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 Academic Computing and Networking at NYU are mailed to university faculty and staff, and are also available from the ACF’s Information Services Office (room 312, Warren Weaver Hall), at the ACF Help Center (second floor, Warren Weaver Hall), and at the ACF computer labs. Students holding ACF individual computer accounts are included automatically in the newsletter’s mailing list.

Selected articles from this publication have been made available on the NYU CWIS, starting with the March 1993 issue. To locate these articles, choose Academic Computing and Networking Resources from the main CWIS menu, then select Academic Computing Facility, then Publications and Reference Collections, and finally, Academic Computing and Networking at NYU (the newsletter).

We welcome your comments and suggestions about the articles in this issue, and about articles for future issues. Contributions are invited for consideration by the editor; please call 998-3038 or send e-mail to frederickson@nyu.edu for more information. Articles are written by members of the ACF staff, unless otherwise indicated.

Opinions expressed in the articles in this publication are those of the authors and not necessarily those of the Academic Computing Facility or of New York University.

Below many of the authors’ bylines are electronic mail (e-mail) addresses. If you do not use e-mail but would like to, see the box on page 35 for information about opening an appropriate account.

This issue was prepared on Apple Macintosh Quadra and Iici computers, using Aldus PageMaker, Microsoft Word, Adobe Type Manager, Adobe Photoshop, and Hijack, among other programs. Fonts used in this issue are Palatino for the text and Gill Sans bold for headlines, along with Zapf Dingbats and Courier for special effects; the logo is set in Adobe Garamond bold italic. Photos on the cover and on pages 14 and 31 were scanned on HP ScanJets from original prints by Joseph Hargitai; others were taken by the editor with an Apple QuickTake digital camera. Camera-ready copy of text and screen shots was produced using a 600-dpi Hewlett-Packard 4sii printer.

Editor
David Frederickson
d Frederickson@nyu.edu

Schedule Section Editor
John Quinan
q Quinan@nyu.edu

Production Assistants
Gina Marcel, Adekemi Sijuwade, Molly Stauffer, Frank Taylor, Stephen Thompson

Design
David Frederickson

Contributors
David Ackerman, Lisa Barnett, Jeffrey Bary, Frances Bauer, Kathy Bear (Computer Store), Elbert Chin (CAS), Lucinda Covert-Vail (Bobst), Vincent Doogan, Catherine Egan (Bobst), Edward Friedman, Philip Galanter, David Geshwind (Center for Digital Multimedia), Ogden Goelet (NELL), Joseph Hargitai, Estelle Hochberg, Constantine Kreatsoulas (CAS), Frank LoPresti, Shawn Lottier (Morehouse College), Tim O’Connor, Lucia Ruedenberg (GSAS), Alla Ryaboy (CAS), George Sadowsky, Estarose Wolfson.

Thanks also to
John Chung, Edi Franceschini, Eleanor Kolchin, Regina Monaco (FAS), Lu Ratunil, Marvin Rich (GSAS), Tamar Schlick (FAS and CIMS), Shelly J. Smith, Yu Tong (Bobst), Carmen Vásquez, Richard Vigilante (SCE), Scott Yates (Bobst).
In Support of the Global University

George Sadowsky
George.Sadowsky@nyu.edu

The world we live in is becoming increasingly small. Many of us remember a time before the jet airplane, when both international travel and communication were slow, expensive, and uncertain. While study of the languages and cultures of other countries and regions was possible and encouraged, for most of us the likelihood of actually visiting or living in those remote places was not high. The studies of most people focused upon links with a Judeo-Christian heritage — which, broadly interpreted, meant primarily European culture, history, and languages. Furthermore, the national perception at that time, unfortunately, was that events far away did not significantly affect life in the United States.

In the last fifty years, technological progress has done much to bring the world closer together. Jet airplanes have made international travel faster and more secure, and less expensive than previous alternatives. International communication has brought dramatic changes — broadcast television lets us view events all over the world, in real time, and two-way voice communication is now reliable and relatively cheap.

Given what we know about the world today, our earlier focus primarily upon European cultures seems narrow and out of proportion. Our earlier sense of isolation from events in other parts of the world seems curiously naïve. In today's world and in the world of the future, it will not be sufficient to be informed about only national or closely related issues.

NYU as Global University

In this context, the vision of New York University as a global university is not only appropriate, but essential for continued intellectual leadership. We've learned that the creation of knowledge and the pursuit of scholarship know no national barriers, and that the sum of human experience is richer than can be expressed in any one culture or group of related cultures. To be considered a truly educated person today, one must have achieved the intellectual equivalent of being a world citizen.

Information technology is helping NYU to realize its vision of becoming more global in scope and of helping our students to explore and understand the world in new ways. The emerging global information infrastructure is shrinking the world in a way that the jet airplane never will. Through this infrastructure, NYU students, faculty, and staff have access both to international information resources and to almost instantaneous written communication with anyone on the network, anywhere. We at the Academic Computing Facility are proud to have pioneered in this global access for NYU — and will continue doing so. Now anyone who can log on to NYU-NET can make use of a wealth of information resources as varied and broad as the world itself.

The Developing Infrastructure

The technical underpinnings of this communication are the common TCP/IP protocols used in the Internet, which allow all computers on the network to understand each other. The Internet continues to grow; it now consists of an estimated 2.5 million computers in over seventy countries. (Partial, e-mail-only, connectivity extends to an additional seventy countries or more.) In the next several years, major initiatives will not only extend and broaden our own
national information infrastructure, but will also bring in most of the still-unconnected countries.

On top of this structure are the application programs — the pieces of software — that give value to the network. Early applications made it possible to send and receive electronic mail, transfer electronic mail from one computer to another, and log in to remote computing resources. This basic suite of applications continues to be very powerful, and is now being extended with higher-level protocols such as Gopher and Mosaic/WWW. The World-Wide Web (WWW) paradigm for organizing information and navigating through it is immensely appealing, and there are now over 3,200 servers in the world that store and dispense information in this form.

### Making Information Accessible

Around the world, countries are rapidly joining this infrastructure, using Gopher servers and, more recently, WWW servers to disseminate information about themselves. While writing this article, I learned of the Window-to-Russia WWW server, as well as the St. Petersburg Web server. In Sweden, it is possible to connect to the Swedish University Network, as well as the Language Bank of Swedish at Göteborg University, or about fifty other servers in Sweden. Almost all countries in both eastern and western Europe have servers mounted. In Latin America, servers exist in Argentina, Brazil, Chile, Costa Rica, Ecuador, and Peru. In Asia, servers have been started in China, Hong Kong, India, Japan, Malaysia, Singapore, Taiwan, and Thailand. Many of the servers being developed contain image and video material in addition to text.

Access to libraries and their contents continues to improve. At least a thousand libraries worldwide make their collection indexes available over the Internet. The Library of Congress has recently established a WWW server that can deliver images from its collection. Both the Vatican Library exhibit and images of the Dead Sea Scrolls have recently been available over the Internet, viewable at any NYU-NET connection with reasonably common hardware and software. Anyone interested in NYU’s exchange program with the Charles University in Prague can, over the network, retrieve and read the last hundred or more issues of the journalism students’ magazine, Carolina, in either English or Czech. These examples are chosen from many similar information services that exist today, and are just the beginning of what we believe will be an explosion of information being delivered over the network.

### Rapid Communication

E-mail is a natural complement to the one-way delivery of information described above. Many of the information sources contain e-mail references. In exploiting the resources of the network, it is not at all unusual to go back and forth from relatively static information resources such as libraries or data archives on the one hand to guidance and advice from specific people on the other. This parallels the structure of guided research that occurs now both in undergraduate instruction and among professional colleagues.

For the last two years, I’ve worked with the Internet Society to organize and run a training workshop for people from developing countries on network technology and use. Each year, there have been hundreds of participants and instructors from almost a hundred countries around the world. Almost all of the organizing was done successfully using e-mail. These workshops could not possibly have been organized any other way, but it was relatively easy through e-mail — the difficulty in dealing with people so geographically dispersed was little more than would have been encountered if all the participants had resided in the United States.

The global citizen needs to understand how to navigate and use these networks effectively, for they are in some sense the library of the future. The global university has a responsibility to provide the necessary tools — and instruction in their effective use.

