants will not be told that the study is focusing on image-enabled communication, but rather that they are taking part in a study of informal information sharing among peers. Participants will be asked to engage in informal conversation with a partner in a lab-like setting. Conversation prompts have been designed to provide reasonable opportunity for ad hoc visualization. The intent is not to design a controlled experiment, but instead to create situations amenable to unobtrusive, consistent observation, while creating an authentic experience for participants.

**Setting and sample.** The setting for the procedure will be a small conference room with common office supplies available. A white board will be at hand, along with snacks and drinks. The study will involve 20 volunteers, paired in groups of two, recruited from graduate and undergraduate student populations at Syracuse University.

**Protocol.** A standardized set of 10 conversation prompts will be used to initiate and focus interactions. Prompts will be in the form of questions such as “What is the most stable way to build a set of shelves?” or “What determines weather patterns around the globe?” These conversation starters and the setting for the interactions have been designed to provide favorable circumstances for the creation of drawings, while not being overly prescriptive. For each run of the protocol session, paired participants will be asked to select a question from the prompts provided to discuss with each other. It will be stressed they are free to make up an
answer in the event that neither participants knows the answer to a given question, but they both need to understand and be able to recount their collective response at the end of the conversation. Each pair will be asked to respond to three different questions, yielding three recorded conversations per session. The session will conclude with an interview of participants during which they will be asked to reflect back on and discuss their experience.

**Data collection and analysis.** Video recordings of prompted conversations and transcripts of exit interviews will provide empirical data based on direct observation. The interactions will take place in a standardized setting that systematizes the recording and documentation of interactions with two video cameras, one trained on the participants themselves and one focused on the table top in order to capture drawing activities. Multimodal transcription techniques will be used to integrate verbal transcriptions with video stills that will be used to document non-verbal interactions. Discourse segmentation will be used to break interactions into episodes, and multimodal interactional analysis will guide the categorization of specific episodes to reveal patterns of image-enabled communication activities. The resulting analytic schema will reflect connections between image-enabled strategies and role(s) played by ad hoc visualizations in communication practices and help to identify affordances of mark-making that enable these connections to be made.

**Pilot.** Pre-pilot and pilot studies involved a total of 16 volunteers and resulted in 23 conversations. Of those, drawing occurred in 10. Interestingly, within those ten conversations where drawing took place, the form and role mark-making played in the interactions were quite varied. For example in one conversation, one member of the dyad was quite quick to jump to his feet to use the white board, and even though his partner never joined him there, by the end of the discussion, she was actually directing his mark-making in order to clarify and explain her
own position. Another group was highly collaborative in their drawing practice, each taking the pencil from the other at various points in the conversation in order to add or change elements in the image. A third group each had their own piece of paper and writing instrument, creating individual drawings and speaking to each other very little until the end of the discussion.

6.0 CONTRIBUTIONS
The proposed study will contribute to our basic understanding of the role of image making in the exchange of information during face-to-face conversations by offering a discourse-oriented approach as a supplement to existing artifact-focused work in the area of visual studies. Focusing on the creation of visual information in the context of communication, this research will provide empirical support for an emerging model of image-enabled discourse as well as an analytic schema for identifying and describing image-enabled communication practices. In doing so, a standardized multimodal dataset documenting image-enabled communication activities will be created. The methodology adapts leading-edge methods for analysis of information sharing and communication in multimodal environments, introducing these new techniques and approaches to the field of information science. As a result of this research, a more robust model for image-enabled discourse will be available for practical applications such as document modeling for image retrieval; heuristic evaluation criteria of interface designs and collaborative work tools; and the improvement of existing computer-supported information visualization tools.
References


Image-Enabled Discourse:
An investigation of the Creation of Visual Information as Communicative Practice
Jaime Snyder
School of Information Studies

Schedule of completion

<table>
<thead>
<tr>
<th>Activity</th>
<th>Dates</th>
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<tr>
<td>Pilot</td>
<td>January-February 2010</td>
</tr>
<tr>
<td>Proposal defense-</td>
<td>February 26, 2010</td>
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<tr>
<td>Pilot analysis and protocol refinement</td>
<td>March 2010- August 2010</td>
</tr>
<tr>
<td>Data collection</td>
<td>August 2010- September 2010</td>
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<tr>
<td>Data analysis</td>
<td>October 2010- February 2011</td>
</tr>
<tr>
<td>Write up results and discussion</td>
<td>March-April 2011</td>
</tr>
<tr>
<td>Dissertation defense</td>
<td>May 2011</td>
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Budget

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<td>Light refreshments for participants</td>
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<tr>
<td>Software for data collection and analysis</td>
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<tr>
<td>Video recording equipment</td>
<td>$3000-5000</td>
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<tr>
<td>External hard drive</td>
<td>$150</td>
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There will be approximately 20-30 participants recruited for the study. Incentives in the form of gift cards will be offered to anyone who participates in the study. Each person will be given the choice of a $5 gift card to Starbucks or a 1-in-10 chance to win a $50 gift card to Amazon. During each of the 10-15 sessions, light refreshments will be offered to all participants.

