Who Owns the Rights to Mona's Smile?

NYU Web — New Design & Search Engine

Governing the Internet

When Should You Update Your Software?

Connect
Academic Computing and Networking at NYU
Spring 1999
Volume 9, Number 2
Editor's Note: While the newspapers have been reporting that New York is in the grip of a flu epidemic, we here at Connect want to make sure that you have all the information you need to stay wired and in touch, even from your sick bed.

With this in mind, we offer “Networks and the Web.” This section includes news of how CAS students can vote online for Student Council, instead of going to a polling booth (p. 7); how Lyris, our new list server, will simplify your newsgroups (p. 11); and other ways to manage all those mailing lists that help you stay informed from the comfort of your computer screen (p. 17). On page 13, there’s also a guide to NYU Web’s new look, so you can be sure to find your way around all the University news and information you rely on.

In another health-related item, Geographic Information Systems are now being used by the health-care industry to provide more efficient service. Read about it on page 30.

So sip that chicken soup and tea, and don’t fret. Spring is right around the corner.

—Joan Charlotte Matelli

Connect: Academic Computing and Networking at NYU is edited and published by New York University’s Academic Computing Facility (ACF). Its scope includes information about computing and networking activities at NYU’s various schools, departments and administrative units, and outside developments of interest to the NYU community.

Copies of Connect are available at the ACF Innovation Center, the ACF computer labs, the NYU Information Center and most graduate school offices. Copies are mailed to full-time university faculty, staff and researchers, based on mailing lists administered by Personnel. If you are a full-time faculty member and do not receive a copy, please notify your dean’s office; full-time staff should notify their personnel representative. If you are not among these groups but would like a free subscription, send e-mail to acf.connect@nyu.edu.

You can also read Connect online, through NYU Web, at the URL www.nyu.edu/acf/connect/.

We welcome your comments about the articles in this issue, as well as suggestions for future issues. Contributions are invited for consideration by the editor.

Opinions expressed in the articles in this publication are those of the authors and not necessarily those of Academic Computing Facility or of New York University.
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Connect: Academic Computing and Networking at NYU
ACF Welcomes NYU’s First CITO

ACF is pleased to report the October 1998 arrival of Marilyn McMillan, NYU’s first Chief Information Technology Officer. As the CITO, Ms. McMillan will oversee NYU’s data and telecommunications operations and develop groundbreaking campus-wide technology strategies. She will lead the integration of the University’s principal technology units — academic computing, administrative computing and telecommunications. She will also help the University’s 13 schools and colleges work together more cohesively in the realm of information technology service.

Ms. McMillan comes to NYU from Stanford University, where she served as the Director of Application Assembly and Integration. At Stanford, she led the strategic planning and execution of university-wide applications and infrastructure.

Prior to her work at Stanford, Ms. McMillan worked for 22 years at the Massachusetts Institute of Technology, where she spearheaded the overhaul of MIT’s information systems organization. Ms. McMillan is nationally recognized for her leading role and subsequent achievements in implementing technology initiatives in higher education.

A search committee, consisting of deans, faculty, administrators and students, selected Ms. McMillan as the top choice for the CITO position. This position resulted from an ongoing effort to restructure information technology to better serve students, faculty, and administration.

Several earlier initiatives suggested the integration of University technology units. An advisory committee formed from representatives of the Student Senators Council, the Faculty Council and the Administrative Management Council recommended the creation of this position last year.

Ms. McMillan’s extensive experience in the IT industry and innovative approach to integrating technology and academics will undoubtedly change the face of ACF and information technology at NYU. We welcome her aboard.

—Joan Charlotte Matelli
Governing the Internet

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I've just returned from an exciting meeting in Cotonou, Benin, where a major step has been taken in Internet governance in Africa. For the first time, network professionals from 30 to 40 countries, representing all international languages spoken on the continent, have come together to agree on an institution that will provide essential elements of Internet administration, by and for Africans, in Africa. A proposal for the establishment of an African Regional Network Information Centre (AfriNIC) was drafted in English and French and was adopted unanimously. An initial Board of Directors for the new organization was elected, and the results are being transmitted to the ICANN (Internet Corporation for Assigned Names and Numbers).

This was no small achievement. Internet development in Africa has lagged behind much of the rest of the world due to weaker telecommunications infrastructure, a smaller capital base, and a relative lack of skills for implementation. Ignorance of the Internet's benefits, a high reliance on traditional post, telephone and telegraph services that could be displaced by equivalent Internet services are among the other factors that have contributed to this lag. However, thanks in part to the Internet Society's Network Training Workshops, a critical mass of African talent has developed and is actively employed in extending the Internet in most countries.

Several years ago, only a handful of African countries were connected to the Internet. At the meeting, however, it was reported that 49 of the 54 countries in Africa have at least an Internet point of presence, and many countries have active Internets in the capital city and beyond. By and large, critical momentum seems to have been achieved.

Graduates of the workshops, in cooperation with others, formed the Africa Internet Group, with the express purpose of establishing an IP address registry in Africa and forming an AfriNIC, a Network Information Center for the countries of Africa.

This was widely regarded as a significant achievement. While Africa may seem relatively homogeneous to some, in reality there are multiple dimensions of differences that separate countries and groups. Colonialism has left a legacy of difficulty in reaching a common understanding through a single language, as well as separate paths of commerce, travel, and communication. Thus, it was not surprising that linguistic differences led to divisions within groups, but it was gratifying to observe that they did not deter agreement.

The conference was colorful, starting with native drummers and dancers performing for the audience. The costumes in the audience were even more varied, reflecting the colorful (and practical) dress prevalent in many African countries. The Internet spirit was clearly prevalent throughout the meeting. It was only when directors for the proposed new corporation were selected that geographic and linguistic representation became contentious issues.

Independence from geography and affiliation has been a part of Internet culture since its
The Internet Engineering Task Force (IETF), a major icon in Internet development, has from its beginnings functioned as a collection of individuals who represented only themselves, their ideas, and their efforts. Specifically, the notion of representation by industry, company, country, or any other affiliation has been rejected. Using this from-the-bottom-up policy, this voluntary association of individuals has produced perhaps one of the most durable, dependable, and frequently used body of standards in the world today.

At the last minute during the African meeting, as the elections for an initial Board of Trustees were to take place, the IETF meritocracy-based culture broke down. It was decided to retain regional representation on the Board, and the room quickly split up into six groups representing six regions of Africa. Some groups came to consensus quickly, while others participated in animated discussion about what their strategy should be, with pleas that certain groups be represented over others. Perhaps this incongruity is inevitable, given the difficult history of the continent. However, I feel that new organization will reach a desired level of maturity when its representatives are picked on the basis of excellence, trust, and responsibility, rather than on group representation.

This African experience is a very useful one because it starkly highlights some of the issues involved in the more global discussion about Internet governance today. For several reasons, Internet governance is a very visible topic these days.

First, while the U.S. Government was in large part responsible for the funding and growth of the Internet during its formative phases, it became clear in the early 1990s that government administration was not viable in the long run. The process of transferring those functions to other institutions has not been without its problems, and has highlighted the serious issues involved in creating a system that has grown to include almost all of the world’s countries. Furthermore, governments have a legitimate interest in some aspects of the Internet, including issues of personal privacy, taxation of transactions, some issues of content, and enforcement of laws. Enforcement of some laws, such as trademark law, quickly crosses national boundaries, leading to issues of appropriate venue which have vexed the process.

Second, the rapid expansion of the Internet has caused plentiful resources to become scarce. The set of addresses in the current addressing system (IPv4), which is used to direct traffic to individual computers on the Internet, has a theoretical maximum of about four billion. Because of hierarchical sub-delegation rules, however, it is limited to considerably fewer. Liberal use of these addresses when they were plentiful has led to increasingly strict rationing rules for allocating new groups of addresses. In Africa’s case, there was considerable concern that policies for address allocation in other regions of the world, created earlier to respond to needs in those specific regions, would unfairly penalize the growth of the Internet in Africa. (A new addressing scheme offering far more addresses (IPv6) is being phased into use, but will take at least several more years to deploy.)

The other major scarce resource in the administration of the Internet is a scarcity of certain kinds of names, in particular those that end in .com, the preferred top level designator for commercial firms. On a theoretical level, this is an artificial scarcity, since there are potentially thousands of three-letter top-level domain designators.

However, at the time, the top-level domain structure was administered by the Internet Assigned Numbers Authority (IANA) under subcontract to the U.S. Government, which was feeling increasingly uneasy about making decisions regarding the expansion of this name space.

Furthermore, the government had contracted with a private company, Network Solutions, Inc., for the adminis-
The deregistration of the .com domain, and there were legal and operational difficulties in making changes. Some private firms, sensing the market opportunity, defined their own top level domains such as .web, and tried to create a critical mass of users that would have in effect put pressure on the existing administrative structure to legitimize them. Such efforts could have led to a breakdown of the Internet addressing system, with consequent chaos for the user community.

Making Internet administration private highlights one of the most important problems facing the future of Internet administration today: how to implement democracy on the net. In 1996, realizing the importance and urgency of the issue, the Internet Society (ISOC) commissioned a study group to look into the problem, leading to the formation of a series of groups and decisions that led to good progress in a specific direction. However, others challenged the efforts to the extent that the situation was at an impasse.

In the spring of 1998, the U.S. Government, after a failed attempt on its part to suggest a solution, told the Internet community to either solve the problem by September 30, 1998 or face the possibility of a unilateral solution imposed by the government. A series of meetings were held around the world under the rubric of the International Forum on the White Paper (IFWP) in an attempt to delineate the issues and come to consensus. Mailing lists transmitted thousands of messages among the hundreds of active participants and the considerably larger population of lurkers.

The bottom line was that any meaningful consensus was impossible to achieve. In my view, the meetings were characterized by groups of people with opposing points of view who, rather than seek compromise, continued to insist that their solution was the superior one while trying to win adherents to their points of view.

Despite the good intentions of some of the participants, the meetings resembled Hyde Park in London, with the antagonists all on their soap-boxes preaching their version of the gospel, rather than a serious attempt to fashion a workable solution. Later, when it became clear that one solution would dominate and probably be accepted, vocal groups were encouraged to increase their efforts by others who disagreed with both positions.

On the mailing lists, the discussion was more vitriolic. The tendency to “flame” persons not personally known emerged with a vengeance, and no convergence was possible. Hardened positions emerged, based upon different points of view of what the Internet was, and which particular group or sector should benefit most from its administration.

In the short time before the deadline, Jon Postel, the head of IANA, worked to create a successor organization to assume the functions that the government wanted to shed. Bylaws were drafted for the new not-for-profit organization, called the Internet Corporation for Assigned Names and Numbers (ICANN), which included a Board of Directors representing the three major interest groups, the Names Authority, the Numbers Authority and the Protocol Authority. This has been the most acceptable proposal to date, but pressure from others has caused the government to strongly encourage ICANN to become a broader membership organization, with about half the members of the Board to be elected directly from the Internet community.

ICANN has indicated formally its intention to move in this direction as soon as it can consider a practical method of implementation, and it has all but been chosen officially to be the organization to govern the functions corresponding to the authority groups above.

I sympathize with ICANN's plight. Let's speculate on what the term “membership organization” means when we apply it to the Internet community. First, who are the members of the Internet community? Are we including everyone on the planet, or just today's users? Perhaps the community is just...
the Internet service providers (ISPs) like AOL and AT&T who
give us our access to the Internet. Or perhaps it’s the content
providers such as Yahoo and Microsoft. It could be the wide
area network providers such as IXC, MCI-Worldcom, AT&T
and France Telecom and the like. What is the individual
voting entity, is there more than
one type of entity, and if so,
how many votes should each
get? What would happen if
the electrical power grid and
the telephone system were
not-for-profit cooperatives,
membership organizations
containing electric power users
and telephone subscribers from
around the world? To what
extent is this a meaningful dis-
cussion?

Surely there are answers to
these questions. After all,
governmental systems have
been formed to determine the
wishes of large groups and
develop and execute policies
acceptable in some sense to
majorities within the group.
It has been suggested that the
International Telecommunications Union have a primary
role in Internet governance,
but that flies in the face of the
bottom-up development of
the Internet that has been, in
my opinion, one of the
reasons for its spectacular
success. In addition, the ITU
as an organization is just now
starting to take serious cog-
nizance of the Internet and its
large, bureaucratic culture
with a governing body con-
trolled by traditional tele-
phone service providers.

A long time ago in New
England, a similar form of gov-
ernment called “the town
meeting” existed, and still
exists today in some places. The
recent debate about the future
of Internet administration
appears to be an attempt to
scale the town meeting model
to millions of participants who
do not know each other. What
seems to have emerged appears
closer to that of a Hyde Park in
cyberspace, where thousands of
people have soapboxes, all can
yell equally loudly, and mil-
lions of people can hear them.
And if they don’t get the
changes they want, these
people keep yelling.

In addition, in the New
England town meeting, it’s my
guess that people didn’t often
insult their neighbors in person,
in large part because the culture
demanded that you claim
responsibility for what you did
and said (if only because you
lived in physical proximity to
your neighbors).

In the cyberspace equiva-

ten, it sometimes seems irre-

dissistible to goad, if not openly
insult your cyberspace neigh-
bor, since you probably will
never have to confront him or
her in person. The result is that
too often we see in cyberspace
the verbal equivalent of The
Jerry Springer Show, instead of
reasoned discussion that is suf-
ciently structured to lead to
closure.

Given the vastly expanding
population taking part in the
Internet, sufficiently wide-
spread individual responsibil-
ity in cyberspace may be
impossible to achieve. Further, small vocal minori-
ties may be able to exert a
destabilizing influence sub-
stantially greater than their
size or importance.

People who have the time
and ability to participate fully in
on-line discussions may appear
to represent a major view just by
virtue of the frequency of their
interventions, regardless of
whether anyone else agrees with
that view. Electronic “loudness”
seems to count, and if one tries
to combat it by matching it in
volume, it often leads to non-
productive disputes.

This is not an environ-
ment from which to expect
good governmental practices
to emerge. As someone
wrote in response to a
posting on this subject,
“Parliament never meets in
Hyde Park.”

The participants in the
Africa Internet Group, which
so successfully brought most
of a continent of countries
together for the first time to
take command of their future
on the Internet, need to
understand these issues.
Indeed, it was the IFWP
group meeting in Geneva
that crystallized the feeling
among them that if they did
not act and make their coor-
dinated presence visible
now, they would lose a valu-
able opportunity in the
future. They have taken their
first step successfully.