This world of networked information and of multiple media — text, voice, images, and video — is new and clearly experimental. Yet to date the experiment has been a major success and has led to new views of what the global information society can become. We need to exploit the global network that now exists, and in doing so we need to understand how it can make a contribution to education and to research, now and in the future, that will build and sustain our new global citizenship.
What Hath Thoth Wrought: Databases, Thesauri, and International Scholarship

Ogden Goelet
goel@accluster.nyu.edu

In earlier articles for this publication, I have tried to show how scholars in a relatively obscure part of the humanities, the field of Egyptology, have adopted computers as an important tool in their discipline. By the final day of the 1994 meeting of the Computer Working Group of the International Association of Egyptologists, held this summer in Bordeaux, France, I was struck by how truly international (and cooperative) our subspecialty had become. During one lunch break, a colleague and I were able to adapt part of a Windows database program that I have been working on here at NYU (shown below), so that it could be used in displaying hieroglyphic text in the print program he is developing at Utrecht. A surpris-

Teaching
The main impetus for this high degree of internationalization has come from the many museums with Egyptian collections that are now creating database catalogues of their holdings. A vast expansion of tourism and travel has meant that museums must deal with a polyglot constituency of increasingly computer-literate people who enjoy using interactive displays.
During a break in another conference in Toronto this spring, I was intrigued by an exhibit in the Royal Ontario Museum that allowed both French- and English-speaking visitors to use a computer to answer a long list of commonly asked questions about the building of the pyramids. Similarly, the standard program for printing hieroglyphs allows users to choose which of five languages they wish the program menus and instructions to display. (What hath Thoth wrought!)

Exchanging Information
In addition to the growing use of computers as a didactic device for museum visitors, curatorial staffs have found that their colleagues who request and exchange information through the Internet form yet another constituency of computer users who need to be served. Retrieval of routine information can be distracting and time-consuming. Consequently, several major Egyptological collections — the Louvre, Boston, Turin, and the Cairo Museum, to name a few — are now entering a substantial portion of their accession records into large databases.

After a rather heated three-day discussion, representatives from several museums established a set of standards for a “minimal” database record (appropriately termed “passport data”); most databases will include bitmapped images of the objects. Once data-exchange protocols, access levels, and certain legal problems have been worked out, it is hoped that much of this information will be accessible through the Internet. Accessibility, however, can raise some serious legal issues with copyright. One curator posed an amusing yet serious hypothetical example of the problems involved — imagine the trustees’ distress upon seeing that a Middle Kingdom beer jug from their museum had been used in a four-color ad for Blotzk Lager!

Retrieving
On a more practical level, museum databases must make provisions for an international group of users who do not have a uniform terminology within their discipline. This has lead to several projects in which museum professionals, archaeologists, and other specialists have gathered together to create multilingual thesauri. A French scholar will be searching the database for a statue à cube while his German colleague will be looking for a Würfelhocker. At the same time two English-speaking art historians may refer to the same object as a block statue or a cuboid statue. In all cases the program designer is faced with the problem of synonymous descriptions. Fortunately, there is a way to handle this situation that allows each scholar to continue using the familiar terms. The solution is to create a type of linking database called a thesaurus, in which all the possibilities are listed:

<table>
<thead>
<tr>
<th>NAMES.DBF</th>
<th>Obj_Name</th>
<th>Obj_Code</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block Statue</td>
<td>206</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cuboid Statue</td>
<td>206</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Statue à Cube</td>
<td>206</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Würfelhocker</td>
<td>206</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Whatever language or synonym the user enters, the same object code will be used to search the main database. Using the Language code as a filter, it would be possible for a scholar to “see” only the terms in his or her language. Once a term has been chosen, furthermore, the program gives the computer the simple task of searching the main database for a one- or two-byte integer rather than having to scan through lengthy strings of letters. Another advantage of this approach is that the main database no longer has to store hundreds of copies of the term block statue.

Multilingual thesauri are readily reusable. Once the officials at the Cairo Museum decided to create a computer catalogue, they saved months of work by simply translating and reusing an extensive multilingual thesaurus that their colleagues at the Louvre had designed years before.

Imaging
An entirely different application of computers in our field that is rapidly coming into its own is the use of imaging techniques. A previous issue of this publication (January 1994, page 23) showed a computer reconstruction of a walk through the Memphite tomb of the vizier Bakenrenef. One of the most striking aspects of the visualization was the ability to show how a wall decoration might be reconstructed from dispersed fragments that had fallen from the wall. I expect that museums will use visualizations of this sort more and more, because they show so vividly the problems archeologists face and the methods that are used to restore antiquities.

At the Bordeaux conference this summer we were shown a technique by which an excavation could be shown in three dimensions. By simply clicking on a screen image with a mouse, it was possible to

(continued on page 29)
Lynx Provides Easy Access to the World-Wide Web on the Internet

Tim O’Connor
oconnort@nyu.edu

Members of the NYU community call the ACF HelpLine or send e-mail to acf-comment with problems like these:

• One NYU student recently spent two evenings trying to connect to a Gopher address she had read about. She used the command telnet, which she had often used for other network connections, following it with the correct address — and was rejected every time. When she asked for help at the ACF, she learned that the solution was simple: to use the command gopher, which invokes a different set of software that works with Gopher servers. It worked.

• An NYU professor in search of bibliographic citations used the command gopher rlin.stanford.edu, hoping to use his favorite Gopher interface to explore the Research Libraries Group database. It didn’t work. When he sent out mail in search of a solution, we suggested that he use the NYU-Internet menu choices Extras, then RLIN, which took him directly into that database.

It’s hard to find fault with what either of these people did: They were new network users, and they heard that the Internet was easy to use. But it’s not as easy as it might be.

“Did You See the Article in the Sunday Times?”

We are in the midst of a pop-culture Internet obsession. Every week, it seems, newspapers and magazines carry breathless accounts of the wonders of “cyberspace” and “the information superhighway.”

Yet the reality is that many newcomers still find themselves spending too much time at their keyboards in bewilderment, often not knowing how to use their software tools appropriately.

Meanwhile, more experienced Internet users are often irked with the ever-growing complexity of finding their way through the exploding masses of information on the worldwide network of networks.

People may be getting “wired,” but as their expectations rise, so do their frustration and anxiety, as they find that the Internet isn’t quite as easy to use as Time magazine suggests. At the Academic Computing Facility, we’re trying to address these problems. The ACF’s new NYU-Internet Account brings together a set of up-to-date tools for Internet access in an easy-to-use menu interface.

New Tools for the Troubled

New software is being developed to help both the bewildered and the impatient make more efficient use of the Internet. The best examples of the new breed of software allow you to browse from location to location, feeling your way along as you gradually move from Point A to Point B to Point C.

The most visible recent Internet navigational relief has been in the form of a program called Mosaic, which helps ease the burden of making network connections and retrieving information. But Mosaic requires a fast network connection and plenty of horsepower on the desktop; furthermore, as a new and moderately complex product, it still has its own set of quirks.

More promising is Lynx, a browser that can search

---

Tim O’Connor, of the ACF’s Core Technology group, helps to keep the systems running, and answers many of the questions that arrive in the ACF’s comment mailboxes.
the same resources Mosaic uses, but requires much less horsepower on your desk. Like Mosaic, Lynx understands the different types of connections available out on the network, and it attempts to accurately navigate without requiring you to make all the decisions or give minute and arcane instructions.

The Internet Evolves

Putting aside the technicalities of networking, the Internet — at its most basic level — has always been visible in the software we use. The classic trinity of Internet software is Mail (for handling electronic mail), Telnet (for connecting to remote computers, and working on them), and FTP (for transferring files from one computer to another), with Network News (for reading messages posted publicly on newsgroups) a kind of distant cousin. In the last two years, though, Gopher has joined that group as a significant tool for exploring the Internet; it’s the program at the heart of the NYU CWIS and over four thousand other information systems around the world (see articles about the NYU CWIS later in this issue).

During 1994, a new Internet service reached critical mass, and now seems poised to overshadow everything else. That service is known as the World-Wide Web (WWW). It can be explored by many people who have accounts on the ACF’s shared systems, including ACFcluster and the new NYU-Internet system.

The WWW to some extent includes the other Internet services. WWW software can make Telnet connections, retrieve files from FTP archives, search Gopher servers, and also browse the rich new world of the Web itself. (For more about WWW, see the box at left below, and articles in the November 1993 and January 1994 issues of this publication.)

The WWW is most spectacularly visible under Mosaic, but more readily and rapidly available through Lynx. The latter program, developed at the University of Kansas, is considered to be the simplest and most straightforward software for exploring the Web.

Fast, Elegant, and Versatile

Lynx is a nearly complete WWW browser. It runs on ACF computers and requires no unusual software on your workstation, no special network connection to your machine, and no high-powered hardware on your desk. Any desktop computer that can connect to an ACF system (and emulate a basic VT-100 terminal) can probably run Lynx. Since it runs on a simple terminal display, Lynx cannot display pictures or play sound recordings, as graphical programs such as Mosaic can.