Data collection and analysis will require both hardware and software purchases. Two consumer quality video cameras will be needed. Cameras with internal hard drives will eliminate the need for tapes. An external hard drive will be used store video files. Software for data processing and analysis includes Adobe Premier ($500) for video editing and Transana ($70) for multimodal transcription and analysis.

Other support
I will receive a graduate assistantship for the 2010-2011 academic year through the School of Information Studies at Syracuse University.

Advisor
Elizabeth D. Liddy
Jaime Snyder  
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Syracuse, NY 13203  
315-751-3977  
jasnyd01@syr.edu

EDUCATION

**Syracuse University**, School of Information Studies, Syracuse, NY  
Ph.D. Program, August 2006 – present  
Doctoral candidate  
*Dissertation:* Image-Enabled Discourse: Investigating the Creation of Visual Information as Communicative Practice  
*Advisor:* Elizabeth D. Liddy  
*Research areas:* Image-enabled discourse; creation and use of visual information; multimodal discourse and communication

**Stanford University**, Department of Art & Art History, Palo Alto, CA  
MFA Painting, June 1997

**Temple University**, Tyler School of Art, Philadelphia, PA  
BFA Painting and Glass, June 1993  
*Summa cum laude* and *President’s Scholar*

**Temple University Abroad**, Studio Art Program, Rome, Italy  

RESEARCH

Senior research assistant: Liaison for interdisciplinary curriculum development, Sept 2009 – present  
*Common Ground: Exploring the intersections between information, technology, art and design*  
Reporting to: Dean Elizabeth D. Liddy and Senior Associate Dean Robert Heckman  
School of Information Studies, Syracuse University

Contributing investigator, Nov 2006 – present  
*The Role of Art and Design in Technical Professional Pedagogy*  
PI: Robert Heckman  
School of Information Studies, Syracuse University

Contributing investigator, Jan 2007 – 2009  
*Understanding Connotative Meaning in Text*  
Co-PIs: Michael D’Eredita, Elizabeth D. Liddy, Ozgur Yimazel  
Center for Natural Language Processing, School of Information Studies, Syracuse University

Reporting to: Jeffrey Stanton, Associate Dean for Research  
School of Information Studies, Syracuse University

Research assistant: Project coordinator, Aug 2006 – May 2008  
*Impact of New York State School Library Media Programs on Student Learning and Motivation*  
PI: Ruth V. Small  
Center for Digital Literacy, School of Information Studies, Syracuse University

Contributing investigator, June 2007 – Dec 2007  
*The Library as Conversation: Participatory Librarianship*  
PI: R. David Lankes  
Information Institute of Syracuse, School of Information Studies, Syracuse University

J. Snyder, updated May 2010
PUBLICATIONS (in reverse chronological order)

Refereed journal articles


Refereed conference papers


Refereed conference posters

Snyder, J. (2010). Applying multimodal discourse analysis to study image-enabled communication. Poster abstract in Proceedings of the 2010 iConference, February 3 – 6, University of Illinois Urbana-Champaign, Champaign, IL. Best Poster Award.


Invited presentations


Other publications


Under review
TEACHING

Liaison for Interdisciplinary Curriculum Development, September, 2009–present
School of Information Studies, Syracuse University, Syracuse NY
• Facilitating collaborative initiatives between the iSchool & the College of Visual & Performing Arts (VPA)
• Multidisciplinary course development

Adjunct Faculty, 2008–present
Syracuse University, Syracuse NY
School of Information Studies
2008 Fall Instructor: IST 444–Information Reporting and Presentation
School of Information Studies & College of Visual and Performing Arts
2009 Spring Co-Instructor: DES/FIB 300/500–Interactive Lab: Responsive Environments
2010 Fall Co-Instructor, course development: IST400/600–Digital Documentation for the Arts

Associate Lecturer, 2003–2005
Center for Digital Arts, Mercy College, White Plains, NY
Curriculum development and instructor:
Digital Media + Interaction Design
Web Design I and II
Three Dimensional Design

Visiting Artist-in-Residence, 2004
Department of Art, University of Southern Maine, Gorham, ME
Course design and instructor: Experimental Drawing

Lecturer, 1999
Department of Art & Art History, Stanford University, Palo Alto, CA
Course design and instructor: Drawing I

Instructor, 1997-1999
Palo Alto Cultural Center, Palo Alto, CA
Course design and instructor: The Language of Painting

Instructor, Summers 1997-1999
Pre-College Enrichment Program in Studio Art
Stanford University, Palo Alto, CA
Curriculum development and instructor:
Painting and Drawing for Majors
Painting and Drawing for Electives

Graduate Instructor, 1995-1997
Department of Art & Art History, Stanford University, Palo Alto, CA
Course design and instructor:
Drawing for Non-Majors
Words & Pictures: Text and Image in Visual Art

Teaching Assistant, 1995-1997
Department of Art & Art History, Stanford University, Palo Alto, CA
Co-instructed:
Painting I, II, III
Drawing II, III
Collage
SERVICE
Program Committee, iConference, University of Illinois at Urbana-Champaign, 2010
Doctoral student representative to the Doctoral Committee, 2008-2009
Doctoral student representative to the Personnel Committee, 2007-2008
Doctoral student representative to the Faculty Search Committee, 2006-2007