Likewise, we as a global
Internet community need to
learn and practice behavior
that will allow us to function
as a cooperative democracy,
administering ourselves pru-
dently, and dealing construc-
tively with the differences
that divide us. The realiza-
tion of the notion of true
membership in a cooperative
Internet community depends
on it.
Online Voting at NYU
CAS Student Council Elections

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Organizations and political parties have shown increasing interest in the role of communications networks in the political process in recent years. Advocacy groups such as Register America promote voter registration over the Internet, and U.S. presidential hopeful Ross Perot put forth the concept of an "electronic town hall" in his 1992 campaign. Five states — Florida, Missouri, South Carolina, Texas and Utah — will allow U.S. citizens abroad to cast absentee ballots over the Internet in the 2000 general election. Costa Rica plans to hold an upcoming national election over the Internet, and a Dutch trial of electronic voting by DigiCash in May 1998 held a voting referendum over the net. Some schools, including Dartmouth and Stanford, are using online voting for student elections, and companies such as IBM, Disney and some mutual funds are increasingly using online voting for shareholder proxy votes.

Concerns about online voting (or even computerized vote tallying) have discouraged some attempts to make online voting available. The California legislature’s efforts to study online voting were hampered by a 1998 veto from Governor Wilson due to concern over voting security and possible tampering with voting results. The Costa Rican plans for an electronic national election have been deferred for several years due to political pressure. Students at the University of Maryland — Baltimore County scrapped online election plans in 1996 due to concerns over the security of votes and accessibility to the computers being used as voting terminals. For now, the security and privacy of online voting are still prominent issues.

Properties of Voting Systems
Election systems are usually described as having several important properties. Cranor and Cytron, authors of a secure voting system called Sensus, quantify these as accuracy, democracy, privacy and verifiability. For accuracy, votes need to be recorded in a valid fashion and it must be impossible to remove valid votes from an election tally. Democracy requires that only eligible voters can vote, and can vote only once. For privacy, votes should not be associated with individual voters by election officials, and voters should not be able to prove that votes were cast in a specific way. For verifiability, voters should be able to independently confirm their votes were recorded correctly, and a neutral party should be able to verify the election tally. For a more complete description, see the abstract on Sensus at www.crrc.wustl.edu/~lorracks/sensus/ssp/ssp.html.

Online elections provide more possibilities for verifiability than current conventional elections do. Votes can be digitally signed, encrypted and then published, allowing voters to later confirm votes with a private decryption key. This is somewhat at odds with privacy, however. Also, if voters can prove they voted a specific way, vote-buying schemes are made possible. Published votes would help to increase voting accuracy by revealing any tampering with voting results to individual voters. Online voting also can be more widely distributed, with voters participating from network connections far away from traditional voting booth sites.
Local Use of Electronic Voting

In the Spring 1998 semester, senior College of Arts and Science Student Council members contacted the Academic Computing Facility and the CAS Dean’s Office to express an interest in holding council elections over NYU-NET. Perl scripts for voting and tallying were developed in late spring, due largely to the efforts of Anton Leykin, a CAS senior working in the Dean’s Office, Randy Wright and David Ackerman of ACF, and Shmuel Farbstein, vice-president of the CAS Student Council. Web-based voting trials were conducted during the summer of 1998. The council’s initial intent was to hold Spring 1998 elections online, but concerns over voting authentication and adequate testing of voting software delayed those plans until the Fall term.

The College of Arts and Science Student Council wanted to use an online election for several reasons.

Increasing Voter Turnout

The council has historically been disappointed with the number of student voters involved in council elections. They hoped that a widely distributed election (web browsers connected to NYU-NET or elsewhere on the Internet) would make voting more accessible than a set of voting booths at a single location.

Cost

There are indirect costs involved with voting software development and ACF’s maintenance of NYU-NET, but these costs are likely to be less than the repetitive costs of leasing voting booth structures from the New York City government, as had been done in previous years.

Flexibility

The software that is used for the CAS Student Council online voting can be modified for use by other NYU schools or groups. Several elements of online voting were agreed upon by the Student Council and by ACF staff members as critical:

Votes must be unique and must be authorized.

Only students who are authorized to vote should be able to do so. (For example, in the November 1998 council elections voting was limited to College of Arts and Science freshmen.) Also, each authorized voter must be prevented from repeated voting in the same election. The current voting software handles user authentication with an ACF Kerberos server, and flags a voter’s record after a vote is anonymously recorded, preventing duplicate votes from a single person.

Votes must be private.

The voting results are recorded anonymously, giving no way to link a specific vote to an individual who has voted.

Elections must be accessible.

Although 90 percent of CAS students have active e-mail accounts, some work is still required to inform the 500 to 600 remaining CAS students about ACF e-mail accounts. (An ACF e-mail account is required for NYU Kerberos use, which is the authentication used for the elections. See www.nyu.edu/acf/start/ to activate an account; a NetID from an NYU ID card and a Student Information System/Albert PIN are required to activate an account online.)

Online voting via the Web also presumes that CAS students have adequate access to a web browser — either a graphical browser or text-based browser like lynx with support for secure socket layer connections (SSL).

The CAS Student Council held their election for freshman representative online (www.nyu.edu/cas/vote/) on October 14 and 15, 1998. This election resulted in increased voter turnout — over a 150 percent increase in votes compared to the 1996 and 1997 freshman elections.

Future Use of Online Voting at CAS

Though the CAS voting script currently satisfies some of the desired properties of an election system listed above, it lacks verifiability. There is not currently a way for individual voters to verify that their vote has been recorded correctly, nor is there a way for a neutral party to verify election results.

More functional implementations of electronic voting exist. Some voting models utilize digital signatures or public key cryptography to anonymously authenticate votes; the resulting votes can be published and individual voters can verify that their votes were recorded correctly. The DigiCash voting trial mentioned earlier uses a bulletin board model that results in an encrypted roster of submitted ballots; the election results are universally verifiable, letting neutral observers verify the entire election tally at any point during the election.

ACF and CAS hope to enhance the current voting script to allow neutral verification of voting results, and anticipate that the Perl code will be available for public scrutiny and validation. The Student Council plans to use the existing voting software to hold their general elections in Spring 1999.
Searching NYU Web
New Search Engine Software

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New York University is one of the largest and most diverse universities in the world. To see the University as one single unit is a bit like thinking of New York City as a homogeneous community. Anyone who has lived here for even a short period of time knows that, in fact, the city is defined by its many smaller neighborhoods. Similarly, NYU should be recognized as the collection of its many distinct schools and departments.

In that sense, NYU Web is a reflection of NYU’s multi-faceted nature. This past year has seen exponential growth in the size of NYU Web and the number of services it offers. This may have resulted in difficulty finding the information you seek within NYU’s web space. Last year, NYU’s Information Services group introduced a new search engine to help alleviate this problem.

Unfortunately, the search engine, Netscape’s Catalog server, was unable to keep up with the rate of NYU Web’s growth. In addition to being somewhat slow and inaccurate in its searches, we found that it failed to index an acceptable percentage of the documents on NYU’s web servers. We estimate there are more than 90,000 pages on NYU Web — a number that doubles every six months. And though no search engine is perfect, Netscape Catalog consistently petered out after gathering only about half those pages. Clearly a new solution was in order.

Searching for a Search Engine

The first step toward replacing Catalog was exploring the other options available. A year ago, the search engine market was not very crowded. There were few solutions to choose from, and those that were available were often proprietary and uncustomizable. Since that time, the search engine market has commoditized; there are more than 50 search packages now available, many at low cost or for free, and each with its own search methodology and degree of customizability.

We found that most engines had to be installed onto the local system. Others, such as C-Net’s Snap!, will host the engine for you on their computers, in the hopes that this will bring more traffic to their site. In this case, the technology and software behind the server is generally not available to the client for customization. The trade-off for this lack of flexibility is a lower cost.

With so many packages to choose from, we needed to set criteria for measuring each one’s suitability to NYU’s particular situation. Netscape Catalog’s one-year lifespan had given our group much time to solicit feedback from NYU Web’s user community. After analyzing the user selections, and adding our own wish list into the bunch, we settled on the following requirements for a second-generation NYU Search.

Flexible Query Language

We needed an engine that would allow simple, single- or multiple-word queries, such as “E-mail Direct,” as well as more complicated queries such as “(e-mail AND direct) NOT registrar.” Furthermore, we required the ability to search for phrases and to perform proximity or relative location searches.

Adam Donahue is ACF’s Information Services Coordinator.
Customizable Interface

The next generation of NYU Web includes several components that can be incorporated into individual departments' own style. NYU's new search engine would need to include this flexibility.

Speed

Our goal is to re-index our database each night. If it takes longer than 24 hours to gather the information, then obviously we’d have trouble meeting this goal. Thus, we needed an engine that is able to quickly crawl NYU Web, retrieving pages until each new link in the nyu.edu domain has been added to the index. Speed is also important to the user; search results should come back quickly.

Accuracy

Speed is great, but not at the cost of accuracy. When you search for “E-mail Direct,” you want to get a link back that points to NYU’s mass e-mail service, not some esoteric page that happens to have the words “e-mail” and “direct” somewhere within.

META Tags

We wanted our search engine to recognize meta information (literally, “information about information”; information describing the content in individual pages) that help the engine conduct more effective searches. Searching for terms labeled as keywords in documents often gives these documents priority in the search results.

Frames and Table Awareness

Older search engines can't read frames-based pages or content enclosed in tables. We wanted a search engine that could handle both frames and tables seamlessly.

Depth of Searches

Several pages on NYU Web are nested many levels deep. The ability to traverse an arbitrary depth down the document tree is necessary.

We quickly ruled out the third-party hosting solution as inadequate for our needs. The inability to tweak the look and feel and the performance of the engine was a key factor in our decision. This still left us with several software packages to install and analyze. After eliminating some on the basis of lack of robustness or features, the choice came down to two: Infoseek Ultraceek Server and Thunderstone Webinator.

Infoseek has a strong reputation in the Internet search engine market. Besides selling search software to large corporations and institutions, Infoseek also runs a successful Internet-wide search engine site geared toward the consumer. The other solution, the cleverly named Webinator from Thunderstone Software, did not have the name recognition of Infoseek. But discussions with Thunderstone’s customers indicated that the product was both robust and fast. And it, too, met our general search engine requirements.

With the search down to two choices, it came time to test-run each one. We installed each of these two packages on the high-end Enterprise 3500 machine that would eventually become NYU Search’s home, and set them loose to index NYU’s pages.

The two packages’ spiders performed remarkably well. (Spiders are specialized programs, also called robots, that crawl the Web in search of new pages and run them through the search database.) Both easily indexed NYU Web’s sites in a matter of hours. Neither package exhibited a real edge over the other.

In terms of searching, we found that both engines performed quickly and with accurate results. There is no real way to quantify the accuracy of searches; it is, by nature, a subjective factor. But our assessment was that, in nearly all cases, both returned what we were looking for on the first page of results. Each engine also incorporated META tag awareness. In the end we chose Webinator because it was more cost-effective.

The New NYU Search

In early November 1998, we officially unveiled the new NYU Search, and have been very impressed with its results. Webinator searches are faster and more accurate than those performed with Netscape Catalog. Additional features such as reverse linkage further enhance the user’s search experience.

NYU webmasters benefit from the new engine’s customizability. Previously, each department could make a custom search page with Catalog, but the results were always returned in a standard Netscape format.

With Webinator’s scripting language, we’ve implemented a scheme that allows individual departmental webmasters at NYU to define a custom look and feel for both their initial search page as well as the various results pages. The end result is a nice mix of functionality and customizability.
Lyris
Next Generation List Server

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Over the past year there has been a significant increase in the use of mailing lists at NYU. E-mail lists are a common tool for class communication. They are used for announcements, assignments, discussions, homework reviews and as a way to share resource material, especially to point to references available on the Web. Student organizations, departments and alumni associations are increasingly using lists as well. There are over 400 lists at NYU with over 150,000 messages being delivered daily.

The increased demand for and use of mailing lists at the University led us to evaluate the current list server software, ListProc, and to search for possible alternatives. We tested a number of alternatives, and based on feedback from testers, we have chosen Lyris to debut during the Spring 1999 semester.

Why Lyris?
Lyris offers significant improvements in user and administrator interface. For users, list discussions are accessible not only through e-mail but also through a web interface. The web interface allows users to read, contribute, search, join and leave mailing lists over the Web. Individuals also have the option of choosing to receive their messages from Lyris mailing lists by regular e-mail, or by accessing and reading them on the Web. This web functionality makes Lyris easy for end users.

For people who choose to receive messages by e-mail, there is an additional option of receiving messages as they are posted, as a daily digest or as an index.

An additional feature that distinguishes Lyris from other list servers such as ListProc, Listserv and Majordomo, is that it can act as a secure, private newsgroup server. This allows e-mail discussions to be available over news browser programs, such as Netscape News, Forte Agent, “rn” or Internet Explorer.

An advantage to reading postings through a news browser is that it is easy to visually follow discussion threads. For this reason, we will be referring to “lists” on Lyris as “forums” as well, for they are more than just e-mail lists.

Another Lyris feature that many faculty members will find useful is the ability to create “parent-child” lists. This can come in handy when teaching several sections of the same course. By creating a parent list, an announcement can be posted simultaneously to all child lists, while still allowing for private class-based discussions on individual child lists.

Administering a Lyris Forum

As anyone who has administered or owned a traditional e-mail list knows, a list is managed by sending e-mail messages containing commands, which are often archaic, to the list server address. While commands can be issued to Lyris by e-mail, the actual administration of a Lyris forum is done most easily with a web interface. A demo of the Lyris list administrator web interface can be seen at forums.nyu.edu/lyris/demo/.

List administrators will find it easy to configure their lists with Lyris. With this new software, they will be able to selectively moderate subscribers, to limit archives by number or days, and to create information footers.
More and more professors at NYU are creating class web pages, which often provide course outlines, online materials, past exams, announcements and more. Lyris’s web interface makes it easy to create a link from a class list to a class web page, and vice versa.

To request the creation of a new list, fill out the online application form at www.nyu.edu/acf/list. With the exception of class lists, all lists must have two owners. Students are required to have a faculty or staff sponsor for their list.

Transition from ListProc to Lyris

Over the spring and summer semesters, we will move lists served by ListProc over to Lyris. We will contact ListProc list owners before any conversion takes place so that they will have ample time to announce the change to their subscribers.