Lynx searches and displays the hypertext documents that are available on WWW servers. It allows you to browse through Internet systems, much as you might follow a series of cross-references through an encyclopedia. If you wish to reach a Telnet-accessible host, such as a library catalog, Lynx can make that connection. If you want to retrieve files from an FTP server, Lynx can download files to your account. If you need to search a Gopher server, such as the NYU CWIS, Lynx can do that as well.

Each connection can potentially lead to other connections. For example, let’s start at the NYU Lynx Home Page, which is what you reach when you call for Lynx on various ACF accounts (see “Finding Lynx” on page 8, and the screen shots opposite). From there, we can go to an information area About NYU and Its Environs, or to Information Servers at NYU (both stored on a server at the ACF). From the latter, we might choose to examine documents from the NYU Medical Center’s Hippocrates Project (on a server at the Medical Center), or search Securities and Exchange Commission data distributed by the Stern

The World-Wide Web

The World-Wide Web (WWW) is described by its inventors as “a large-scale networked hypertext information system” and “an embodiment of human knowledge” that is stored around the world and accessed through computers connected to the Internet.

WWW was invented at CERN, the European Laboratory for Particle Physics. The researcher Tim Berners-Lee envisioned a system that would permit the display of online documents that contained embedded cross-references to other documents.

The idea was not new; it is popularly known as “hypertext.” But Berners-Lee’s technique was groundbreaking: his documents could contain text, pictures, sounds, and movies, and could provide access to many other unrelated Internet services, such as FTP archives and databases. And any part of any hypertext document could be located anywhere in the world, as long as that location could be accessed through the Internet. No special passwords would be needed. No special commands need be memorized. No expert would have to be on hand to offer assistance.

It takes a bit more work to create a WWW hypertext document, but the user will appreciate the results of the effort.
Welcome to Lynx and the NYU Home Page for Lynx

You are using Lynx to explore the World-Wide Web (WWW). From here, you can access links at NYU and around the world. Press Enter for help with Lynx.

- About NYU and its Business — information about NYU's schools, colleges, and divisions, its Washington Square campus, its libraries, history, student activities, and more.
- Academic Computing — a gopher and lab servers operated at NYU, including the NYU Computer Information System, which also provides a central gateway to these and other resources.
- Other Interesting Internet Resources — new and noteworthy lab and gopher servers around the world, and sources of additional information.
- Help Options — view a list of available help options.

Information

Academic computing at NYU is diverse and decentralized. There is a growing number of interesting gopher and web servers operated at NYU.

GENERAL RESOURCES
- The NYU Campus-Wide Information System: a gopher server providing current information about NYU programs, policies, and facilities, and a gateway to other resources at NYU and elsewhere.
- DEPARTMENTAL, DIVISIONAL, AND SUBJECT RESOURCES
- University Clearinghouse
- Academic Computing: a gateway to these and other resources.
- OTHER INTERESTING INTERNET RESOURCES
- The Promise of Hypertext

In the hypertext model of information, the reader — not the writer — calls the shots. But the writer sets up the shots: in hypertext, a document can be laden with references and links to other sources. Consider this excerpt from Thoreau's "Civil Disobedience":

I heartily accept the motto, "That government is best which governs least"; and I should like to see it acted up to more rapidly and systematically. Carried out, it finally amounts to this, which also I believe — "That government is best which governs not at all"; and when men are prepared for it, that will be the kind of government which they will have.

In the hypertext model, each boldface quotation here could contain a pointer to other documents that "published" home page, you can enter it yourself in Lynx by pressing g to go to an address, and manually typing the URL, much as you enter an electronic mail address when you want to send mail to someone who is not listed in your online address book.

The Promise of Hypertext

In the hypertext model of information, the reader — not the writer — calls the shots. But the writer sets up the shots: in hypertext, a document can be laden with references and links to other sources. Consider this excerpt from Thoreau’s “Civil Disobedience”: I heartily accept the motto, “That government is best which governs least”; and I should like to see it acted up to more rapidly and systematically. Carried out, it finally amounts to this, which also I believe — “That government is best which governs not at all”; and when men are prepared for it, that will be the kind of government which they will have.

In the hypertext model, each boldface quotation here could contain a pointer to other documents that

School’s EDGAR Project (stored on a server in Washington, D.C.). Or we might go a different route, selecting Other Interesting Internet Resources, where we could inspect a collection of electronic journals (sponsored by NASA) or browse back issues of Wired magazine (stored on a server in California).

From Lynx to “Links”

The key to understanding Lynx is that a document on the screen can have one or more cross-references, each of which leads to other documents, each of which may lead in turn to yet more documents. The references between documents are referred to as "links."

For navigation, Lynx primarily uses the arrow keys and the Tab and Enter keys. If a document has a cross-reference, you can move to the link with the arrow keys. Place the cursor on the link, and press Enter to follow to the next place — across campus or around the world.

Lynx knows where to go because every home page, and every document that contains links to other places, uses a type of pointer known as a Universal Resource Locator, or URL (see box at right).

If you hear of an address that is not listed on any

Anatomy of a World-Wide Web URL

Here’s how to decode the information in a WWW Universal Resource Locator — the (usually invisible) tag that finds the item you want:

http://www.ncsa.uiuc.edu/General/Internet/WWW/WebIntro.html

1. Resource type, followed by a colon.

http: Hypertext transport protocol
gopher: Gopher server
ftp: FTP archive
telnet: Telnet-accessible host

2. Two slashes precede the Internet address of the resource.

3. This is the full Internet address where the resource can be found — in this case, the World-Wide Web server (www) at the National Center for Supercomputing Applications (ncsa) at the University of Illinois at Urbana-Champaign (uiuc), in the educational domain (edu) of the Internet.

4, 5, 6. The path — the directories and subdirectories on the WWW server where the resource is stored.

7. The resource’s file name — an introduction to the Web; the html extension indicates that the document is in the Hypertext Markup Language, with URLs embedded.
Finding Lynx on ACF Computers
Most members of the NYU community with ACF accounts can use Lynx. The way to reach it varies with the account:

NYU-Internet accounts: Select Network/Lynx from the main menu, or enter the command lynx at the command prompt.

ACF2 and ACF4 accounts: Enter the command lynx at the command prompt.

ACFcluster accounts: Enter the command lynx at the command prompt, or select Info/Lynx from the main menu.

detail the source for the quotation or comment on it. The reader could choose to read straight through Thoreau, or could hop and skip between Thoreau and related sources. In an elaborate setup, a determined hypertext editor could mark up an original source, creating links to commentaries on the original, with links to commentaries on the commentaries, and so on. (In fact, this capability is responsible for hypertext's current popularity in some scholarly circles.)

The benefits of hypertext are immediately evident to any Internet explorer who has ever wondered how to locate information. In fact, O'Reilly and Associates, the publishers of The Whole Internet User's Guide and Catalog, now make the "Catalog" portion of the book available on the Web. (The catalog's URL is http://nearnet.gnn.com/wic/newrescat.toc.html.) This online catalog serves as a handy subject index to many established WWW sites.

The Web Is Still Developing
Neither the Internet nor the Web is a static entity. Networked hypertext — the distribution of information, services, file archives, and other resources through a single browser — is still an exceptionally new field. The resources out there, and the software that navigates the network, are constantly changing to meet new needs and repair old problems.

Many people have suggested that the Web is like an unfamiliar city, and that the best way to learn its contours and its quirks is to set out "on foot" and explore it. Lynx (on most of the ACF systems) allows you to delve into the Web from the same place where you send and receive your electronic mail, either using the system prompt or a system menu. (See the box above for details on using Lynx from an ACF account.)

The ACF will also offer several workshops on the subject of the Web this fall, with special emphasis on using Lynx and Mosaic. Consult the schedule of ACF workshops at the end of this issue, or browse the NYU CWIS by searching for the title ACF Classes.

There are also a few Network News groups dedicated to discussion of the Web and its software tools:
- comp.infosystems.www contains a very active collection of groups that discuss all aspects of the Web:
  - comp.infosystems.www.users
  - comp.infosystems.www.misc
  - comp.infosystems.www.providers
- comp.infosystems.announce is a place for discussion and announcements of new Web servers and services.
- comp.infosystems.interpedia is devoted to a new project to create a global, distributed Internet-wide encyclopedia.
- comp.infosystems.gopher is concerned with Gopher clients and servers, but provides good information for anyone who wants to learn about how decentralized, cooperative information technology can function and grow.