AWARDS
Best poster award, Applying multimodal discourse analysis to study image-enabled communication.
  *iConference*, University of Illinois Urbana-Champaign, 2010
Phi Kappa Phi, 2009
Outstanding TA Award, The Graduate School, Syracuse University, 2009
Nominated for Student Employee of the Year, Syracuse University, 2009
Dissertation Research Grant from The Study Response Project (http://studyresponse.syr.edu), 2008
Nominated for IBM PhD Fellowship by iSchool PhD Program Directors, October 2008
Student Travel Scholarship from the Association for the Advancement of Artificial Intelligence (AAAI) to
  attend the Fall Symposium on Multimedia Information Extraction, November 2008
Student Travel Award for Best Student Paper in Information Science from The American Society for
  Information Science & Technology, New England Chapter (NEASIST), to attend Annual Meeting,
  October 2008

UNIVERSITY COLLABORATIONS
Social Media Futures, April 2010
School of Information Studies, COLAB and the College of Visual and Performing Arts (VPA)
Syracuse University
Team: Jaime Snyder (iSchool), Anthony Rotolo (iSchool), Chris McCray (COLAB/VPA), Shoham Arad
  (COLAB, VPA)
  With team, facilitated an intense three-day design thinking workshop, called a charrette, which was held on the topic
  of business potentials in the area of social media. The event included 32 handpicked students from seven colleges
  across the Syracuse University campus as well as domain experts from industry, academia, and government. VPA’s
  COLAB (Collaborative Laboratory) provided the setting for this multidisciplinary exploration. More information:
  http://ischool.syr.edu/ilife/socmediafutures.aspx and colab.syr.edu

The iSchool Windows Project, 2008-2010
School of Information Studies and the College of Visual and Performing Arts (VPA)
Syracuse University
Reporting to: Dean Elizabeth D. Liddy (iSchool) and Dean Ann Clarke (VPA)
With Anne Cofer (VPA), designed and implemented a collaborative project between the two schools which resulted
  in commissions for eight site specific artworks commissioned and installed in the iSchool’s Hinds Hall. Artists were
  all members of the SU community, including students, faculty and staff and their work became part of the SU
  Permanent Art Collection. More information: http://windows.ischool.syr.edu/
OTHER EXPERIENCE

Visual Art Practice

Artist Residencies
Three Walls Gallery, Chicago, IL, 2005–2006
University of Southern Maine, Gorham, ME, 2004
Montana Artists Refuge, Basin, MT, 2003
Braziers International Artists Residency, Oxfordshire, UK, 2002

Selected Exhibitions Portfolio: www.jaimesnyder.com
2006 Overview, Three Walls Gallery, Chicago, IL
2004 Attic, University of Southern Maine, Gorham, ME
2003 Selected work, Montana Artists Refuge Residency, Basin, MT
2002 Group show, Braziers International Artists Residency, Oxfordshire, UK
Six Thousand Five Hundred: Artist’s Project published by 9x9 Industries/Paraffin Arts Project, San Francisco, CA
2001 To the power of..., Cell Project Space, London, UK
2000 Slide Registry, The Drawing Center, New York, NY
Pierogi 2000 Flat Files, Brooklyn, NY
1999 Bay Area Now 2, Yerba Buena Center for the Arts, San Francisco, CA
As if the World Ended on the Fifth Floor, Blohard Gallery, Philadelphia, PA
1997 MFA Thesis Exhibition, Stanford University, Palo Alto, CA
1996 glean*, curated by Renny Pritikin, Four Walls, San Francisco, CA
1995 Test Your Vision, MFA Program Exhibition, Stanford Univ., Palo Alto, CA
Lighting & Set Design for The Plague by Albert Camus staged by The Lost Art of Puppet, The Actors Center, Philadelphia, PA
Glass Alternatives, Nexus Foundation, Philadelphia, PA
1994 Painting Installations, LMNOP Performance/Installation Space, Philadelphia, PA
1993 Installations, University City Arts League, Philadelphia, PA

Visual Arts Awards
Carol Davis Scholarship, Montana Artists Refuge Residency, Basin, MT, 2003

Interactive Producer. Information Architect. Web Development

Internet Consultant, March 2000 to present
Roles: Interactive Producer, Information Architect, Project Manager, Content Strategist
Clients: American Association of Advertising Agencies (4As), New York, NY
Wechsler Ross & Partners, New York, NY
Image Works, Portland, ME
Bernhardt Fudyma Design Group, New York, NY
200 East Housing Corporation, New York, NY
Decimal, Inc./Online 401K, San Francisco, CA
Tiller, LLC, New York, NY

Web Design & Programming Contractor, January to March 2000
Wunderman Cato Johnson, New York, NY
Concrete Creative, Washington, DC

Systems Assistant and Internet Administrator, October 1997 to December 1999
Cody’s Books, Inc., Berkeley, CA