Subscribers will not have to re-subscribe to their lists. This will be taken care of behind the scenes, and all subscribers will receive new welcome messages with instructions on how to access their lists on Lyris.

We realize that this service enhancement may lead to some initial confusion for subscribers to NYU lists. We will assist with the conversion of each list, and we are certain that the enhanced functionality will be appreciated by owners and subscribers alike.

Tips on Using Lyris

Passwords & Security

In most cases, before postings can be read from either the newsgroup or web interface, an e-mail address (username) and password are required. For security reasons, subscribers should create personal “list passwords” for entering their forums. The list password should be different from the password used to access NYU-Internet accounts or other any host at NYU. We do suggest, however, that you use the same personal list password for all the lists to which you are subscribed.

Accessing Lyris Forums

To reach the web interface for a Lyris forum, go to forums.nyu.edu.

From that page, enter the name of the list you seek, or navigate through the menus to find your list.

Once you are confirmed, you can post messages, change usage settings or change subscription information.

To reach the newsgroup interface, go to news://forums.nyu.edu/forum-name, replacing the word “forum-name” with the actual name of the forum.

In Netscape News, you will be prompted to enter a username (e-mail address) and a password. Other newreaders require a static setup, done by entering the name of the news server (forums.nyu.edu), your username (e-mail address) and password.

Using Mail with Lyris Forums

Lyris can also be used liked a traditional mailing list. To contribute to a list or forum, address messages to forum-name@forums.nyu.edu, substituting the name of the forum for “forum-name.”

Address commands to lyris@forums.nyu.edu to change Lyris settings.

More information about using e-mail with Lyris can be found at forums.nyu.edu/lyris/help/E-mailCommands.html.

Accessing Forums from Public Terminals

If you use public terminals to access your forums, be sure to always close the browser application when you have finished. This will prevent the next person who uses that terminal from accessing your forum by simply using the “Back” button. Actually, this is good advice to follow anytime you use the Internet from a public place, regardless of whether or not you just visited a site that required a user name and password.

General Tips

Do not send e-mail in HTML format or send attachments. People who use Pine or other mailers may not be able to read it.

You can use full URLs in your messages. They will appear as normal hypertext links.

If you reply by e-mail to a Lyris forum, make sure to remove any portion of the original message that is not pertinent, such as the footer or other extraneous text.

Take advantage of the threaded nature of the newsgroup interface. Post to an existing thread, or create a new one when the topic has changed.

Carefully read any list FAQs to ensure that your postings are on topic and appropriate.

We would like to extend a special thanks to all the faculty members who graciously agreed to test Lyris with their classes, and who provided us with feedback used in developing this service.
When the World Wide Web as we know it hit the market in 1992, critics were cautiously optimistic about its presence. How would it involve us? What would it do for us? How would it change us? Of course, at that point, nobody cared much. “Online” was not in everybody’s vocabulary and the Internet was essentially version 1 of Prodigy, CompuServe and a new company called AOL. Few thought it would be an important venue.

Now, more than six years later, we realize just how wrong we were. The Web has empowered the individual more than any other medium. Instant access to government databases keep us more informed, powerful commerce options take some of the pressure out of making purchases, and free online subscriptions to newspapers and magazines expose us to new ideas.

Universities were not immune to this incredible online real estate boom. This past fall, New York University announced its new online education venture, with which we will lead the world in making an education easier to obtain. It has been a tremendous period of change since NYU Web’s early beginnings.

NYU Web began in 1995 with 15 pages and many questions about how to organize a major website. HTML, the language of the Web, was primitive. There were no color backgrounds or text, and including graphics was a risky proposition because the page would travel too slowly over people’s 14.4K baud modems.

Since then, those 15 web pages have grown to 60,000 at an average of 55 new pages a day. And that number continues to grow at a tremendous rate as NYU Web remains consistent with the growth trend of the Internet, doubling every six months. Our web sites started with only 3,092 hits in the first month; in December, there were well over thirteen million hits.

Three years after its birth, we have retired the look of the main pages of NYU Web and introduced a fresh, new, clean design. With several years of experience, and after analyzing visitors’ trends, we have built the newest face of NYU Web to be more user-oriented.

Visitors to NYU Web are evenly split between two basic groups: those who are currently affiliated with the University and those who aren’t. More specifically, most visitors are current students, prospective students, past students, faculty and staff members or researchers. We have made the interface easier to learn and more intuitive for each of these groups. To do so, we sifted through thousands of letters to Webmaster to find out where people were having difficulty.

We wanted a fresh perspective on our all-too-familiar format. So we gave sample links to people unfamiliar with the University and had them tell us where they would expect to find the information they were seeking. What resulted were seven main categories, and five smaller new sections.

At a Glance

At a Glance is primarily for prospective students. It provides them with background information about the University, sources of information at the University, and links to related New York City sites.

Drew Hahn is the Associate Web Editor for NYU Web.
Admissions
Admissions is a new link that points people directly to enrollment information for each school. Webmaster mail told us that this information was difficult to find. By grouping it together, we hope to eliminate frustration.

Academics
Academics is a quick listing of all schools, departments, international programs and courses with websites. This information used to be scattered about in many categories on the home page.

Facilities, Student Life and Staff Services
While there is some overlap among Facilities, Student Life and Staff Services, we are listing University-wide facilities primarily on the Facilities page, and those facilities which are specific to just students or staff members on their respective pages. By defining these two groups, we also eliminate the confusion between, for instance, the student part of Albert and the administrative side of Albert.

Alumni
For former students, we added a link for immediate information on alumni services at the University.

Search
We had outgrown our original search engine, so we installed one of the most powerful engines available (see Adam Donahue’s article on page 9). Personal search engines are also available on individual sites within NYU Web to help you find more specific information.

Map
The Maps section will help prospective students and new students become acquainted with NYU’s campus. As the University continues to grow, we will include locations of new University property.

Help/Tips
Based on the questions sent to the NYU Webmaster, we created a new section to answer common questions about finding content on NYU Web and provide tips on navigating through our extensive site.

What’s New and Comments
These pages have been carried over from the old design, but contain updated information.

The new main NYU Web page, like its predecessor, is ADA compliant. By using the text-only version, refreshable braille displays and text-to-speech translators can accurately render the homepage. The text version is also useful for people using a text-based browser or who have a slow connection.

We sincerely hope that you like the new design. Please feel free to provide feedback, either to the author’s e-mail address or in the Comments section. We hope your experience navigating NYU Web is easier, and that you can take pride in the new face of NYU Web.
The general form of the NYSERNet 2000 network is a distributed state-wide GigaPoP made up of an OC-12 ATM (Asynchronous Transfer Method) backbone running at 622 Mbps. The ATM infrastructure consists of Newbridge 36170 ATM switches. Most institutions will be connected to ATM switches with OC-3 (155 Mbps) local loops.

There will be a connection to the vBNS (very high performance Backbone Network Service) in New York City starting at OC-3. There will be another OC-3 link to the new Gemini2000 network, an AUP-free, national network being constructed by IXC. A link to the Abilene network is in the works for some time later in 1999.

In the New York City area, Bell Atlantic has constructed an OC-48 (2.4 Gbps) Sonet (Synchronous Optical Network) Ring to contain all of the OC-3 local loops that will serve the various institutions.

NYU and Columbia University are the first two sites that will be connected. The central GigaPoint for the NYSERNet 2000 network is based at 60 Hudson Street in Manhattan. There will be nine local institutions connected, with links off to the various national networks, and possibly to another regional GigaPop.

In NYU's and Columbia's communication facilities, other Newbridge 36170 ATM switches have been installed to facilitate the initial testing of the various routing and switching strategies to be utilized.

NYU is also home to the first of two network management stations that will be used to command and control the ATM equipment. The NYSERNet 2000 project will be able to test and utilize the latest in software and hardware from Newbridge to implement the QoS (Quality of Service) based NYSERNet 2000 network.

As for the local implementation of the Internet2 connection, NYU has acquired much equipment that will allow us to provide reliable general Internet service, access to the NYSERNet 2000 network, and access to the general Internet2 community.

In order to provide reliable service, we have separate connections to the Internet via a DS-3 (45 Mbps) link to AppliedTheory (a NYSERNet
affiliate) and the new OC-3 connection to NYSERNet 2000. NYU also has connections to ESNet (Energy Sciences Network) sponsored by the U.S. Department of Energy and various information service providers (including Lexis and Bloomberg Information Services).

Each of these connections will have routing information specific to the other institutions connected to that network. The connections to private networks that provide services to the NYU community cannot be advertised to the general Internet, either through the AppliedTheory connection or any of the other connections.

We have a set of routers and switches at the edge of NYU-NET that allow us to arbitrate the various routing and traffic policies of each of the networks we are authorized to use. We are allowed to share the routing information that we will be getting from the AppliedTheory and NYSERNet 2000 connections.

This means that if Columbia is attached to both networks, we will know that we can get to Columbia over both links. This allows us to route data via the best available path.

If an institution such as the Pittsburgh Supercomputer Center is connected to the vBNS, we will know that we can reach it through the NYSERNet 2000 connection, but we will not have any information about reaching it via the general Internet connection from AppliedTheory. The idea is that if we don’t seem to have a path to a place, we can try to send the traffic out some selected default path. In our case, that will be the AppliedTheory connection.

However, if we do have a path to a site, we will first try to utilize that path. This way, if an institution’s connection to the NYSERNet 2000 network is not working for some reason, traffic will still attempt to get to the destination over the general Internet.

On the NYU campus, as we start to test and then utilize the new Internet2 connectivity, we will at first be providing connections to selected research groups that were part of the National Science Foundation grant process, which is providing some of the funding for this new connection.

In order to avoid disrupting the larger NYU community on NYU-NET, we will be utilizing Internet address space that we obtained from NYSERNet several years ago. This address space is routable to both the general Internet and Internet2. The NYSERNet 2000 project has also obtained a small amount of address space that can be used for the same reason.

Only after we are satisfied with the performance of the new connection will we allow the rest of NYU-NET to access Internet2. This way we will have a controlled group of somewhat self-selected users willing to try the new connection.

We will also be testing new software in the routers, switches and end-user machines that will eventually allow users to request and actually get a specific level of service. For example, users could request a file transfer that is rated to get 5 Mbps performance, or a video conference that needs 384 Kbps of video and 48 Kbps of high quality audio.

Over the general Internet, all of the paths are shared with thousands of users, and most of the local loop connections are slow speed (less than 45 Mbps).

The general Internet2 infrastructure is starting up with local loops at OC-3 (155 Mbps), long haul (intra-state and inter-state) at OC-12 (622 Mbps) and in a few cases at OC-48 (2.4 Gbps).

Internet2 also has a much smaller community of users — all of whom at this early stage are researchers at large educational or research institutions and will be willing to do some experimenting in order to get the best possible level of service.

At the extreme local end is the NYU researcher. We expect that the local network our users connect to will be, at the very least, a fully switched Ethernet with links at both 10 and 100 Mbps and a dedicated 10/100 Mbps link back to the NYU-NET campus backbone infrastructure.

We will be looking at a 1000 Mbps (Gigabit) Ethernet in the near future as one of the possible ways to increase the amount of bandwidth available on the campus backbone.
Managing Large Mailing Lists

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There are many places at the University where e-mail is used as the primary form of communication for academic, business and personal purposes. Often long lists of users are compiled to make the business of sending mail easier. At a certain point, however, that long list of users becomes unwieldy and senders look for a better way to maintain their list.

There are several ways to maintain a large list of e-mail addresses. To determine which is best for you, ask yourself the following questions:

- What is the list for, or more precisely, what will the topic of the list be? Is it for business, academic or personal use? Is it for fans of James Joyce or for members of an Advanced Film class?
- Do you want people to be able to subscribe and unsubscribe themselves, or will they be required to be on the list?
- Can anyone send mail to the list, or do you want to control the flow of information to the recipients?
- How often will you be sending mail?
- How often will the recipients list change?

General Rules

The rules for sending mail through a list are the same as for all other mail sent through NYU-NET. You should not send mail to people you do not know; commercial use of your mail account is prohibited; and if someone asks to be removed from a list, you should comply with that request promptly. The only exception to the last rule is in the case of a class or departmental list when subscription is obligatory for a class, degree program or as a requirement of employment.

In posting to a list, remember your netiquette. Only write things that you would say in face to face conversation, avoid flaming and keep to the topic of the list. Generally, you should be more careful about sending mail to large lists than you would be about sending mail to people you already know, since it is harder to guess how they might react to a particular comment. If you are joining an established list or newsgroup, it is often best to lurk in the background for a while, to understand the culture of the group, before posting.

Informal Mailing Lists: The Wrong Way to Do It

The worst way to run a list is to put a long list of addresses in the Cc: portion of the mail header so all the recipients can read all the addresses. This method works fine for a small group of people (fewer than 10) who know each other and share common interests. However, these small groups can get concatenated into large lists of people who have nothing to do with each other. Then any one of the people on the big list can choose to “reply to all,” inflicting the whole list with their bad (or tasteless) jokes, their thoughts or their unfocused rambling. Once this happens, no one member of the list can stop the round of replies and everyone gets annoyed. For information on how to get out of one of these informal lists, see the Summer 1997 Connect HelpLine Q&A (“Help, I’ve Been Spammed!”)

Eudora and Pine Address Books

The most common way that lists are managed is through an e-mail client, such as Eudora or Pine. You should choose this...
To create a list in Eudora, you would select Address Book or Nicknames from the Special menu, then click on the “New” button. You will be asked for a nickname to identify your list; enter it, then click OK. In the address field, enter the names for your list, separating each with a return. When you want to remove a name from the list, simply highlight it and delete it.

In Pine, choose Address Book (or type “a”) from the main menu of Pine, then type a nickname, add any necessary comments, and the list of addresses, again separated by commas or returns.

Once the group nickname is created, you can just type it on the Bcc: (blind carbon copy) line of the header of your message. By using Bcc, the list of names is hidden from the recipients, thus avoiding the “reply to all” problem.

Eudora lists are easy to build and edit, but they present some problems. If they get long, it is difficult to find a particular name to remove from your list. Also, if run properly, the lists are unidirectional. Only the owner has all the names, so there is no chance for the participants to develop a dialog on topics of interest.

**Formal Mailing Lists: Lyris and ListProc**

If you have a list that is for an official or scholarly purpose, and the list of recipients is fairly static, you might choose to have a formal list server. In previous years, ACF has used ListProc software for this purpose, but we are moving over to Lyris, which allows users to interact either by mail or by discussion groups in an online forum (see Alison Kraskey’s article on page 11).