Someday the Internet will indeed be simple and easy to negotiate. Eventually the technology will improve, to the point where we can focus on the content and let our machines worry about the mechanical details.

(continued on page 11)

Keeping Up with the News
To read one or more of these news groups on the NYU-Internet system, try this shortcut:
- press ! at the main menu, to reach a command prompt
- to jump directly into a group, enter tin group.name (for example, tin comp.infosystems.www)
- press Enter when the group shows up on your "Group Selection" screen

You can read a group in this way without adding it to your standard list of news groups. If you like what you see, and want to add a group permanently to your subscription list, press s at the "Group Selection" screen.

For more information on using News from other ACF systems, consult your documentation packet, or (for the ACF's Unix systems) refer to a book like Ed Krol's The Whole Internet User's Guide and Catalog.

(In a future issue of this publication, we plan to offer a field guide to the use of Network News.)
GIGS Is Growing: School of Ed Adds Graduate Grant Info on the NYU CWIS

Lucia Ruedenberg
ruednbrg@acfcluster.nyu.edu

Thousands have checked into GIGS (Grants in Graduate Studies) since it was put on the NYU CWIS in June; by August, requests for information were running at more than a hundred a day. (For more about the NYU CWIS, see the box below; and see the article on GIGS in the May issue of this publication.)

Lucia Ruedenberg received her doctorate in performance studies this spring from the Graduate School of Arts and Science (GSAS). She worked with GSAS in setting up GIGS last spring.

Who is browsing this database? A surprising variety of people. We’ve gotten e-mail from a mix of NYU students at home and abroad, full-time and part-time, incoming students, prospective students, and alumni.

Enthusiastic Responses from Grant-Seekers
Most of the messages express enthusiasm and appreciation for the new resource.
• A student at the University of Alabama writes: “I’ll be attending NYU for grad school in Inter-

What Is the NYU CWIS?
Developed and operated by the Academic Computing Facility, the NYU Campus-Wide Information System provides easy, menu-driven access to a growing online repository of current information about NYU facilities, programs, and events, and to a wealth of resources available via the worldwide Internet. Examples include electronic journals, course listings, research reports, and archives of scholarly materials, as well as hundreds of library catalogs around the world including those of NYU’s Bobst Library, and the libraries at the Law, Medical and Dental Schools.

Using the NYU CWIS Is Easy
You can connect to the CWIS from desktop computers in NYU offices and labs, or by using a modem and ordinary telephone line from your home computer.
If you have an NYU-Internet account, simply select 2. CWIS from the main menu. If you have an ACF Electronic Mail and Information Services (EMIS) Account, select Info from the EMIS main menu; then, from the Info menu, select NYU CWIS. If you don’t have an account, get an NYU-Internet account. Full-service accounts on the ACF’s VMS and Unix computers also provide access to the CWIS: type gopher at the system prompt.

When the NYU CWIS main menu appears, simply use the up- and down-arrow keys on your keyboard to choose the item that interests you, and press the Return key. Start by selecting the first item on this menu, for simple instructions on using the NYU CWIS and for information on CWIS highlights. Information can be read on-screen or e-mailed back to yourself for subsequent downloading and printing. When you’re done, simply type u to return to the previous menu.

Further Information
For more about the NYU CWIS see the articles in the four previous issues of this newsletter. If you would like to provide information on the NYU CWIS, or if you have any questions, you may send e-mail to cwis@nyu.edu (or simply cwis from the ACFcluster) or call the ACF HelpLine at 998-3333.
active Telecommunications (TSOA) this fall. I’ve been browsing the Gopher, and I noticed your GIGS project. It is an excellent idea, and I’m glad it’s available. Thank you. Specifically, I’m interested in interactive educational and entertainment projects. I wonder if corporate foundations have funds available (e.g. Sony, Apple, MCA, etc.). Any ideas?"

- A student from Canada, enrolled in a master’s program in the School of Education for this fall, wants to know what kind of financial aid or work-study programs are available to her.
- A part-time MBA student in the Stern School hopes to return full-time in January 1995 and is looking for financial support for females in their late twenties studying information systems.
- A graduate student of political science, currently teaching at the University of Mexico, writes: “I received an article from my department about GIGS, and I think that putting this information on line is a great idea. Please give me any information I need to access GIGS from the system at my university in Mexico.”
- A senior at the University of Toledo in film, video, and philosophy would like to pursue graduate studies at NYU and seeks further information on a specific grant.
- A mother is searching through minorities fellowships for her daughter, who is currently at the University of Wisconsin in Milwaukee and is interested in coming to NYU.

**GIGS is Growing**

Although GIGS was started by the Graduate School of Arts and Science (GSAS), the above comments testify that students from other graduate schools at NYU — Tisch, Stern, and the School of Education — are already using the resource.

Last May, Assistant Dean Lindsay Wright of the School of Education suggested that her school join GSAS in posting resources on GIGS. She explained that for several years, the school had been borrowing GSAS’s booklet on grants to help Education students find outside funding. “There is usually considerable overlap,” she observed. “We, too, had been trying for several years to figure out how to get up-to-date information about external funding sources to our students, without reprinting booklets. I asked GSAS if they would be open to merging our grant information with theirs. It makes a lot of sense to produce
one larger university-wide electronic source, and thereby expand the usefulness of GIGS to a greater number of students.”

I began working on expanding the project in June, and with the help of Robert Kellerman, a TSOA student working in Dean Wright’s office, added information for the School of Education. The project should be complete in September.

What does it mean to add a school to GIGS? It means structuring a space that can be shared, while allowing each school to have control over its part of the information. Grants for the Graduate School of Science (GSAS) and Grants for the School of Education (SCOE) appear side by side on a main GIGS menu, together with a directory listing for Grants for Specific Groups of Students.

Within their respective menus, each school organizes its information to suit its needs. GSAS divides its grants departmentally, according to three broad categories — humanities, social science, and science. The School of Education also organizes its grants according to departments but lists internal and general grants separately. The majority of grants in both schools come from outside sources — private, corporate, and public. Resources are cross-referenced between schools when applicable.

This fall, the School of Education will set up a computer terminal for GIGS in its Office of Graduate Admissions, to help students who are looking for funding. Call before stopping by the office at 32 Washington Place, room 20. For more information, contact Jose Oshua at 998-5353.

The GSAS Office of Academic and Student Affairs provides help on funding for its students, including workshops given during the academic year. Call 998-8060 for more information or stop by the office at 6 Washington Square North.

Lynx (continued from page 8)

But until that happens, the best way to get access to information that is distributed all over the Internet is to learn how to use a few of the basic software tools.

Of the available tools, Lynx is perhaps the most versatile, since it works as a World-Wide Web browser, but also allows us to make simple Telnet, FTP, and Gopher connections around the world. It helps make hypertext easy to understand and use. And it allows anyone with the simplest desktop computer and connection to explore the Web, learn more about how it works, and watch it as it grows.

---

**Ethernet Links Available at Dorms**

The ACF is offering direct connections to NYU-NET to students living in Goddard Hall and Third Avenue North Residences. These connections provide high-speed access to a range of basic services provided by the ACF. Among these services are:

- electronic mail — sending and receiving E-mail messages, subscribing to discussion lists and electronic conferences
- access to Internet, the international network of computer networks
- mainframe computer access and file-transfer software using Kermit, Telnet, FTP, and TN3270
- access to the Gopher-based New York University Campus-Wide Information System (NYU CWIS) — including online archives and library catalogs, such as BobCat and MEDcat.

If you would like to have one of these direct NYU-NET connections, or to find out more about them, call the ACF HelpLine at 998-3333.

**ACF HelpLine Q&A**

**Q:** Can I get a copy of the NYU-NET software that will run in Windows?

I connect to other computers via the NYU-NET menu, which runs on my PC under DOS. Is there a version that will run under MS Windows?

**A:** Yes. The ACF is now beginning to distribute NYU-NET software to run within the Windows environment.

A new bundle of products — including Telnet for logging in to other computers; Eudora (an e-mail utility); and Mosaic (a World-Wide Web reader) — is now available to be installed on NYU PCs running MS Windows 3.1. These machines must be relatively powerful — at least 386 PCs with 10 megabytes of space on the hard drive to store all the requisite files. Full documentation is not yet ready, though, so only those familiar with networking software will be able use it comfortably.

To set up an installation date and time, call us at the HelpLine.

— L. Barnett

**Call the ACF HelpLine at 998-3333**
Undergraduate Scholars Explore New Tools at the ACF Science and Visualization Lab

This summer, four undergraduates spent long hours and weeks working in the ACF's Science and Visualization Lab (room 317, Warren Weaver Hall), exploring visualization techniques on the lab's SGI (Silicon Graphics, Inc.) computers. The four students were all involved in research projects with NYU faculty members.