This format can be used by any approved clubs, by classes or programs, for offices or departments, or for scholarly projects that have the sponsorship of a faculty member. The advantages are that the only people who can see the list are the list owners (there are usually at least two), and people can choose to subscribe or unsubscribe at will. Unlike the Eudora lists, Lyris forum subscribers can write to each other, develop discussion threads, and generally feel more like a community because there is a central forum address that they all know. In addition, the list can be moderated, which means that all or a few forum members can be prevented from sending a message to the list without the approval of a monitor. This prevents a few unruly people from taking over a list, preventing others from getting work done.

The other major advantage is that users can subscribe and unsubscribe themselves, even for short periods of time (for example, when they go on vacation). This lessens the work for the list owner, who doesn’t have to search through a list of 100 addresses in Eudora, just to remove one, and results in fewer bounced messages and mail loops.

**E-mail Direct**

The most formal method of developing a list is E-mail Direct, an ACF program designed to meet the need of University offices to reach large demographic slices of the University. It could be used, for example, to send a message to all CAS undergraduates receiving financial aid. Right now, the service is limited to Deans offices sending mail to students in their division. All requests must be channeled through those offices, which approve the content of the message and extract the list of addresses to which the mail is sent. Technically, this is not a “mailing list” in the traditional sense, since each mailing requires separate approval and list extraction. It is not meant for constant back and forth communication, as Lyris is. It is meant for formal announcements or communication on serious University topics.

Because students have not requested the mail that gets sent through E-mail Direct and there is still the perception that e-mail is personal, there could be a stronger negative response than you might get for paper mail. For this reason, there has to be a contact person listed on the From: line of the outgoing message, who will reply to any responses your mailing generates. Be prepared to justify your mailing in neutral and formal terms that respect the concerns of the audience. You might even draft a standard reply ahead of time, which can be modified to fit the responses you will receive. Also, the more mail you send through E-mail Direct, the less likely recipients are to take it seriously and the more likely they will treat it like junk mail.

Whether you are sending mail to a small group of classmates or all CAS English majors, you should be aware of the impact that your mail has. At best, e-mail lists can help to develop a deeper understanding of issues and foster a sense of community among physically separated people. At worst, it can be annoying and intrusive, leaving recipients with the feeling that they are not in control of their own computers. The results are up to you.
Software Upgrades
When Should You Bother?

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In the best of all possible worlds, you would know when a software upgrade would be of most benefit to you. An upgrade could fix a problem or bug that might have been perplexing you and other users of the program. An upgrade might allow the program to run more smoothly in the context of your computer’s hardware or software configuration. An upgrade might even stop your computer from freezing every time you try to run a particular feature of the program.

Sometimes, all you may need to keep your computer happy is an update. Updater programs, often referred to as patches, contain just enough new programming code to correct known problems in a specific software package. A patch is not a completely new version of the software, but rather, a set of incremental changes to the current version. Indeed, these incremental changes can even be tracked by checking the version number of the software. Incorporated updates will typically change the version number of the published software to the right of the decimal point.

Releasing a patch or updater to fix reported problems can help cut down on the customer service complaints that a company has to handle. Indeed, software companies would be considered non-responsive if they didn’t populate their websites with patches and updates as soon as they are available. And by doing so, they can make many such fixes available.

So, go visit your frequently used software company’s home page on the Web, and check for any updater files to download. As long as you are doing so from the software publisher’s home page, you should feel confident that by downloading the file and running it according to the instructions sent along with it, you will be running the most up-to-date version of the software. And the best part is that updater files distributed over the Internet, more often than not, are free of charge.

However, suppose that the present version of the software actually does do what you want it to do. Remember that sometimes a software upgrade will need more memory or a faster processor, and an unnecessary upgrade can thus start a snowball of other additions and purchases.

Many fledgling cybernauts still love to use older versions of some software. The fact that others are using the same software in versions three or four generations more advanced is of no consequence to them. They figure that it does what they want it to do, so of course it can continue to do so.

Their instincts are, in many ways, sound. They choose not to engage in the technological equivalent of “keeping up with the Joneses,” and would rather upgrade their hardware and software on their own schedule. Some folks buy a new car every year; the rest of us make sure to get our old car serviced regularly. One year we might install a CD player, if the car didn’t come with one, for more music options while driving.

Computers are really no different. You need to make sure to maintain the hardware and the software. Some people might buy a new computer...
every year; others just might buy more memory or a faster modem or add a CD player to stretch out the usable life span of the computer they already own.

Similarly, the updater programs that are easily downloadable from the Internet can stretch the usable life span of a software program. Obtaining updaters from the Web is one example of how you can actually keep up with the rate of technological change present in today's marketplace.

Now, you don't have to wait until a brand new version of the entire software package comes out on the market. Instead, with the click of a download button, you can fix some feature of your software, or even introduce just that new feature that you really needed (or perhaps never even knew you needed).

What should I watch out for?

Make sure that you do your homework and research the impact of the updater prior to installing it. Unfortunately, sometimes fixing one bug can disable a different feature that you might deem too valuable to give up. Remember that sometimes, like peeling an onion, fixing one problem might simply reveal another one underneath. It is always important to back up your files before running a patch. This way, if something unexpected happens, you can return to the previous version.

How can I find out if updates are available for software that I use?

Probably the easiest way to find out if an update is available is to visit the software publisher’s website. Look around the “What’s New” section, the “Download” or “Updates” links, and the online support pages. If you’re a registered user of the software, you may be contacted directly about updates. Depending on how you registered, you might hear by snail-mail or e-mail.

Check out the online version of your favorite computer magazine to read and research more about updates. You may also want to visit some websites that track trends in software releases. If you are a Mac user, try www.versiontracker.com, and if you are a PC user, try www.winfiles.com. There are also some local resources here at NYU that are worth investigating. For instance, you may read about updates in Connect-Direct, ACF’s e-mail newsletter, or you may find links to popular updates at www.nyu.edu/acf/softwaretogo.html.

Another happy cybernaut tooling down the info highway...
### Spring '99 Schedule

#### Alphabetical Listing

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<td>World Wide Web (Intro)</td>
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<td>World Wide Web Browsing &amp; Publishing Series</td>
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### About ACF's Spring Classes and Talks

This semester we have added several exciting talks — on digital copyright and on applications of statistics, databases, and spreadsheets.

All members of the NYU community are welcome at ACF’s classes, workshops and talks. There is no charge for any of the ACF classes, but participants should have a valid NYU Card.

**Seating capacity**: To avoid overcrowding, we have listed maximum seating capacities for each class. We recommend that you arrive a few minutes early in order to secure a spot.

**Classes by arrangement**: Faculty members may arrange special classes for a specific course or research group. These do not necessarily have to be given at an ACF site. For classes in statistics, call Frank LoPresti (998-3398); for other applications, call the ACF Innovation Center (998-3044).

**Additional information**: A list of ACF locations and phone numbers, and pointers to further information about ACF resources, can be found on page C-7.

— Vincent Doogan  
Associate Director, ACF  
vincent.doogan@nyu.edu
Computer Labs

ACF's four large, modern computer labs offer high-end, multimedia-equipped Macintosh and Windows systems, along with laser printers, CD-ROM drives, and related equipment and a wide variety of up-to-date software. High-speed connections to World Wide Web and Internet resources can be made from the labs' 350-plus computers.

Students in NYU degree or diploma programs may enter the labs during designated hours or, if they have ACF lab access accounts, during all their hours of operation. There's no charge to use the labs.

- For labs' locations, hours, & rules of access, turn to page C-8.

Colloquia and Special Events

ACF produces an NYU series of colloquia focusing on innovative uses of computers and communications, and featuring guest speakers from industry, research, international networking organizations, and other universities. Join us, too, for other ACF special events, such as our humanities computing seminars.

- For ACF announcements, check www.nyu.edu/acf/nyu-events/.

E-mail and Internet Resources

NYU-Internet Accounts give you e-mail, your own personal web page, and easy-to-use access to the World Wide Web, network news, and other Internet services.

If you are an NYU student in a degree or diploma program, one of these ACF accounts is waiting for you. To register, first make sure you have both your NYU ID card with your NetID imprinted on it and your NYU PIN (the 4-digit number you use with TorchTone, 212-995-4747). Next, start up Netscape or Internet Explorer on any NYU-networked computer — for example in an ACF computer lab or an NYU residence hall. Finally, connect to www.nyu.edu/acf/start/ and follow the online instructions.

From your home or when you’re traveling, use your account’s NYU-NET DIAL service to make fast (PPP) phone-and-modem connections to your e-mail and other Internet services. Or use your account from on-campus labs and walk-up NYU-Internet stations; from laptop plug-in ports at Bobst Library; and — if you live in one of the ten NYU residence halls that are wired for ResNet — from your own high-speed in-room connection.

NYU ResNet, for In-Room Connections

If you have an NYU-Internet Account and are a resident of the NYU residence halls, you can register your computer for NYU’s ResNet service.

ResNet provides direct in-room connections to your e-mail and other Internet services. ResNet’s Ethernet connections provide a very high-speed alternative to the telephone-and-modem links available in all student rooms. Your computer will need to have a 10baseT Ethernet card or connector installed in it, and meet some other minimum configuration requirements.

NYU ResNet is a joint project of ACF and NYU Housing and Residence Life. To date, students’ rooms in the Alumni, Brittany, Carlyle, East 7th Street, Goddard, Hayden, Rubin, Third North, University Hall-West, and Weinstein residence halls are wired for ResNet service, with more halls to be added to the ResNet roster in the fall ’99 semester.

For more on ResNet, pick up the ResNet Quick Start pamphlet at your residence hall, or link to www.nyu.edu/acf/resnet/.

Advanced Student Resources

ACF also has special resources for advanced students in the arts, humanities, the physical and social sciences, and in educational uses of multimedia. Pick up an ACF brochure or visit us on the Web for more!
Listing by Date

Friday, January 22
Choosing Your Computer C-3
NYU ResNet C-4

Tuesday, January 26
Using a Mac at an ACF Lab C-4
Using a PC at an ACF Lab C-4

Wednesday, January 27
Internet & E-mail C-4
Intro to SPSS C-6
Using a Mac at an ACF Lab C-4
Using a PC at an ACF Lab C-4

Thursday, January 28
Using a Mac at an ACF Lab C-4
Using a PC at an ACF Lab C-4

Friday, January 29
Understanding Your Computer (Mac) C-3

Saturday, January 30
Using a Mac at an ACF Lab C-4
Using a PC at an ACF Lab C-4

Wednesday, February 3
Intermediate SPSS C-6
Internet & E-mail C-4
NYU-NET Software (PC) C-4
Using a Mac at an ACF Lab C-4
Using a PC at an ACF Lab C-4

Thursday, February 4
Intro to SAS C-6

Friday, February 5
Intro to the World Wide Web C-5

Wednesday, February 10
Intro to SPSS C-6
Virus Protection & Backup C-4

Thursday, February 11
Intermediate SAS C-6

Friday, February 12
Choosing Your Computer C-3
Image Scanning (Mac) C-3
Intro to Scientific Computing & Visualization C-4

Wednesday, February 17
Intermediate SPSS C-6
NYU-NET Software (Mac) C-4

Friday, February 19
Understanding Your Computer (PC) C-3

Wednesday, February 24
Internet & E-mail C-4
Up- & Downloading (PC) C-4

Friday, February 26
Intro to HTML C-5

Wednesday, March 3
NYU-NET Software (PC) C-4

Thursday, March 4
Advanced SAS C-6

Wednesday, March 10
Internet & E-mail C-4
Qualitative Analysis Tools C-6
Up- & Downloading (Mac) C-4

Thursday, March 11
SAS GMAP C-6

Friday, March 12
Powerpoint C-5

Wednesday, March 24
Intro to GIS C-6
NYU-NET Software (Mac) C-4

Friday, March 26
Digital Copyright C-5

Wednesday, March 31
SUDAAN C-6

Friday, April 2
Image Scanning (Mac) C-5

Monday, April 5
Intro to Authoring Tools C-5

Wednesday, April 7
NYU-NET Software (PC) C-4

Wednesday, April 14
SPSS and Access C-6

Wednesday, April 21
NYU-NET Software (Mac) C-3

And be sure to watch for the NYU Colloquia and Other Special Events
www.nyu.edu/acf/nyu-events/
They bring insiders in such fields as computers, communications, and multimedia to share their insights and demonstrate new applications of particular interest to the NYU community.

ACF Classes and Talks Spring 1999 C-3
Using a Mac at an ACF Lab
A hands-on introduction to the Macintosh computer. Topics include the ergonomics of proper computer use; working with the graphical user interface; understanding the file system; choosing printers, file servers and other devices; and launching software applications. ACF staff.
Education Building, 2nd floor
Seating for 15; first come, first served; hands-on class.
Tuesday 11:00-12:00
January 26
Thursday 7:00-8:00
January 28
Saturday 11:00-12:00
January 30
3rd Ave. North Res. Hall, level C-3
Seating for 15; first come, first served; hands-on class.

Wednesday 12:00-1:30
February 10

Using a PC at an ACF Lab
A hands-on introduction to PCs running Windows. Topics include the ergonomics of proper computer use, working with Windows in the labs, understanding the file system, choosing printers and file servers, launching software applications. ACF staff.
Tisch Hall, room LC8
Seating for 15; first come, first served; hands-on class.
Saturday 11:00-12:00
January 30
14 Washington Place, basement
Seating for 15; first come, first served; hands-on class.
Tuesday 1:00-2:00
January 26
Thursday 7:00-8:00
January 28
3rd Ave. North Res. Hall, level C-3
Seating for 15; first come, first served; hands-on class.

Wednesdays 11:00-12:00
January 27
February 3

Protecting Your Files: Anti-Virus & Backup Strategies (Mac and PC)
This talk will focus on strategies to protect class work, research project data and other documents. Viruses will be explained and use of virus protection will be demonstrated. Various backup strategies will be outlined. ACF staff.
Warren Weaver Hall, room 313
Seating for 30; first come, first served; talk/demonstration.

Introduction to the Internet and Your ACF E-Mail Account (NYU-Internet Account, Unix)
This talk-demonstration introduces new and prospective holders of NYU-Internet Accounts to the many ways connections can be made to NYU-NET from on-campus locations (e.g., office, computer lab, NYU ResNet or Bobst Library connections) and via off-campus methods (e.g., NYU DIAL, commercial ISP or NYU ICE). Popular Internet services available through this account, such as e-mail, WWW, newsgroups, connecting to other computers and file transfer, will be explained and demonstrated. Lisa Barnett.
Warren Weaver Hall, room 313
Seating for 30; first come, first served; talk.