In the course of their work, they learned about many software tools from SGI and third-party vendors, as well as freeware, and discovered some new ones. Among the results of their work were the images on these pages, described in the captions.

— Estarose Wolfson
estarose@nyu.edu

The four undergraduates working in scientific visualization at the ACF: Alla Ryaboy, a junior majoring in math at NYU's College of Arts and Science (CAS); Elbert Chin, a senior majoring in chemistry at CAS; Constantine Kreatsoulas, a senior majoring in math and minoring in chemistry (CAS); and Shawn Lottier, a senior majoring in chemistry at Morehouse College.

As part of her pre-med concentration, Alla Ryaboy is working with Professor Regina Monaco (Department of Chemistry, FAS) on a research project involving the oncogene protein, p21. Under certain conditions, variants of p21 found in cells may cause that cell to transform, to become cancerous. The protein model she worked with has the 167 amino acids whose structure has been determined through X-ray crystallography. An area of interest is shown in Alla's visualization (left), produced with Biosym's Insight and Discover programs. The p21 protein binds to a ligand, guanosine triphosphate (or GTP, shown as the solid spheres). The entire complex in the simulation contains the p21 protein (the skeletal structure), its GTP ligand, and some 3,500 solvent water molecules (the small separate V-shaped objects). The objective of the computer simulation is to run the dynamics of the molecule's structure, in order to show as nearly as possible how the protein acts within the cell.
As a summer intern under the Presidential Scholars Program and the Howard Hughes Medical Institute, Constantine Kreatsoulas worked with Dr. Tamar Schlick, of the Department of Chemistry (FAS) and the Courant Institute of Mathematics, who is a Hughes Associate Investigator. Constantine wrote a computer interface allowing Dr. Schlick's research group to visualize their data using an external graphics package, MolScript. The picture at right represents a computer simulation of the motion of a DNA molecule in a specific salt concentration. DNA's motion is profoundly influenced by the salt concentration in the natural cellular environment. The researchers found that at a critical salt concentration, entropy and electrostatic effects are balanced in an optimal way. This makes the DNA most dynamic at physiological concentrations.

Shawn Lottier was involved in the Howard Hughes Undergraduate Summer Research Program at NYU's Center for Neural Science. Working with Professor Wilson, Shawn used a molecular modeling program called Spartan to perform calculations on derivatives of C60 Buckminsterfullerene ("buckyball"). In addition, his project involved molecular modeling and computational chemistry of dopamine isomers, also using Spartan. The picture at right, generated on a SGI computer, shows a plot of a C60 derivative with a comparison of the electron density of the molecule. The plane shows a generally low electron density (shown in red in the original), with foci of high electron density shown in dark gray (originally blue), at the intersections with the buckyball structure.

Elbert Chin's work this summer is part of his independent study and research for his Senior Honors thesis under the supervision of Professor Stephen R. Wilson of the Department of Chemistry (FAS). The project involves the synthesis of C60 Buckminsterfullerene ("buckyball") derivatives with the potential to inhibit HIV Protease.

With the use of Spartan and Macromodel, two programs on the SGI computers, he did molecular modeling of fullerene derivatives to search for feasible models that could have possible biological activity. The picture at left shows a comparison of C60 with an active site of myoglobin. The goal for this particular project is to design a C60 derivative that acts as a mimic of the myoglobin active site.
ACF’s Summer in Computing for New York City High-School Students

David Frederickson
frederickson@nyu.edu

Once again this July — for the twenty-sixth such summer computer program at the Courant Institute in twenty-seven years — staff members of the Academic Computing Facility took a group of New York City high-school students in hand for a month, and came out the richer for it. So did the students, to hear them tell it. “I loved everything (no, I’m not a nerd),” responded one to an anonymous survey conducted by the desktop-publishing group. “I enjoyed the teachers, the students, and the learning experience.”

The summer program began in 1967, before the day of desktop computers, when computer science was just becoming a separate unit within the Courant Institute of Mathematical Sciences. For most of its existence, the summer session for high-schoolers concentrated on the basic language of computing: programming. Over the years, several hundred students have gotten an intensive introduction to computers and computing, and many have gone on to productive careers in the field.

The program has evolved, however. Now that the Internet is turning into the much-talked-about National Information Infrastructure, it seems as if the students should have an intensive introduction to it and to the tools they need to navigate it; since many will be returning to their schools to help the teachers in charge of computers, they’ll be able to pass on some of their new expertise to their fellow students. And now that computers are commonplace appliances and programs are both more powerful and easier to use, it seems appropriate to add other applications to the mix, allowing students to specialize in one of three areas: programming, multimedia, and desktop publishing.

Vincent Doogan, the ACF’s Assistant Director for User Services, began to shift the focus of the program last year; this year, with support from Dean Ann Marcus of the School of Education, the student base has been enlarged. Rather than taking most of the students from the specialized high schools that already have strong computing programs, Doogan and Lee Frissell of Dean Marcus’s office decided to invite two students from each of Manhattan’s twenty-five high schools, plus Weehawken (N.J.) High,

When he isn’t trying to keep up with a dozen high-schoolers, David Frederickson edits this publication.
When I got a chance to work with the students, it was truly amazing to see the kids pick up these skills so quickly and naturally and use them so well,” says Joe Citta, who taught the multimedia group (see photo on page 31). They used Macromedia Director to produce short animations that incorporated work they did in a variety of other programs.

This year I got a chance to work with the students, too, with enthusiastic and able help from Gina Marcel and Adekemi Sijuwade. The central program of the course was Aldus PageMaker, again incorporating material from Adobe Photoshop, Microsoft Word, and several other programs. In the end, the students published a twenty-four-page newsletter-cum-yearbook that they called MorpH.

Lucy Herrera, from Manhattan Comprehensive High School, enjoyed working in PageMaker. “I like creating stories, getting my thoughts down on paper. And it’s nice to be able to keep improving your work, trying to get it perfect.”

The Virtual College: Distance Education at SCE

The Information Technologies Institute of the School of Continuing Education received a $380,660 grant this spring to expand its Virtual College, in an interactive video telecourse that leads to an Advanced Professional Certificate in Information Technology. With Lotus Notes, digital video, applications software, and high-speed digital phone lines as enabling technologies, Professor Richard Vigilante and his colleagues are both teaching the courses and creating the structure that allows the Virtual College to function in areas and with a clientele where traditional classroom instruction is not a viable option. Look for a report on this project in the next issue.
Expanding Services at ACF's Labs, Innovation Center, and Help Center

Vincent Doogan
doogan@nyu.edu

Over the past year and more, members of the NYU community will have noticed many changes at the Academic Computing Facility. The pace of change has accelerated over the summer, when eighty-five new computer systems have been deployed in User Services areas around campus. Four of the areas are the various instructional computer labs, for class and student use, which I'll discuss at the end of this article. Two other areas that have evolved dramatically are both housed on the renovated second floor of Warren Weaver Hall:

- The multifaceted Innovation Center, a user lab for faculty and graduate students, with powerful computers, advanced printers, and the latest software.
- The Help Center, where support specialists dispense ACF-licensed software, provide in-person assistance, and answer questions by telephone and electronic mail.

Though both areas are still evolving, and some of the new machines and furnishings are barely in place as I write this, the beginning of a new academic year seems a good time to introduce (or reintroduce) these areas and services to the NYU community.

The Innovation Center

As you leave the elevator on Warren Weaver’s second floor, you’re greeted by racks of ACF documentation and two sets of double doors. One leads to the SGI Workstation Classroom, the other to the Help Center and the Innovation Center, a large, airy, gray-carpeted room divided into three work bays.

Immediately inside the doors lies a large bay equipped with high-end Macintosh computers, ranging from a Quadra 840AV audiovisual machine to the latest RISC-based 8100AV Power Mac, both with large color monitors. Each has a CD-ROM reader, so that users can explore the growing collection of CD-ROM titles housed in the center. We are in the process of developing comparable PC-based resources, which will be in place later in the fall semester. There are also scanners (both an HP ScanJet IIcx flatbed scanner and a Nikon CoolScan 35-mm slide scanner), color printers, and a VCR with large video monitor, all connected to the computers.

This area should prove a valuable resource for faculty members, particularly in education and the humanities, who are interested in using and exploring the available and evolving instructional technologies. These might include reading and writing electronic books, taking and processing digital images, preparing presentation materials for classes and conferences, setting texts and illustrations for publication — all as ways of improving research, teaching, and the dissemination of the scholar’s work. If you’re interested in visiting or using these resources, please call me at 998-3449.