C-4 Spring 1999 ACF Classes and Talks

NYU-NET Software (DIAL, NYU ResNet, and Office Connections)
This talk is intended for those who have an NYU-NET office connection or NYU ResNet connection, or who use NYU DIAL from home or while traveling. Four popular Internet applications for use with these connections will be explained and demonstrated. The software to be discussed includes Netscape, Eudora and Fetch/WS-FTP. Lisa Barnett.
Warren Weaver Hall, room 313
Seating for 30; first come, first served; talk.

1. For PC Users
   Wednesdays 2:00-3:30
   February 3
   March 3
   April 7

2. For Mac Users
   Wednesdays 2:00-3:30
   February 17
   March 24
   April 21

Uploading & Downloading
This talk will introduce the concepts of moving files between computers. The file transfer protocol and the Kermit protocol will be discussed.
Specifically, tools for uploading and downloading files from a desktop computer to the NYU-Internet system will be demonstrated, including WS-FTP, Kermit and HyperTerminal for PCs, and Fetch and MacKermit for Macs. ACF Staff. Warren Weaver Hall, room 313  
Seating for 30; first come, first served; talk.

1. For PC Users
   Wednesday  2:00-3:30 
   February 24

2. For Mac Users
   Wednesday  2:00-3:30 
   March 10

World Wide Web Browsing and Publishing  
www.nyu.edu/webguide/  
The World Wide Web is a hypertext interface system for publishing documents containing text, sounds and images. These documents are browsed with software like Netscape and Internet Explorer. Hypertext Markup Language (HTML) is the mechanism for preparing home pages and other Web creations. Vincent Doogan and Jeffrey Lane.

1. Introduction to the World Wide Web  
Internet Explorer and Netscape are programs that allow you to browse World Wide Web servers — repositories of digital images, sounds and text. The evolution of these easy-to-use browsing tools has made it possible for even novice computer users to locate desired information resources from across the Internet. This talk will feature a demonstration and explanations of basic concepts and commands. Warren Weaver Hall, room 313  
Seating for 30; first come, first served; talk.  
Friday  2:00-3:30 
March 26

2. Introduction to HTML  
Beginning with the basics of what an HTML file looks like, the speaker will explain the structure of a document and its HTML elements. Sample pages will be analyzed and constructed. Topics will include tags, links, URLs and embedded graphics. Other concepts such as image maps, frames, CGI, Java and plugins will be explained. Warren Weaver Hall, room 313  
Seating for 30; first come, first served; talk.  
Friday  2:00-3:30 
February 26

Digital Copyright  
www.nyu.edu/webguide/  
With the growth of the World Wide Web, copyright-protected material is now more accessible than ever. This class will investigate appropriate uses of original material on web sites in the NYU domain. Our speakers will also discuss guidelines on how you can properly incorporate the works of others in your web pages. Jane DelFavero and Joan Matelli. Warren Weaver Hall, room 313  
Seating for 30; first come, first served; talk.  
Friday  2:00-3:30 
March 26

Multimedia  
www.nyu.edu/acf/teach-learn/  
Introduction to Authoring Tools  
A survey of four software applications for integrating multimedia in web-based and CD-ROM-based presentations. These will include: HTML, Flash, Director and Authorware. Vincent Doogan. Warren Weaver Hall, room 313  
Seating for 30; first come, first served; talk.  
Friday  2:00-3:30 
March 12

Image Scanning (Mac)  
A focused class in the use of a flatbed scanner to digitize photographs and artwork. Basic knowledge of the Macintosh is required. ACF Staff. Education Building, 2nd floor  
Seating for 15; first come, first served; hands-on class.  
Fridays  1:00-2:30 
February 12  
April 2

Powerpoint (Mac, Windows)  
Powerpoint presentation software is platform-independent, part of the Microsoft Office suite. This demonstration and workshop will explain the main features of Powerpoint and how best to use it for lectures or other public-speaking activities. Discussions will include using text and graphics, slide transitions, and options for displaying or distributing a completed presentation. Jeffrey Lane. Warren Weaver Hall, room 313  
Seating for 30; first come, first served; talk.  
Friday  2:00-3:30 
March 12

World Wide Web Publishing  
See entry under Internet and NYU-NET Services.

ACF Classes and Talks  Spring 1999  C-5
Scientific Computing and Visualization

www.nyu.edu/acf/science/

Introduction to Scientific Computing & Visualization

An overview of local and remote computing and visualization resources. Presentation will include available software, workstations, color printing and videographics devices. Adel Hanna.
Warren Weaver Hall, room 313
Seating for 30; first come, first served; talk.

Friday 2:00-3:30
February 12

Geographic Information Systems

www.nyu.edu/acf/socsci/

Introduction to GIS Packages at ACF (Unix, Windows)

A discussion describing and comparing the four GIS (geographic information systems) packages available at ACF. These are ArcInfo, MapInfo, Atlas GIS and GRASS. Frank LoPresti.
Warren Weaver Hall, room 313
Seating for 30; first come, first served; talk.

Wednesday 6:00-7:30
March 24

Statistics, Databases and Spreadsheets

www.nyu.edu/acf/socsci/

SAS (Windows, Unix)
The series will progress from the basic description and operation of this statistical package to advanced concepts and usage. Robert Yaffee.
Warren Weaver Hall, room 313
Seating for 30; first come, first served; talk.

1. Introduction to SAS
   Thursday 6:00-7:30
   February 4

2. Intermediate SAS
   Thursday 6:00-7:30
   February 11

3. Advanced SAS
   Thursday 6:00-7:30
   March 4

4. SAS GMAP
   This graphic procedure produces bar chart maps and other graphical maps from simple data sets with geographic identifiers. This session’s demonstration of SAS GMAP will use a method requiring no additional knowledge of SAS. Frank LoPresti.
   Thursday 6:00-7:30
   March 11

SPSS for Windows (Windows, Unix)

SPSS (Statistical Package for the Social Sciences) is a comprehensive, integrated system for statistical data analysis. These presentations will use either the Windows or the newer Unix version, but the programming concepts are applicable to all versions of SPSS. Frank LoPresti.
Warren Weaver Hall, room 313
Seating for 30; first come, first served; talk.

1. Introduction to SPSS
   Data input, transformations of variables, creation of “system files,” and other manipulations of data will be discussed.
   Wednesday 6:00-7:30
   March 31

2. Intermediate Topics
   Wednesday 4:00-5:30
   February 3
   Wednesday 6:00-7:30
   February 17

3. Special Topic: Using Access with SPSS
   Wednesday 6:00-7:30
   April 14

Qualitative Analysis Tools (QSR NUD*IST and TextSmart)

This talk will introduce qualitative data analysis and survey the software tools currently available. The talk will include a demonstration of NUD*IST (Non-numerical Unstructured Data Indexing, Searching and Theorizing) software from QSR, and TextSmart from SPSS. Frank LoPresti.
Warren Weaver Hall, room 313
Seating for 30; first come, first served; talk.

Wednesday 6:00-7:30
March 10

SUDAAN (Windows)

Survey Data Analysis software (SUDAAN) adjusts sampling variances for stratification, clustering and replication so as to permit accurate statistical analysis with complex samples. Researchers will learn the basic theory and programming of SUDAAN with SAS, SPSS and standalone files. Robert Yaffee.
Warren Weaver Hall, room 313
Seating for 30; first come, first served; talk.

Wednesday 6:00-7:30
March 31
Important Dates for Users of ACF Services

(For updates, please check www.nyu.edu/acf/nyu-events/.)

Jan. 4 — Fall '98 Class Accounts expire.
Jan. 18 — Martin Luther King, Jr. Day *
Jan. 19 — Spring '99 semester begins; ACF labs’ regular hours begin.**
Feb. 15 — Presidents' Day.*
Mar. 15 - 20 — University’s spring recess**
Mar. 22 - Apr. 23 — Instructors apply for Summer '99 Class Accounts.
Apr. 1 - May 28 — Instructors apply for Fall '99 Class Accounts.
May 3 - May 14 — Students expecting incompletes in courses associated with Class Accounts should apply for account extensions. Instructor’s signature required.
May 3 — Last day of classes.
May 4 - 28 — Students with Class Accounts on ACF UNIX systems should store file they wish to keep after their accounts expire.
May 5 - 12 — Spring semester final exams.
May 13 — Commencement; spring '99 semester ends. ACF labs’ summer hours begin.**
May 17 — First summer session begins.
May 31 — Memorial Day.*
June 1 — Spring '99 Class Accounts expire.

*NYU holiday: Labs & offices closed.
**Please check at labs or on NYU Web for updates on ACF hours.

Class Locations
www.nyu.edu/acf/classes/

The following are the street addresses of the locations referred to in the course descriptions.
Warren Weaver Hall, 251 Mercer Street
14 Washington Place, lower level
Education Building, 35 West 4th Street, 2nd floor
Third Avenue North Residence Hall, 75 Third Avenue, C-3
Tisch Hall, 40 W. 4th Street, lower concourse

HelpCenter
www.nyu.edu/acf/help/

251 Mercer St., 2nd floor 998-3333
Troubleshooting; software distribution; information about ACF services and academic support.

Accounts Office
www.nyu.edu/acf/accounts/

251 Mercer St., 3rd floor 998-3035
Faculty and staff account applications and information: individual, coursework (class), and NYU-Internet accounts.

Innovation Center
www.nyu.edu/acf/ic/

251 Mercer St., 2nd floor 998-3044
Discipline-oriented resources and services for faculty and advanced students; instructional computing support; new and emerging technologies.

Student Computer Labs
www.nyu.edu/acf/labs/

14 Washington Place 998-3457
Multimedia Lab (Education Building) 998-3421
3rd Avenue North Residence Hall 998-3500
Tisch Hall 998-3409
Student NYU-Internet services; computer and Internet access. (See ACF flyers and above Web address for hours and rules of access.)

Publications
www.nyu.edu/acf/pubs/

Pamphlets, flyers, brochures and the magazine Connect for users of NYU computer and network services. Printed copies are available at the HelpCenter and labs; online editions are at the above Web address.

News and Announcements
www.nyu.edu/acf/nyu-events/

Updates on hours and services; special events and other notices of interest.
ACF Computer Labs

Rules of access • Hours of operation • Locations

Holders of ACF lab access accounts have priority use of the equipment in the labs during all hours of operation.

Without a lab access account, NYU faculty, staff and students in degree or diploma programs may use available equipment at the Third Avenue lab during all of its hours, and at the other three labs on weekdays until noon and after 8 pm, and during all weekend hours.

Lab access accounts include coursework accounts (obtained by instructors for an entire class) and individual accounts (for students working on department/faculty-sponsored projects). To apply, contact ACF's Accounts Office at 998-3035.

Hours of operation:

Multimedia Lab, 35 West 4th Street, 2nd floor (Macintosh)
- Sunday, noon - 1:30 a.m.
- Monday - Friday, 8:30 a.m. - 11:30 p.m.
- Saturday, 8:30 a.m. - 5:30 p.m.

14 Washington Place, lower level (Windows95)
- Monday - Friday, 8:30 a.m. - 11:30 p.m.
- Saturday, 8:30 a.m. - 5:30 p.m.

Tisch Hall, 40 West 4th Street, Room LC-8 (Windows95)
- Sunday, noon - 1:30 am
- Monday - Tuesday, 8:30 am - 1:30 am
- Wednesday - Friday, 8:30 am - 11:30 pm
- Saturday, 8:30 am - 5:30 pm

Additional overnight hours at the Tisch Hall lab begin prior to midterms and are extended to six nights a week just prior to finals.

Third Avenue North Residence Hall Lab, 75 Third Avenue, C3 (Macintosh, Windows 3.1, & Windows95)
- Sunday - Thursday, 10:30 a.m. - 1:30 a.m.
- Friday - Saturday, 10:30 a.m. - 5:30 p.m.
- Sunday, 10:30 a.m. - 1:30 a.m.

Please check www.nyu.edu/acf/nyu-events/ periodically for ACF announcements of special holiday hours and other updates and additions to our labs' schedules.

ACF Locations

1. Warren Weaver Hall, 251 Mercer Street
   Administrative offices, HelpCenter, Innovation Center.
2. Tisch Hall Lab,
   40 West 4th Street, LC-8, lower concourse
3. 14 Washington Place Lab,
   lower level
4. Multimedia Lab (Education Building),
   35 West 4th Street, 2nd floor
5. Third Avenue North Residence Hall Lab,
   75 Third Avenue, C3

★ NYU-Internet stations: Bobst Library, Education Building, 48 Cooper Square, Kimball Commons, Loeb Student Center, Main Building, Pless Hall, Ehrenkranz School of Social Work, Shimkin Hall, the Study Center at 25 West 4th Street, and the Tisch School of the Arts Commons. (Also, not shown on the map, the Midtown Center and the School of Dentistry.)
Copyright Implications
Using Images in Educational Collections

Jenni Rodda
jenni.rodda@nyu.edu

Copyright affects all of us — those of us who work with text, images, film, video or original works of art, and those who preserve and make available such works in libraries and archives for study and research. Librarians and archivists have a responsibility, both to their patrons and to the artists, authors and creators whose works they preserve, to keep current with how copyright regulations should be applied in educational settings.

Copyright law, as anyone who has tried to navigate fair use criteria will tell you, often seems like the rock upon which the boat of educational applications is constantly being thrown. The waters around are murkier than ever as publishers, lawyers, legislators, artists, students, librarians and archivists try to make way, legally, from the creation of a work of art to its reasonable (and even profitable) dissemination.

Jenni Rodda is Curator of the Visual Resources Collections at NYU's Institute of Fine Arts.

Visual Resources Collections at the IFA

The Visual Resources Collections at the Institute of Fine Art is just one of the University's many image repositories, and the kinds of copyright questions often raised there are typical examples. These questions are peculiar to the educational use of images, and have grown more pressing as that use is transformed through the application of digital technologies.

The Institute of Fine Arts, one of the most prestigious programs in graduate art history in the country, is home to a large and diverse image collection, assembled in support of the study of art history, architectural history and archaeology.

The Visual Resources Collections, comprised of about 2.5 million images in almost every photographic format practiced over the last century, are used by students, faculty, museum curators, picture researchers and scholars from around the world to facilitate classroom presentation, lecture and dissertation illustration, and high-level research. Many photographs of the same objects or archaeological sites are housed at the Institute, allowing scholars to see how particular objects age or excavations progress, as well as listing sources of published information on those objects or sites.

The definition of "visual resources" includes, at least at the Institute, all media and services needed for presentation, illustration and research. The staff must maintain several dozen projectors of different kinds and formats (some of which are at least 40 years old); preserve an image collection that includes glass-plate negatives, mounted and unmounted black and white prints, lantern slides, 35mm slides, negatives, postcards, clippings, transparencies and digital image files.

We also provide service and expertise in all formats and all media, including how to find and classify every image in the collections. Students are taught how to use cameras and projectors, how to use images in presentations, and how to perform visual documentation research. The staff answers questions about image access and use from scholars around the world, via telephone, fax, traditional and electronic mail. We maintain a small website, with which we hope one day to connect our patrons to our col-
lections in a way that eliminates a researcher’s need to be physically present in our offices to consult our files.

Our collection is still operated completely manually — there is no card catalogue, no authority file, no shelf list or networked database.

Those of us who work there carry large parts of the collections around in our heads, because that happens to be the most efficient (and cheapest) storage medium available. We are slowly putting our records into a database, but it will be many years before that database is more than an experiment. At the moment, we have about 500 images in a database running on one non-networked computer, and many of our documents are word-processed, but not in databases. (For more information on this database, please see “The Icon Project” in the Spring 1998 issue of Connect.)

None of our collections are fully online, and therefore none are accessible beyond our offices. This past semester, the Visual Resources Collections mounted its first course-related image reserve online, as a section of the Collections website. On the advice of University counsel, that website is password-protected, and will be removed at the end of the semester, keeping it closely paired to the course work it supports.

The most important part of our collection, or at least the part that is the most heavily trafficked, is the slide library. The Visual Resources staff maintains a collection of approximately 150,000 lantern slides and about 650,000 35mm slides, to which roughly 25,000 new slides are added every year. Those 25,000 new images are obtained, on demand, for direct, immediate curricular support. In other words, we are charged with providing our faculty with the images they need for teaching purposes, on a day-by-day and course-by-course basis. We circulate another 45,000 or so images annually from the standing collections; over ten years, more than half a million images have been used from our collections.

Image Sources and Copywork

Images come from any number of sources. We might buy them from commercial services that have themselves contracted with museums and other content-holders to make images available for purchase, to the profit both of the content-holder and of the vendor. Or we might be the recipient of a gift of images from a retiring faculty member or grateful amateur.

We also make images, either directly from the works of art hanging in museums and galleries, or as copywork, shooting from published image sources like books and magazines. Numerically, most of our new images come from copywork.

Copywork entails making a photograph of a photograph or bookplate. Copywork permits a faculty member to lecture from the most recent scholarship, and to discuss images that all students can view simultaneously, even if publishers or content-holders do not themselves provide slides to accompany their texts. Copywork, however, adds a layer of depth to the search for exactly who holds copyright to a particular image.

Many Layers of Copyright

The concept of copyright layering attempts to explain who holds copyright to which versions of a particular image. As an example, let’s discuss one of the most famous paintings in the world, Leonardo da Vinci’s “Mona Lisa,” which hangs in the Louvre in Paris. For clarity, let’s also assume that Leonardo was subject to current U.S. copyright law. While he was alive, Leonardo, as the creator of this painting, would also have owned its copyright; the copyright would have passed to his heirs upon his death, and remained enforceable for some years thereafter.

However, since Leonardo has been gone for more than 300 years, the image of the “Mona Lisa” has passed into the public domain — assuming, of course, that the subject of the painting is also dead, since each of us controls the use of our own likeness. This can be a particular problem for film makers and video artists, since any recognizable person must release permission to be reproduced before the film can be exhibited. The exceptions to this are, of course, those people, such as Bill Clinton, whose images are newsworthy and therefore in the public domain.

Then there’s the complicated concept of individual privacy. Privacy laws vary from state to state, so check local laws to make sure you aren’t infringing.

In fact, “Mona Lisa” is in the public domain, and therefore can be used in any way that anyone who sees her might wish.
However, the images of Mona most familiar to us are not the actual “Mona Lisa” — we see a reproduction of “Mona Lisa.” We are, therefore, not looking just at the work of the painter, but also at the work of the photographer who used technical knowledge and creativity to make a good photograph of Mona. We may also be looking at the work of the publishers, writers and editors who authored the book in which that photographer’s work is printed.

Then there is the photographer — the copyphotographer, to differentiate — who made the slide from the book in which this image appears. All told, this one image may have several copyright claims (or layers) associated with it: the subject, the artist, the photographer who made the first photograph, the publisher who printed it, and the copyphotographer who reproduced it. Just to make things more complicated, it is also possible for artists to sell one of their creations independently of and separately from its copyright. In other words, the Louvre might own Mona, but Leonardo might still hold copyright to her (were he still alive).

**Appropriated Works, New Copyrights**

Because Mona is, indeed, in the public domain, artists and educators should be able to use her image without worrying about copyright, at least not about that of the artist who created the original object. Mona does, therefore, appear in many guises. She has good hair days and bad hair days; she gets flattened, twisted, fed and taken to the dentist; she is scrolling on the cover of this magazine. She even graces thousands of kitchen galleries in the form of a refrigerator magnet that looks suspiciously like the original painting.

The greeting cards, tee-shirts, advertisements and objets d’art have one thing in common. All are derivative works; that is, they are derived from something else. A derivative work is an adaptation of an existing work, and adds yet another layer to Mona’s copyright — belonging to the creator of that second-generation object. The second-generation creator effectively starts the layering process all over again, although he should trace the copyright holder (if there is one) for every creation of someone else’s that he might wish to use before incorporating it into a derivative work.

**The Fair Use Muddle**

Educators have always argued, and with great success,
that copyright should essentially be waived when texts and images are used for educational purposes. These are the "fair use" clauses, which can be so confusing for everyone on both sides of copyright.

Fair use is better and more clearly understood if its interpretation is grounded in a firm understanding of copyright. In its simplest definition, copyright is law that acknowledges a creator's right to copy — and by inference, to profit from — his own work.

Copyright permits a creator to control the audience and use of his creation, and to benefit, usually financially, from its distribution or publication. Imagine Leonardo being able to collect a fee every time Mona appeared in a derivative work. The areas of copyright that deal with distribution and publication are those that make the most trouble when considering new technology applications.

On the surface, copyright is reasonable and sensible. Who would deny that artists and authors deserve to control and profit from their work? With the explosions of new technologies, however, what constitutes publication and distribution must be redefined. For example, publication carries with it the inference of the creation of a physical object. Books and postcards are published. But what about websites? Are they publications?

When the image in question no longer exists as a concrete thing, but has been translated into an electronic process, who holds the copyright? The artist who made the original work, or the software developer who wrote the scanning and capture programs, who certainly applied his creativity to the original image? Is the scan of the original therefore a derivative work? Or do digital records constitute a whole new category for copyright law to consider?

The definition of distribution in the digital environment is equally difficult to clarify. A website, by itself, distributes no concrete objects. But it might enable browsers using literally millions of other computers to view the process that translates the original image into what you see on your home screen.

How can audiences be limited, or distribution controlled, in the freewheeling digital environment? How can an artist or author keep his work from being distorted or distributed without his consent, for someone else's profit? And how do educators facilitate research and preservation without jeopardizing either the creator's rights or the needs of scholars and students?

A Balancing Act

So where are librarians and archivists in the process of copyright interpretation and application? In a way, we are stuck in the middle, caught between creators, who want control over their own work; vendors and publishers, who want to turn a profit through publication and distribution; and society, which needs the free exchange of intellectual property to expand and develop.

Legislative changes are probably some years away, and scholarly discussion does little to solve the practical questions raised daily about copyright, especially as it applies to images and their use on the Web.

Do the Right Thing

Here are three simple and easy-to-remember pieces of advice for anyone confronted by copyright questions now, as we wait hopefully for new legislation to clarify it all.

Legal Aid

Ask a lawyer, preferably one who specializes in copyrights and intellectual property. Do not confuse a site license, which is a contract, with copyright, which is federally mandated legislation.

Just Say No

If an application seems inappropriate, don't permit it.

Get it in Writing

Ask for written proof of permission. Should questions then arise, there will be a paper trail that proves a good-faith effort was made to locate an appropriate copyright holder and adhere to the regulations as they are currently written.

Until new legislation is complete, we are forced to apply old laws to new situations. We must stay well-informed, and must make our thoughts about the process known to the professional and legislative organizations grappling with these issues. As educators, we have a responsibility to constituents on both sides of copyright issues to do so.
Presidential Scandals and Job Approval
Impact Analysis with SAS

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Social scientists frequently analyze the impact of events on a series of observations. Whether researchers are policy analysts, political scientists, economists, sociologists or engineers, they may wish to assess the effect of a discrete event or intervention on some measure of a process. Policy analysts might wish to study the impact of seat belt legislation or air bag legislation on the number of highway fatalities. Environmental scientists might wish to assess the effect of pollution control legislation on air and water quality. Research scientists may wish to understand the effect of Ritalin on the perceptual speed of a particular patient.

Political analysts need to assess the impact of a scandal on a president. Presidents depend on electoral support for continuance in office, until they have reached their last permitted term. A political crisis — with its sudden appearance, great threat and limited time for response — presents a challenge to the political efficacy and public image of the President.

His success in responding to the threat to his administration can be measured by several operational indicators. Among the foremost is the extent to which the public approves of how he’s doing his job. Another is the public impression of the President’s political opposition. Is the political opposition poisoning the atmosphere with prejudicial leaks from unspecified sources to predispose the public and press toward a presumption of guilt, and if so, how frequently?

Another indicator might be how many congressmen on the House Judiciary Committee will support him in an impeachment vote. How many congressmen will support him in a general House vote on the subject? How many senators will support him in a test of trial by the Senate? Another measure may be an overall assessment of his record prior to the eruption of the scandal. Another is how accurately and fairly the press reports the situation.

The Watergate scandal is one of the greatest political scandals in American political history. Although a proper analysis requires that each of many dimensions be analyzed, limitations of time and space force us to concentrate on only one of them here. Watergate, as we now know from the latest release of the Nixon White House Tapes, stemmed from the schemes, plans and covert operations of President Richard Nixon and select members of his staff. From these tapes we discover what Golda Meier observed, “As President Nixon says, presidents can do almost anything, and President Nixon has done many things that nobody would have thought of doing.”

For purposes of illustration, we will focus on the assessment of Gallup Poll presidential job approval ratings. The question asked was, “Do you approve of the way the President is handling his job?” The answer categories are 1) Approve 2) Disapprove 3) No opinion. The percentage of the public approving is the measure under study. Data for this analysis have been culled from the Gallup Poll website at www.gallup.com/poltrends/jobapp.htm. For a compilation of the data from several polls, the analyst may refer to the Roper Center at the University of Connecticut website at www.ropercenter.uconn.edu/presapp/gallupres.htm.
Graphical construction of this measure plotted over time helps put the events into perspective. For this purpose, SAS is the statistical package of choice because of its superior graphical capability, along with its excellent capability for modeling intervention analysis, compared to those of other packages. Several SAS graphs showing different phases of the Watergate scandal and subsequent impeachment crisis are shown in the figures.

In the Watergate scandal, there were so many significant events that it is necessary to break it down into phases. The background of the scandal is essential to understanding how it unfolded. New information was released in 1997, when Stanley Kutler’s *Abuse of Power* was published. Kutler gained access to previously unreleased Nixon White House tapes through a Freedom of Information Act lawsuit.

Kutler’s transcripts of those tapes reveal startling new aspects of Nixon’s covert campaign of political oppression. Nixon’s secret plan to get the U.S. out of Vietnam in six months had evaporated, along with any remaining governmental credibility of success in the war. Public discontent was rife.

Meanwhile, Nixon had become convinced that there was an anti-war political conspiracy out to get him (Kutler, pp. 15-17). On June 17, 1971, Nixon verbally re-endorsed the Huston Plan (named after aide Tom Charles Huston, who devised the scheme) for coordinated illegal espionage activities — including burglaries, surreptitious entries, surreptitious surveillance, campus recruitment of informants and an array of assorted techniques to neutralize political opponents (Kutler, pp. 3, 5, 6, 8 and 193-194). Nixon wanted to break into the Brookings Institution, the Rand Corporation and the Council of Foreign Relations to steal national security information that he would release to politically tarnish the Democrats (Kutler, pp. 17, 24). He wanted to recreate McCarthyism, with all its false accusations, dirty tricks and character assassinations, within the United States (Kutler, pp. 8, 11). In short, Nixon wanted to wage war against domestic political opposition. John Dean even drafted a plan for using the federal government to repress political enemies. The economy was becoming wobbly as well. To compound that, balance of payments problems arose in the spring of 1971. By August, Nixon felt the United States had to leave the gold standard.

The post-break-in period can be considered in four phases. Phase One is depicted in Figure 1. In this phase, the Watergate burglars were arrested on June 17, 1972, on the anniversary of Nixon’s re-endorsement of the Huston plan. Under the direction of G. Gordon Liddy and E. Howard Hunt, and supported with Republican Committee to Re-Elect the President funds, the Watergate Five — McCord, Barker, Sturgis, Gonzales and Martinez — were in the process of breaking and entering into the Democratic National Committee Headquarters when they were apprehended by Washington, D.C. police. Their immediate objective was to repair a bug they had installed in an earlier surreptitious entry. The real purpose was political espionage through a covert project that Liddy had codenamed GEMSTONE. They claimed their purposes were related to national security to cover their objectives. In fact, Nixon, Colson and Haldeman discussed ways of pinning it on the CIA. They tried to get the CIA to obstruct the FBI investigation of the matter (Kutler, pp. 61, 67-70). By the time these culprits were convicted, Nixon had concluded the Paris Peace Accords on January 27, 1973. Although this may have rendered Nixon’s approval slightly more robust, the conviction of the Watergate burglars coincided with the beginning of the decline of Nixon’s public approval.
In Phase Two, shown in Figure 2, Nixon's public approval continued to plummet as new information emerged implicating the White House and then Nixon himself in the cover-up. James McCord, surveillance-meister of the team, exposed a cover-up and perjury to Judge John Sirica. A little more than a year later, John Dean, Counsel to the President, revealed that Nixon had approved a request from Hunt and the burglars for hush money on June 23, 1972.