The central bay contains several workstations connected to high-quality color printers — resources relevant to general academic applications, with a special emphasis on science. The five Tektronix X-Window stations are capable of serving multiple windows on high-resolution 19-inch color displays; each machine is equipped with sound and video cards and a three-button mouse. These stations are a good platform for using NCSA Mosaic (running on central Unix ma-
chines) to explore the multimedia offerings of the Internet and World-Wide Web. They also provide scientists and students with an up-to-date interactive tool for use with such powerful software as Mathematica, Maple, Matlab, and Macsyma — programs that emphasize scientific visualization and computation. Also available are Silicon Graphics workstations that provide full 3D color rendering and animation capability. For more information, please contact Ed Friedman at friedman@nyu.edu.

The third bay serves as the faculty node of the New Media Center, and is under the direction of Philip Galanter and the Arts Technology Group (see Jeff Bary’s article on page 21 for details).

The Help Center

A little more than a year ago, the ACF began to funnel all calls for information through the HelpLine (998-3333), in an effort to speed up response and to help users find the right information as quickly as possible. Under the supervision of Lisa Barnett, the HelpLine has taken hold, and other support services are evolving around it.

The HelpLine itself is the central point of contact for people who have questions about ACF services, and about computing and networking, on campus and off. During business hours (9 to 6, Monday through Friday), staff members respond to the phone queries and if necessary, walk each caller through to a solution of the problem. If all of the staff members are already helping other users, the caller has several options: to stay on hold, to listen to a recorded (and branching) information menu, or to leave a message for a call-back. Off-hours, the recorded information menu is always available, or, again, the caller can leave a message.

At the Help Center, walk-in clients can find training, troubleshooting, technical know-how, and some essential software. The ACF manages licenses for several computer programs. Programs for virus protection and for communication with ACF host computers are free to the user; statistical packages such as SAS and SPSS may be licensed for a fee. To find out more, visit the Help Center during regular business hours, or call 998-3333.

A New Generation of Computers at the Labs

The ACF’s Instructional Computer Labs, used by more and more students and classes each year, have a wealth of new equipment this fall. New computers (both Gateway PCs and Macintoshes, most with CD-ROM drives), printers, scanners, Syquest drives, and other peripherals should all be in place and ready to use by the start of the semester.

- At the Education Building lab (second floor; 998-3421), the old PC classroom is being converted to a mid-range multimedia facility, with some twenty-four new Power Mac AVs, eight HP ScanJet IICx scanners, and twenty-four Syquest drives available for classes and general users. The north bay, under the Arts Technology group, will cater to fine-arts classes from TSOA and the School of Education (again, see page 21). In the other parts of the Ed Site, some of the older Macintoshes are being replaced by new Power Mac 6100s. There will be a total of a hundred computers available for users at the lab. Three of the areas can be used as classrooms; for more information, call Howard Fink, the site manager, at 998-3422.

- Tisch Hall (room LC-8; 998-3409) is getting twenty-four new Gateway PCs, with clock-doubled 66-megahertz 486 processors, CD-ROM drives, and 16-inch color monitors. These new stars occupy a new area at the site, which can be used for hands-on classes; for information call the site manager, John Lee, at 998-3406. The old Mac Pluses — the ACF's first Apple computers, dating from the mid-eighties — are finally being retired, and the Tisch Hall site will now be a PC-only site that can serve

(continued on page 29)
Computing in the Social Sciences

Westchester Maps and Data at ACF

The Westchester County Department of Planning has made a wealth of county data available to NYU students and researchers through the ACF. Tami Strauss, a county cartographer who is pursuing an advanced degree in public administration at the Wagner School, has been instrumental in arranging access to the maps. All the data can be accessed through ArcInfo, the high-end Unix-based package or its analytical PC-based sibling, ArcView both available at the Academic Computing Facility.

An amazing variety of information is included. The geographical features are stored as spatial data; attributes (names, tax rolls, population, voting records) stored in databases are attached to the features. The attributes can be displayed on the maps: the essence of a geographic information system (GIS). The Westchester maps can include forty layers or "coverages" of automated data, ranging from municipal boundaries and streets, to hydrology and hazardous-waste areas, to locations of schools and county volunteer ambulance corps stations.

All of the data is current and continually being expanded and updated by members of the Westchester Planning Department. As more refined survey data showing soil types, geology, etc., becomes available, it can be added to existing layers or put on new layers.

A major project that Strauss and her colleagues are working on is to create a system for automated 911 response. One step is to be sure that every building in the county has a usable and correct address. The Census Bureau produces "Tiger" street maps with a great deal of information, some of it inaccurate; all Tiger addresses must be checked and corrected. In some areas, address (continued on page 20)

Here we see a portion of the Westchester data discussed above, as displayed in ArcView on a PC in the ACF's Innovation Center. At left is a map of the whole county, showing the township lines, names, and a few other major features. In the next screen, we start zooming in on North Castle township (grayed in the upper image), meanwhile activating more layers of coverage — now showing hydrology, railroads, streets, etc. Below, we've zoomed in further; using the Info tool, we've selected Wampus Pond. This brings up a table of information from the database; the scrollbar permits more information to be displayed. At bottom left, the pond is shown at an even larger scale.
More High-Performance Machines at the ACF Center for Applied Parallel Computing

Edward Friedman
friedman@nyu.edu

Over the past year, a cluster of seventeen IBM RS/6000 workstations have formed the heart of the Center for Applied Parallel Computing (CAPC) at the Academic Computing Facility. This cluster has given the scientific and education community at New York University a powerful resource for research and instruction. The software offerings on this cluster include PVM, Linda, Concert-C, and other specialized applications.

Thus both researchers and students have been able to learn about and to use this tightly coupled distributed-memory parallel-processing system. During this past year, two well-attended courses in parallel computing were given by the Department of Computer Science; its students explored various parallel-computing architectures and programming models, and were able actually to try them out on this system.

High-performance parallel-processor and multi-processor systems are becoming more common and relatively inexpensive these days, and they will greatly facilitate scientific research. Grand-challenge problems in the areas of astronomy, molecular biology, and high-energy physics can be solved on these systems, and economic modeling and analysis are yielding insights about the nature of the world around us. Systems such as the RS/6000 cluster are providing the tools and computer power to explore these problems.

The ACF has also acquired software from Applied Parallel Research called xhpf, which attempts to auto-

Adapting Fortran Code for Parallel Computers with XHPF

I have used the automatic parallelization precompiler and I am glad to report that it works. I am solving a Dirichlet problem for a linear elliptic partial differential equation using the method of complex characteristics. The code was written with the goal of running on a parallel facility.

The ACF's newest parallel-computer setup is discussed in Ed Friedman's article above. We have an automatic parallelizer called XHPF: Forge High Performance Fortran (HPF) Parallelization Pre-Compiler for Distributed Multi-Processing Systems. It analyzes a complete Fortran code and produces a compatible parallelized Fortran 77 code, containing calls to APR's library interface. The runtime library interfaces with the PVM3 communication system.

The ACF software is limited to eight processors. Timing utilities are available which can give statistics for serial runs as well as parallel runs of a job. Documentation is available from the ACF at Warren Weaver Hall, room 312.

I ran a short job that takes 29 seconds when run serially (using optimization in compilation) on the IBM RS6000/580. Similarly optimized, the parallel code running on eight processors took 3.39 seconds — about 8.5 times as fast.

For help with the parallelizer or CAPC, send e-mail to me at the address below.

Frances Bauer
bauer@acfcluster.nyu.edu

Frances Bauer is a high-performance computational scientist at the ACF.
In a shared-memory system (left above), all memory (M) is shared by all processors (P) in the system; in a distributed-memory system (right), each processor has its own store of memory.

For many applications, shared-memory systems are easier to program and use, but they are thought not to be as upwardly scalable as the distributed system — that is, increases in size don’t necessarily bring proportionate increases in efficiency.

Shared memory implies that all the processors have equal access to any memory address or location. This can lead to a condition known as memory contention or even deadlock, when several processors attempt to read or write to the same address or bank of addresses in shared memory. As more processors are added, more physical connections have to be established between the memory and the processors, and more complex software has to be written to coordinate the processing and prevent contention and other undesirable effects, such as idle processors and incorrect results based on order dependencies in the computation.

Thus the cost of a parallel shared-memory system with too many processors and lots of memory would be prohibitive. Operating systems and other software would also be overly complex and expensive; the system would be inefficient and not cost-effective. — EF

Many areas in mathematics and the physical sciences — such as partial differential equations, computational fluid mechanics, molecular dynamics, economics, the neural and medical sciences, thermodynamics, genome and DNA investigations — will clearly benefit from the expansion and availability of parallel computing. So will scientific visualizations and animations using more of the human senses, such as sound, motion, and color, which will provide greater insights into scientific problems under investigation.

Westchester Maps (continued from page 18) numbers must be assigned for the first time. All of this information has to be correlated to the map on the street layer. Ultimately, this will be integrated with the phone system, so that when a call comes in to 911, the caller’s location is highlighted on a map, and the best route is shown.

Several NYU researchers have already been making use of this data, which can be exported as ASCII text for use in other programs. For more information on accessing the Westchester data, please contact Frank LoPresti. The ACF will present a panel discussion introducing the various GIS packages available at NYU (see schedule section at the end of this issue).

— David Fredericson and Frank LoPresti
fredericson@nyu.edu • lopresti@nyu.edu
Enlarged and Upgraded Facilities for Artists in the ACF's New Media Center

Jeffrey Bary
bary@nyu.edu

Major improvements are being made by the ACF Arts Technology facilities. Since the announcement of NYU's participation in the New Media Centers (NMC) Program (see the May 1994 issue of this publication) we have added to and upgraded almost all of our facilities. This includes the Student Studio on the second floor of the Education Building, and, in Warren Weaver Hall, the Innovation Center and the larger SGI Workstation Classroom for videographics. The equipment at these locations is used to support classes that are providing arts instruction, and in order to meet the requirements of the NMC program, access to the facilities is limited to departments providing instruction in arts production. The new mid-range multimedia facility at the ACF Education Building lab will provide similar capabilities for other disciplines (see Vincent Doogan's story on page 16).

The Student Studio

The number of Apple Macintoshes at the Student Studio has been increased from eight to fourteen. In the past, there was a mix of Quadra 700s and Quadra 800s. These machines have been augmented by a number of Power Macintosh 8100/80s, which feature a high performance RISC architecture useful in processing images and video. Unlike the previous configuration, the studio is set up as four groups of three machines, each group having a specific production task — multimedia, imaging, video, and audio.

Shelly J. Smith Joins the ACF's Arts Technology Group

The new addition to the Academic Computing Facility's Arts Technology Group is Shelly J. Smith, joining Philip Galanter and Jeffrey Bary. Shelly's history in New York begins with an MFA in Computer Related Studies, completed at School of Visual Arts, which quickly evolved into work experience as a systems administrator and faculty member for the Graduate Computer Art, Graduate Photography, and Undergraduate Computer Art Departments at SVA.

Coming from a traditional fine-art background, Shelly works to maintain a balance between her ongoing education in computer technology and the development of her personal work. Shelly's work has been seen in such shows as the recent International Computer Graphics Exhibition in Tokyo, and the Artist's Space 20th Anniversary Show in New York. Along with the work of several other artists, hers is also featured in the September 1994 issue of Aperture magazine, titled Metamorphoses (Photography in the Electronic Age). This is Aperture's first digital issue and is accompanied by a show that will run through September and October at the museum of the Fashion Institute of Technology.

Important among Shelly's personal interests is a lakeside cottage in northeastern Pennsylvania. Besides the scenery, she enjoys mountain-bike riding, swimming, hiking, and spending time with family and friends. Shelly's husband, Michael, a chef and musician, has introduced music and food into the mix. Shelly, however, claims no credit for any culinary skills, and plans to keep it that way.

Academic Computing and Networking at NYU  September 1994  21
All of the new machines are equipped with new 270-megabyte Syquest drives. The 270MB cartridge has five times the capacity of the older 44MB cartridge, has faster seek and transfer times, and costs about the same. The studio also provides support for the older 44MB cartridges.

- The three multimedia systems are based on Quadra 700s. Sound input and output on these systems is provided by an internal Audiomedia I card, which provides 16-bit digital audio. In addition, each computer has a Roland SC7 Soundcanvas — a peripheral device that supports General MIDI, which is emerging as a popular standard. These computers are also equipped with RasterOps 24XLT MoviePack cards, which accept thirty-frame-per-second input from the attached Pioneer video-disk readers and the Sanyo S-VHS videotape decks. HP ScanJet IIc flatbed scanners are attached to two of the machines.
- Imaging facilities are provided on two Quadra 800s and one Power Mac 8100/80. Along with a Wacom graphics tablet for freehand drawing and tracing, there is an HP ScanJet IIcx for digitizing opaque originals, and a Nikon Coolscan for 35mm slides and negative film.
- Our premier digital-video machines feature Radius Video Vision Studio 2.0 cards on three Power Mac 8100/80s. These full sixty field video workstations use 2-gigabyte FWB disk arrays for faster processing and higher-quality desk-
Sound input is from the newer 16-bit Audiomedia II cards, and output goes to a Sony SLV-R1000 S-VHS deck. Sound can be mixed through an eight-channel Mackie mixer.

- The three Quadra 700 audio production machines all have Audiomedia II sound card, which provide the ability to make direct digital recordings and to accept digital input from the industry-standard Panasonic SV3700 audio DAT deck. Direct digital capture of audio tracks from the external CD player is also possible. Like the video workstations, these also are equipped with Sony SLV-R1000 S-VHS decks with the ability for SMPTE lock-up. Each station also has an Emu Proteus MPS MIDI keyboard.

The small classroom adjacent to the Student Studio may be reserved by instructors either for class instruction or for office hours. The Quadra 700 in that room is configured like the multimedia machines, but without a scanner. Call site manager Howard Fink at 998-3422 to reserve the room.

A Macintosh IIci with an Audiomedia II card is configured as a copy, backup, and media-exchange station. Its peripherals include both a 44MB and a 270MB Syquest drive, a HammerDAT 16GB tape backup unit, Panasonic SV3700 audio DAT deck, and Tascam 102 cassette deck.

The Innovation Center
The Arts Technology section of the newly renovated Innovation Center on the second floor of Warren Weaver Hall has two Quadra 950s and one Power Macintosh 8100/80. The area is used to support classes in photography, digital imaging, and similar applications as well as offering a place where members of the TSOA faculty and their advanced students can use equipment that, because of its expense or complexity, is not available in the department. In addition to an HP flatbed scanner and a Nikon 35mm film scanner, a Kodak PCD 200 recorder is attached to the 8100. The latter can be used to produce "one-off" audio CDs, digital photography portfolios, and interactive CD-ROMs. An Audiomedia II card plus a Panasonic SV3700 Audio DAT are also available for sound recordings. The high-end Leaf 45 multiformat film scanner is connected to one of the Quadra 950s; it can handle film sizes up to 4x5. Both Quadras have SuperMac Pressview 21-inch monitors for calibrated color fidelity. The second Quadra drives the 3M Rainbow dye-sublimation proofer, which can produce tabloid-size photographic-quality prints.

The SGI Workstation Classroom
The SGI (Silicon Graphics Inc.) workstations are now in room 203 of Warren Weaver Hall. They are used for classes in 3D animation and advanced projects for TSOA. Students now use version 5.1 of Alias, a 3D modeling package from Alias Research. The present group of four machines will be expanded to six later in the fall. An RGB switching system enables the professor to display a master machine's screen on all the other monitors. This requires no special setup and is available at all times.

Moving images: Smith and Bary loading newly tested and configured equipment at the Innovation Center (top left), moving it, and setting it up at the Student Studio in the Education Building lab (below).
BobCat Advances: Bobst Catalog Sports a New Look for Fall 1994

Lucinda Covert-Vail
covervl@aaccluster.nyu.edu

BobCat, NYU’s online catalog, was upgraded during the summer and now has a number of new features and functions. On the new BobCat you’ll see:

- new search screens
- more detail in records
- new approaches to searching and retrieving information
- on-order information for new titles
- check-in data for issues and numbers of periodicals
- reserve items listed by professors’ names
- referrals to related headings and references
- schedules for library hours at Bobst, and at the branch and Consortium libraries

The new BobCat main search screen now offers two modes of searching (see screen sample below). You may search by first word or keyword. Keyword searching helps to broaden your search and retrieves a range of subject headings, authors, or titles containing relevant words. First-word searching is useful when you know the exact form of a title, author name, or subject heading.

BobCat search options and commands now appear on a menu at the bottom of most screens, and navigation is as simple as using the space bar or arrow keys. New commands include the “related works” option, which allows you to jump from authors and subjects in one record to related terms in the database. BobCat will continue to be accessible from PCs and terminals in the NYU libraries, the NYU network (NYU-NET), the NYU CWIS, and the Internet. By the time the catalog is fully operational, the Library will have added close to 98 percent of its holdings, including records from the libraries at the Institutes of Fine Arts, Courant, and Real Estate, and at Cooper Union, the New School, Parsons School of Design, and Mannes College of Music.