Nixon knew where the money could be obtained. John Mitchell, then Attorney General, arranged to obtain the funds of silence from Thomas Pappas, in exchange for securing an Ambassadorship to Greece for a protégé of his (Kutler, pp. 187, 218-219), while Frank Sturgis told acquaintances that it came from Robert Vesco. Moreover, Nixon explicitly advocated the cover story of telling the FBI that sensitive CIA assets were involved and that they should not push too hard on the investigation. Nixon was thus implicated in obstruction of justice. Afterward, Alexander Butterfield indicated that the events had been taped and any oral evidence from the White House Oval Office was on the tapes.

Phase Three was the struggle for evidence. Senator Sam Ervin, Chairman of the Senate Watergate Committee, and Archibald Cox, Special Prosecutor, sought the tapes. Nixon refused and the case went to the Supreme Court, which ruled that Nixon had to release the tapes. The October 1973 Oil Embargo and Production cutback increased the cost of production in the economy. On Halloween, Nixon ordered the firing of Special Prosecutor Archibald Cox. Attorney General Elliott Richardson and his assistant William Ruckelshaus refused to fire him, and were forced to resign in protest.

Meanwhile, the plumbers team, which included all of the Watergate bugging team, was indicted for breaking into the office of Dr. Lewis Fielding, Daniel Ellsberg's psychiatrist. The exposure of this attempt to get enough dirt to destroy him for releasing the Pentagon Papers, which revealed how the U.S. became involved in the Vietnam War, is linked to Nixon's popularity sinking further.

In the final phase, the House deliberated impeachment and voted articles of impeachment. The articles charged Nixon with failure to take care that the laws were faithfully executed, and with abuse of power, obstruction of justice, and sabotage of the democratic process, in a manner that warranted his removal from office. With enough of the evidence disclosed, Nixon was warned that the Senate would...
convict him, lest he resign. Therefore, Nixon resigned the Presidency on August 8, 1974.

Figure 5 highlights the beginning of the fall of Richard Nixon. The criminalization of Nixon and his political demise is shown in a forecast profile. A forecast from this point performed with a Box-Jenkins time series analysis is also shown.

Throughout the scope of the Watergate scandal, the press was scrupulous about corroborating its leads and not printing false information. The prosecutors were scrupulous with regard to their conduct. There was no deluge of prosecutorial leaks. From an analysis of the post-impact change in the approval ratings, a model of the impact can be constructed.

A Box-Jenkins-Tiao ARIMA intervention analysis permits this researcher to deduce that the impact on Nixon’s fragile Gallup Poll presidential approval can be reduced to a nonlinear difference equation:

\[(1-L)\text{ Approval}_t = -(12.359 \text{ Scandal}_{t-1} (1-L)) + \epsilon_t / (1 + 0.406L)\]

where \(L\) is the temporal lag or backshift operator:

\(\epsilon_t\) = innovations or random shock

In simple English, apart from the regular autocorrelated approval, the approval rate is reduced by change in scandal by a factor of 12.36. The model shows that the influence of the scandal greatly depresses the approval rating. From the model developed, a forecast along with the upper and lower confidence intervals is projected forward into time and plotted. Figure 5 shows that the forecast cleaves tightly to the actual data once that has been gathered, that the model is good, and that it is thereby tested for predictive validity with satisfying results.

At this juncture, a caveat should be issued. Not all political crises follow the Watergate pattern. To develop a theory of political scandals, other scandals — such as the hostage seizure during the Carter administration, the Iran-Contra scandal during the Reagan administration, and the current Lewinsky affair and impeachment trial — would have to be examined.

Patterns of presidential crisis approval ratings are found to differ. Nixon’s ratings nose-dived after Hunt and Liddy were convicted, and were scraping the bottom when the House took up deliberation of impeachment. In
contrast, President Clinton’s presidential approval ratings have proved more robust and very resilient. After four months following the exposure of the Lewinsky affair, Clinton’s Gallup Poll approval ratings began to trend upward. During the Senate impeachment trial, Clinton’s presidential approval ratings were at 67 percent.

Many scholars — including political scientist Edward Tufte — have claimed that the state of the economy accounts for much public support of the president. During the Nixon era, the economy was shaky. There was the Oil Embargo and production cutback in October 1973, which increased the costs of production. During the Clinton era, the economy flourished, compared to those of other countries around the world. If the economy accounts for much political support, then Clinton could count on much more public support than Nixon could.

With the help of Congress, Clinton balanced the budget, waged war against the Tobacco Industry, and fought for campaign finance reform. He sought to bring the Internet into the schools and to hire more teachers. Whereas the people wanted Nixon to leave, the mass public wants Clinton to be neither impeached nor forced to resign. Notwithstanding Clinton’s personal peccadilloes, 64 percent of the nation’s adults, according to a January Gallup poll, do not want Clinton to be removed from office. Rather, 56 percent think he should be censured, and 54 percent of the public disapprove of how the Republicans are handling the investigation (Gallup Organization, 1999). This orientation is reflected in Clinton’s high Gallup Poll presidential job approval over time, shown in Figure 6.

While Nixon’s efforts in China and the Middle East were highlights of his foreign policy, the rapprochement with mainland China, while providing for leverage against Russia and North Vietnam, was seen as forsaking Taiwan, a longstanding ally. His handling of the Vietnam War was disastrous. Reviled by large segments of the population for its expansion into the neighboring country of Cambodia and his bombing campaigns against North Vietnam, his conclusion of the peace accords was welcomed by the American public. Unfortunately, the frail accords he agreed to in Paris dishonorably abandoned allies and left the regime in South Vietnam to catastrophic collapse upon invasion of the Viet Cong. In retrospect, architects of that war — including former Secretary of Defense Robert McNamara and former National Security Advisor McGeorge Bundy — have since confessed that the war was a terribly tragic mistake that should not be repeated.

It is not difficult to see why Clinton’s job performance receives high approval by the voting public and why both impeachment and conviction would be contrary to the general will of the people.

References


Military strategists and urban planners need maps, and so do health care professionals, for whom geographic location is also important. Maps are basic tools used to analyze and present information on the spatial distribution of diseases, health care resources and people in need of services.

Medical geography, or spatial analysis, was taken up in the early 19th century by physicians attempting to understand the relationship between environmental conditions and the occurrence of disease. One early use of spatial analysis to chart disease patterns and seek causes in environmental conditions was the famous Dot Map of Dr. Snow. On his hand-drawn map, Dr. Snow plotted deaths from cholera in central London in September 1854, as well as the locations of the water pumps. He marked the homes where cholera deaths had occurred with dots on his hand-drawn map, and indicated the area’s 11 water pumps with crosses.

Dr. Snow observed that cholera (now known to be a water-borne disease) occurred almost entirely among those who lived near the Broad Street water pump. Based on what was learned from Dr. Snow’s map, the authorities had the handle of the contaminated water pump on Broad Street removed. This action stopped the epidemic, which had by then taken 500 lives.

Today, personal computers have revolutionized mapmaking, placing a new type of Geographic Information Systems (GIS) software in the hands of health care professionals.

GIS in the Public Health Field

With GIS software, public health researchers and policy makers can now conduct sophisticated spatial analysis to gain an understanding of geographical variation in disease frequency, or the relationship between demographic or environmental factors and health conditions or outcomes. For example, GIS can be indispensable in the work of public health officials who evaluate the health hazards of lead, or to those who inspect the spatial concentration of infant mortality, tuberculosis, cancer, AIDS or asthma in neighborhoods. Geographic methods are used to determine if observed clusters of illness are the result of random events or if there is a probability that there is some specific cause.

In the case of breast cancer, data shows that the incidence varies over time and place. When elevated cancer incidence occurs within a confined geographic unit such as Cape Cod or Long Island, epidemiologists investigate whether demographic or environmental features specific to the area may explain the pattern (see Figure 1). Research suggests that environmental factors such as the presence of ionizing radiation, electromagnetic fields (EMF), and industrial and agricultural chemicals such as insecticides may be possible environmental causes of breast cancer.

The recent study in the Cape Cod area used GIS to investigate whether synthetic chemicals in the environment contribute to breast cancer risks, whereas the Long Island study focused on the proximity of workers to “dirty” industries and high traffic areas.

GIS Helps Optimize Health Care Delivery, Access, and
Resource Allocation
Recently, spatial analysis with GIS has also been employed to conduct population-based measures of access, health care delivery and resource allocation.

The expending health care industry now increasingly relies on spatial analysis and GIS software to
- evaluate patient access to managed care provider networks,
- model demand for services based on the analysis of the demographic characteristics of patients,
- study physician supply and demand by specialty in an area,
- analyze patient origin and geographic access,
- analyze hospital emergency room admissions by geography,
- aid in site selection for health care facilities,
- target home healthcare to senior citizens, and
- measure travel distance to outpatient treatment or for the visiting nurse services (see Figure 2).

Pharmaceutical marketers now use spatial analysis to identify areas of demand, or potential demand, for pharmaceutical products. GIS has been used to plan the allocation of marketing spending, and to prepare for launching a new prescription drug coming on the market. Spatial analysis has enhanced these marketers ability to identify, locate and characterize the patients, doctors, pharmacies and medical facilities that would comprise the customer base for a particular product.

The First International Health Demographics Conference
While I attended the First International Health Demographics Conference in Baltimore, Maryland on October 16 through 18, 1998, it became evident to me that the role of spatial analysis is becoming more prevalent in fields of public health and health care around the world.

Supporting Organizations for this conference included the American Public Health Association, the John Hopkins School of Public Health, UNICEF Child Info Project, World Bank, the World Health Organization and others. A number of GIS software companies from around the world were also at hand, demonstrating GIS applications in public health and health care industries.
Conference participants had an opportunity to look at health and GIS work from around the world. Presenters came from over 30 countries including Bolivia, Paraguay, Iceland, Sweden, England, Finland, Uganda, Zambia, South Africa, Nigeria, Russia, Bangladesh, Pakistan, Australia and China.

One impressive presentation was from Qatar, an oil state in the Persian Gulf. A public health physician from the state of Qatar demonstrated a technologically advanced health registry system unequaled in the United States. The United Nations Statistics Division demonstrated the use of GIS software specifically developed for use by developing nations. Representative from the UNICEF Regional Office for South Asia in Kathmandu, Nepal made several presentations and distributed an Atlas of South Asian Women and Children with maps of a variety of health conditions.

GeoHealth Inc. of California gave a presentation entitled "Integrating Clinical Health Care Data With GIS." GeoHealth's BodyViewer software helps health care providers visualize, map and analyze information, using body system diagrams to represent the frequencies of types of diseases and related patient information. Data from their in-house databases can be analyzed in two ways: graphically and geographically. Geographic data analysis plots patient data on maps by street, zip code, county, state or country level.

Other presentations focused on using GIS to identify high-risk neighborhoods for tuberculosis, on the connection between pediatric asthma and outdoor air pollution in Brooklyn and Queens, and on an integrated approach to monitoring Lyme disease in Maryland.

The conference proceedings are expected to be published in the Infectious Diseases Review. Complete presenter information, biographies and outlines of the papers will be available on their website at www.jhsphe.edu/ihgc. Consult the website also for a long list of links on the topic of Health Geographics.
While researching in the library or on the Web, have you ever wished you had a personalized, easy-to-learn database program to store and retrieve your citations and notes? Bobst Library supports two programs — ProCite and EndNote — that might be just what you’re looking for. Bobst offers free access to ProCite on all Bobst Library laptops; while EndNote isn’t one of the library’s software offerings, you can download connection files and import filters for using EndNote with Library catalogs and databases at www.nyu.edu/library/bobst/bib.

Import Results of Computerized Searches
You will probably conduct much of your preliminary research in computerized catalogs, like BobCat or RLIN, the catalog of the Research Libraries Group. After saving the results of a search, you can import these results directly into ProCite or EndNote. Saved results from searches of such databases as Medline, PsychINFO or any of the DIALOG databases can also be imported into your database. Of course, you can always enter citations and notes by hand.

Search BobCat Directly
EndNote has a built-in search interface that allows you to connect directly to library catalogs and databases, like BobCatPlus, that conform to the Z39.50 protocol, and to then import these references into your database. To do this with BobCat, you will need to get and install the BobCat connection file from Bobst Library. PC and Mac versions are available at ftp://ftp.nyu.edu/library/bobst/bib/download/

As you search the web-based BobCat, you can import the records directly into your EndNote database (see Figure 1). RIS, the company that makes ProCite, offers BookWhere 2000 (sold separately) that performs the same function.

Manage Your Research
You can create as many separate databases as your disk space allows. A database may contain as up to 32,000 records, which...
I would fill about 32 MB. The programs offer matrices for many standard reference types (such as books, journal articles, patents, motion pictures, music scores, manuscripts or computer programs), which can be customized by adding, changing or creating fields. You can search your database using key words and Boolean operators (AND, OR, NOT), and sort it by title, date or author. The latest versions of both programs provide a field for Internet URLs, which can be launched directly from the program when your computer is attached to the Internet. Both programs also allow you to capture a web page while browsing the Web, and store relevant information from the page in your database.

**Cite While You Write**

As you write, insert short references to the citations in your database. Then use either EndNote or ProCite to scan your work and convert these references into text references or footnotes in any of dozens of standard formats (MLA, Chicago, ACS, APA, etc.). If you are using MS Word 7 or higher or WordPerfect 7 or higher on a Windows machine, or MSWord 6 or higher on a Macintosh, you can retrieve your references directly from your database by using the built-in toolbars. You can also use the software to create annotated bibliographies that can be exported directly to HTML for posting on the Web.

**Share Your Research**

If you are working on a project with a colleague or a team, references can be maintained on a network and shared. A new product from RIS, Reference Web Poster, allows you to post your EndNote, ProCite or Reference Manager (another bibliographic program from RIS) database on a web server, where anyone can search it using an ordinary web browser (see Figure 2).

**Which Should You Choose?**

A comprehensive comparison chart and reviews of the latest versions can be found in Chorus: Electronic Research, an electronic journal published by the University of California at Berkeley [www-writing.berkeley.edu/chorus/eresearch/](http://www-writing.berkeley.edu/chorus/eresearch/).

Because of its advanced support for foreign languages and large number of customizable fields and reference types, some humanities researchers may prefer ProCite. Until recently, upgrades to the Macintosh version lagged far behind those for the PC, but RIS has just released a full-featured Mac upgrade.

Many researchers in the sciences use EndNote. EndNote’s Z39.50 client, allowing direct connection to BobCat, is a valuable feature, which further simplifies EndNote’s already user-friendly interface. Try ProCite at Bobst Library (you’ll need a floppy disk to store your personal database). Special educational discounts are available through the NYU Bookstore.

Bobst offers two-hour hands-on workshops on using ProCite to do library research. This semester, the workshops will be held on March 10 at 10:00 a.m., and on March 25 at 5 p.m., in the Bobst Electronic Research Center (B-Level). Reservations are required. To reserve a spot, call 998-2460.
Digital Cameras
Zooming in on Film

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There are many digital cameras available to the consumer. Some are quite inexpensive, costing less than $200, while the high-end cameras can cost as much as $1000. When deciding whether or not to go digital, it’s important to consider what these cameras can do, what tools and techniques they use, and how they compare with traditional film technology.

Like simple point-and-shoot film cameras, digital cameras do not have removable lenses, so you can’t put on a lens with a different focal length. Even the better models do not have much range in the way of zoom or wide angle lenses. Although some cameras have fixed focus lenses, most have some sort of auto-focus system. The auto-focus process is broken down into a number of steps. The greater the number of steps, the finer the focus. In addition, some cameras have macro (close-up) focusing.

There are two types of viewfinder. The simple “range-finder” style provides a way to approximate the composition of the picture. You will have to learn the relationship between the actual picture taken and the view through the viewfinder. An LCD viewfinder, a small screen that displays the image as seen through the lens, provides better composition. This feature is available on the more expensive cameras. An LCD viewer also allows you to view pictures that are stored in your camera. This can make it easier to delete unwanted pictures from your memory.

In addition to taking pictures, some cameras can also record an accompanying short audio clip with a microphone located on the front of the camera. Many cameras have video output, and can be connected directly to your television or VCR for viewing and recording stored images.

A socket is provided for the computer cable to download the images to your computer. You may also have an infrared port to do a wireless transfer to your computer or printer. This may not be the only way to move the images to your computer.

Images are stored digitally in the camera. The more popular removable storage is a flash card memory. It currently comes in sizes up to 60 megabytes. The advantage of a flash card is that, as with a roll of film, you can remove the full card and put in an empty one. There are two methods to transfer the pictures from the flash memory. Either insert...
the flash memory into a PCM-CIA-compatible sleeve and mount it into your PCMCIA slot on your computer, or use a flash card reader attached to a serial or parallel port on your computer.

Other cameras store the images directly onto a floppy disk. Most computers have a floppy disk drive, so this method does not require installation of any special hardware. However, a floppy disk cannot store nearly as many pictures as flash memory. Some cameras have a removable memory module that slips into an adapter for use in a floppy drive.

A digital picture is made up of small colored dots, called pixels. The resolution of an image refers to the number of pixels per inch of image. The resolution determines the quality of the image and how many pictures you can store on your camera. Higher resolution uses more storage space. The standard amount of storage is from two to eight megabytes. Eight megabytes can hold, at most, 15 high-resolution images. At the lowest resolution, you can hold four times as many pictures. Before purchasing a camera, think about how many images you'll want to save and what resolution you will be using most.

Once the images are in your computer, you'll probably want to play with them. Most cameras come with a simple image manipulation tool like Adobe PhotoDeluxe, which is similar to Adobe Photoshop but with fewer features. In addition to an image editing program, you may also get a slideshow program that allows you to take multiple images and put them into a single slideshow file.

Soon you will have hundreds of pictures on your hard drive. There are a number of programs that allow you to produce indices of your pictures, with thumbnails of each image and a place to enter categories or keywords for each picture.

Many manufacturers offer a small color printer for printing out digital photos. You can also print them out on a good-quality color printer. High-resolution pictures can take up more than 500k each on your disk. Once you have made changes to your pictures, they will most likely be viewed and not altered further. CD-ROMs are an ideal place to store your pictures. A single CD can hold hundreds of pictures, and the cost of a CD writer is quite low compared to the cost of additional hard disk space.

The most important issue to consider is image quality and the final use of your pictures. Digital imaging cannot substitute for traditional film-based images. Compare the two pictures of the ferry bays at Whitehall Street on these pages. One is from an original digital image and the other is from film. I've enlarged the same area to emphasize the difference in resolution. If you're planning on enlarging or cropping, you would do better to take your pictures with film and digitize them from the transparencies.

The key to producing usable pictures from a digital camera is to think carefully about the final use of the images. You may want to output them to prints, like when you have your film developed. You may want quick shots to e-mail to friends and family or to use on a web page. The intended use determines what features and skills you'll need to get acceptable images.

Select a higher resolution for printing and minor cropping, and lower resolution for digital snapping. Other factors to consider are viewfinder, dimensions, color depth, storage type, interface and image capacity.

The technology used in digital cameras is changing quickly. As with other computer-related items, prices continue to drop as functionality increases. Put careful research and thought into your search before deciding which camera to buy.
The human ability of visual perception and cognition has been the subject of philosophical and mathematical inquiry for centuries, if not millennia. The parable of Plato’s cave comes readily to mind and has been used often as a metaphor, if not outright authority, among sophists seeking to explain the phenomenon in human terms.

In the parable, several men are chained up in a cave, facing a wall on which they see shadows. Light from a fire behind the men casts the shadows on the wall. These shadows are of the men themselves and of objects located, unseen by them, between them and the fire. Because the prisoners can see nothing but the shadows, they take the shadows for reality.

One of the men shakes off his chains and, turning round, makes his way to the mouth of the cave. When he gets there and looks out he sees the sun shining on the objects of the world outside, but when he returns to the cave to tell his fellows what he has seen, they don’t believe him. The escape of the prisoner into the light represents the process of philosophical enlightenment. Plato’s point is that if we don’t understand philosophy then we will see only shadows, the appearances of things, rather than their true form.

I find it suitable to invoke Plato not for what he can tell us about the importance of philosophy but what he can tell us about Optical Character Recognition (OCR). If you find this strange, read on.

To Plato, the true object of knowledge, the reason for its pursuit, if you will, is the Form of something. This is necessary since in his philosophy he recognized that knowledge of the physical world was unattainable, that things were too much in flux and that their appearance and properties were too variable. Thus, he reasoned, there must be a higher Form, something fixed and unchangeable which our minds can grasp. One could know a cat, for instance, by understanding its “cat-ness,” not for the fact that it had a tail, green eyes and whiskers.

Optical Character Recognition software operates in a similar manner to Plato’s Philosophy of Forms. Characters are recognized and discriminated according to how much they participate in the “letter-ness” of any particular Form of letter. Programmers call this process “feature extraction.” Thus,
the miniscule letter "e" which can appear in many different fonts and sizes, can still be distinguished by its essential shape, its "e-ness," which in illustrative terms could be described as a closed half loop with a tail descending below. Particular characteristics of the letter as it appears in the document are discarded. For instance, a serified majuscule E is the same as a non-serifed E.

Errors, of course, occur in this process of recognition. The software could decide that a certain letter is much more "c-like" than "e-like," for a variety of reasons, chief among them the clearness of the document's contrast between black text and white space.

However, many errors that occur in OCR software occur because of its inability to decide between the "letter-ness" of characters which have similar likeness, such as "I" and "1" in non-serifed fonts. Even serifed fonts suffer from some consistent errors. Most OCR programs will still have a problem recognizing all the characters in the word "minimum" in a serified font like Times New Roman. It is a poor piece of OCR software, however, that reads the letter "w" as the letter "f" in a clear image. In short, OCR software can decipher the "shadow" of a character and decide what its true Form is.

How, you ask, did my computer get a degree in philosophy? Of course it didn't, but it may have a degree in history.

Much of what commercial OCR software depends on for its analysis of documents depends to a very high degree on the way printed text has commonly appeared in the last 500 years. (However, we must remember that the Italian Humanist scribes and printers of the fourteenth century whom we normally credit with the invention of the most common Latin typeface, Roman, were themselves slavishly copying the fine miniscules and mises-en-page they found in Carolingian manuscripts of the ninth and tenth century, unwittingly thinking them to be genuine products of the Roman Empire rather than French.)

Characteristics such as kerning (the amount of white space between characters), hyphenation, leading (the space between lines of text) and indentation, which have traditionally been the concern of moveable type compositors since Gutenberg, play a significant role in OCR's ability to vectorize or zone the document, that is to say, to break it down into its component parts. This process is common to OCR software's "pre-processing" phase. Indeed, it is OCR software's ability to interpret the white space in documents that makes common functions like zoning work. This is why, when performing OCR, it is wise to use a document with the highest and clearest contrast possible.

Even with this ability, OCR still has problems with uncommon document formats. For instance, line numbers in modern critical editions of poetry are often interpreted as separate words next to the line where they appear, and not as discrete entities apart from the text they formalize.

Columns and text flow are another problem, since most OCR software will simply interpret from left to right, top to bottom regardless of how the document was meant to be read. Often, it is necessary to zone documents manually, especially if the document contains a critical apparatus, marginal notation or other textual additions of academic publications. This software feature, I would argue, is essential for any serious OCR operation.

Of all these features which inhabit a typical modern document, it is our tradition of word shape and separation that OCR uses to its greatest benefit. In visual terms, a word is distinguished by its characters' relation to the white space surrounding it and the nature of its letter face (for instance, small thin strokes are common to handwriting, and thick short strokes are common to non-serifed print fonts).

Psychologists describe this as its "Bouma-shape" (after Dutch psychologist Herman Bouma) in cognition studies. It is a useful phrase here. Bouma shapes in Western writing are very different from Chinese, Korean or Japanese. Eastern
languages, in general, have words that are square-like and of similar size, while words in Western languages are generally elongated series of Latin characters, and are separated by a consistent white space.

Commercial OCR software, in large part, depends on this uniformity in text to discriminate words accurately. It is certainly the case that the most common Latin typeface, Roman, will be interpreted by currently available OCR packages more accurately than other typefaces.

Uncommon shapes of words, so-called “word art” being a good example, are likely to fool OCR software. However, every imprint suffers from a great degree of variation in the shape of its characters. Generally, the more primitive the printing process, the more likely errors occur in its character shapes.

During the era of handpress printing, ink was often unevenly impressed on the page and occasionally formed blotches that distorted letters. Typefaces were routinely broken during the imprinting process and resorted into compositors’ trays. During the machine-press period, these errors occur with less frequency and less harm to the character’s integral shape. Offset printing has largely removed these errors in the modern era, while laser and inkjet printing can render character shapes measured in pixels.

Word orientation, as well, is a key ingredient in word recognition. Most OCR software offers the ability to unskew documents that contain usually no greater than one or two degrees of rotation after scanning. Vertical or diagonal text or other uncommon or rare orientations are unlikely to be interpreted accurately.

In the final analysis, when you hear 98 percent accuracy rates quoted for OCR software packages, consider that these were most likely accomplished using laser printed business documents, where the degree of variation among characters is significantly small and where the orientations of characters is fixed and regular. An OCR operation on an average nineteenth century imprint will almost certainly be completed with less exactness.

In addition to these caveats, OCR’s inability to distinguish uncommon or unrecognized Bouma-shapes has led many manufacturers of OCR software to build in training features so users can teach the software to assign letter values to the unrecognized character shapes and words it finds.

A typical OCR software package for European or Western languages uses the standard ASCII character set (the 128 characters of standard upper and lower case letters plus some common typographical symbols) for its values. Typically, the use of Extended ASCII (the 128 characters plus some mathematical symbols and, more importantly, the diacritical and other characters common to languages other than English) is tied to the foreign language dictionary feature of the software, if it exists.

Standing as we are at the beginning of the Digital Age, computer Optical Character Recognition would seem to be one of those key processes that make the important leap from the world of print which we have known for centuries to the newly charted realm of digital documents. For those pursuing the digitization of our print heritage, a general knowledge of how OCR software works hopefully will lead to a better appreciation and awareness of its limitations and capabilities.

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1 There have been recent studies of computer-based character recognition of multilingual and macronic texts that have tried to surmount this problem. For a survey of recent scholarship on character recognition in computer and mathematical studies, see the University of Maryland’s Document and Video Processing Group’s Document Understanding Bibliography, published annually at documents.cfar.umd.edu/biblio/.

2 In a recent test of nineteenth-century German fraktura, the most common German print font of the last century and the beginning of this one, OmniPage Pro and Xerox Textbridge revealed that word shapes can be discriminated somewhat accurately (accuracies ranging from 60 to 80 percent before training).

humanities applications for consultation and teaching small groups. Since that time, we have steadily upgraded this area, acquiring an impressive and eclectic collection of humanities software.

ACF provides the only service of this type at NYU, and we believe that it is important that we continue to collect the latest discipline-specific software tools for evaluation and subsequent implementation in teaching and research.

The staff of the Humanities Computing Group and the Innovation Center's expert staff are available by appointment to help you use these resources for your research or to create your own teaching modules.

Our software collection consists of electronic texts and text analysis materials, multimedia tools, language learning software, Internet applications, database collections, and electronic publishing tools. We are always working with the NYU humanities community to expand this collection.

Machines Available
At present, three computers are available for use in the IC Humanities area — two Pentium Pro II PCs and a Macintosh G3. We also have a Macintosh G3 laptop available to borrow for specific demonstrations.

Software
An online database of the software we have collected for this facility is maintained on the humanities computing website at www.nyu.edu/acf/humanities/software/software.html.

At present, the collection is small but expanding, and we believe it is representative of the different categories of software available in the humanities. Suggestions for new acquisitions are very welcome.

Electronic Texts and Publications
Many publications are now available in several types of electronic format. For example, there are Internet-accessible archives such as the Oxford Text Archive, and material on disk or CD-ROM from commercial publishers.

The advantages of working
with electronic texts include the ability to search quickly through large amounts of information and the huge storage potential of electronic media, which is particularly helpful when dealing with large corpora and reference collections.

*The Oxford English Dictionary (2nd Edition)* on CD-ROM, and *Hypertext: A Multimedia Applications*

Humanists are increasingly exploring the potential of hypertext and multimedia to represent information in a non-linear, non-sequential fashion. Texts can be linked into an associative web of related texts, images, sounds and film; multi-linking across disciplines can be used to highlight important interconnections.

Several CD-ROMs in our software collection illustrate these principles. *Perseus* contains a large collection of classical Greek texts and related artifacts; *Culture* creates a selection of interdiscipli­ nary cultural resources linked through hypertext; *Shakespeare’s Life and Times* is a collection of his works linked to material explaining their political, social and cultural context, including a large image and sound collection; and *The Crucible* is a hypertext of the Arthur Miller play.

**Language Learning Software**

We have been expanding our collection of language learning software to include all languages taught at NYU, and we have collected a number of language learning programs for both PC and Mac. These include *The Rosetta Stone Lan­
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