During this academic year and into the future, you will see additional features added to BobCat. Using enhanced menus, BobCat will offer direct connections to databases loaded locally and remotely and it will serve as a gateway to a host of other resources such as text, numeric, image, and sound databases. For many of those databases, searchers will be able to utilize BobCat’s search protocols, rather than having to learn different query methods for every database of interest. Other planned additions include the ability to send electronic messages to place reserve or on-order items and to check-in data for issues and numbers of periodicals.

During this academic year and into the future, you will see additional features added to BobCat. Using enhanced menus, BobCat will offer direct connections to databases loaded locally and remotely and it will serve as a gateway to a host of other resources such as text, numeric, image, and sound databases. For many of those databases, searchers will be able to utilize BobCat’s search protocols, rather than having to learn different query methods for every database of interest. Other planned additions include the ability to send electronic messages to place reserve or on-order items and to check-in data for issues and numbers of periodicals.

Lucinda Covert-Vail is the Director of Reference and Information Services for NYU Libraries. Catherine Egan is the Director of the Avery Fisher Center at Bobst Library.
Britannica Online and on Mosaic: Now in Bobst's Electronic Resources Center

The online version of the Encyclopaedia Britannica uses the hypertext environment of the World-Wide Web, combined with WAIS (Wide Area Information Server) technology to search and retrieve information from the 1994 edition of the print encyclopaedia. At this time, images are not included. We are beta-testing Britannica Online in the Electronic Resources Center (Bobst B level), using MS Windows Mosaic, a GUI (graphic user interface) WWW browser. Instructions for logon and use are available in the ERC. For additional information on the Britannica and other electronic resources in the library, contact Gloria Rohmann, Electronic Resources Librarian, at rohmang@elmerl.bobst.nyu.edu or 998-2534.

Multimedia at Bobst Library

University media centers are acquiring and making available media ranging from slides and videotapes to more complex interactive formats involving computer software, laser disks, and CD-ROMs — and the Avery Fisher Center for Music and Media (Bobst Library, 2nd floor) is no exception. The AFC now has a multimedia demonstration area that contains both Macintosh and DOS-based workstations and a growing collection of interactive multimedia software available for viewing.

Multimedia has become a buzzword, but recent queries on listservs suggest that not everyone knows what it is. Essentially, multimedia is a hybrid format that combines a variety of media — text, audio, graphics, video — with a computer interface that allows the user to move through the material in an organic as opposed to a linear manner, and at his or her own pace. For people who have difficulty conceptualizing how multimedia works, the Avery Fisher Center has two useful videos that demonstrate a variety of multimedia tools and ways they can be used in instruction: What Is Multimedia? (VCA 3353) and Multimedia in Education (VCA 3354).

The center also assisted the NYU Nursing Division with a multimedia proposal in support of faculty development. The grant enabled the division to acquire a multimedia workstation and various software programs, some of which simulate critical care situations where problem-solving skills are essential. It also included faculty workshops on interactive technology and its integration into the curriculum. In 1994 the division offered courses that included multimedia assignments. Students were asked to evaluate the effectiveness of this type of instruction, and their responses were strikingly positive. Diane McGivern, chair of the Nursing Division, sees great potential for integrating multimedia into the expanding programs of the division.

The AFC offers a range of interactive programs to give the NYU community an opportunity to explore. All titles are cataloged in BobCat and available for viewing on a walk-in basis. Selected titles include: All My Hummingbirds Have Alibis (Morton Subotnick); Small Blue Planet: The Real Picture Atlas; Jazz: A Multimedia History; The Theatergame (Larry Friedlander); The Madness of Roland: An Interactive Novel (Greg Roach); and Martin Luther King Jr.'s "Letter from a Birmingham Jail."

The Avery Fisher Center will hold a multimedia fair in October for NYU faculty, staff, and students. For information on the fair, multimedia viewing, and the use of interactive media in the curriculum, contact me at 998-2580 or by e-mail at the address below. For multimedia production and facilities at Bobst, contact Gloria Rohmann at rohmang@elmerl.bobst.nyu.edu or 998-2534.

— Catherine Egan
egan@elmer1.bobst.nyu.edu
Immersion in the Myst

Some of the most fascinating applications for CD-ROMs — ones that stretch the bounds of the technology — are interactive fantasy-adventure games. More engaging than films, books, or television, these multimedia productions seek to create entire alternative realities. Virtual-reality systems with “immersive helmets” that are currently affordable can create a level of visual complexity that is just barely passable, but they do provide real-time navigation. The CD-ROM experience in many ways is much more engaging, providing limited navigation and interactivity, but a much richer visual experience.

Containing some 600 megabytes of “preprinted” information, the CD-ROM (Compact Disk, Read-Only Memory) provides a means for mass distribution of programs (both system and application) along with massive data structures. These can represent many volumes of words or other text-based information; illustrations, from black-and-white line drawings to color graphics of photorealistic quality; music, speech, or other sounds, often in high-quality stereo; and (limited-quality) moving images derived from film or video, or from computer animation.

All of the CD-ROM fantasy games owe a debt to the original Adventure, a text-only Unix-based computer game of the late 1970s. Developed by Willie Crowther and Don Woods, the game launches the action with a portentous statement: Somewhere nearby is a colossal cave, where others have found fortunes in treasure and gold, though it is rumored that some who enter are never seen again. ... I will be your eyes and hands. Direct me with commands of 1 or 2 words. ...

CD-ROM technology permits such text descriptions to be replaced by exquisitely detailed illustrations, and quite passable moving images, along with top-quality audio. The simple but flexible verbal commands have been replaced by a point-and-click gesture with a mouse. Almost universal is the convention that clicking near an edge of the image turns or moves you in that direction. Clicking on a depicted object sets it in operation, or sometimes permits you to pick it up.

Thus, the interactivity of CD-ROM games is only simulated; your sense of control is illusory. That is, you can move, turn, or activate — but only if the move or device’s action has already been illustrated and programmed. In effect, at each point in the game’s play, you may select from a very small menu of alternatives; but this simplicity is hidden under detailed visuals and by carefully structuring those few choices within a complex branching narrative.

Two of the most popular of such fantasy games are The Seventh Guest (developed by Trilobyte and published by Virgin Interactive Entertainment) and Myst (developed by Cyan and published by Brøderbund). Each utilizes these limited capabilities in its own way to provide a different flavor of “reality.”

The Seventh Guest is set in a haunted mansion. Navigation between several floors and more than twenty rooms is depicted through 3D computer-animated sequences which, though limited in resolution and number of colors, are extremely well choreographed and are helped by dramatic lighting and richly textured environments. These realistic camera moves create a true sense of space and helps one stay oriented during the game.

In contrast, Myst presents higher-resolution scenes in a visual style that is finely detailed, subtly lit, and realistically illustrated. However, there is a tradeoff — motion is
The CAT Multimedia Collection

The Multimedia Collection of the NYU Center for Advanced Technology in Digital Multimedia is located in room 1225 of 719 Broadway, between Waverly and Washington Place. The collection, one of four facilities of the CAT, is supported by the New York State Science and Technology Foundation, as well as by donations from many developers and publishers of multimedia products.

The Multimedia Collection houses authoring tools and utility software needed to produce multimedia projects on both Apple and IBM-compatible platforms, as well as manuals, textbooks, and current publications on multimedia. In addition, there is an extensive collection of existing multimedia user-oriented end-products, which can be consulted by students and potential multimedia producers in order to understand the current market and analyze state-of-the-art multimedia design in education, games, entertainment, and information (the best products often combining elements of all four).

Some of these products are available on diskette, but the majority consist of CD-ROMs and several are interactive video disks. Facilities are available to access all of these formats.

Some of the most interesting CD-ROM titles include Peter Gabriel’s Explora I; the Beatles’ film, A Hard Days Night, which contains the full screenplay, song lyrics and documentary background information; Marvin Minsky’s Society of Mind (an Expanded Book by Voyager), and Cinemania by Microsoft, an online hypermedia guide to the movies.

Software in the Multimedia Collection may not be copied, but it can be examined freely by visitors to the CAT. The collection is open to members of the NYU community or the general public who have the relevant artistic, scholarly, or computer skills and who have identified a specific multimedia research or production project.

General hours are Monday through Friday, 10:00 am through 6:00 pm. For further information contact Betsey Kershaw at kershaw@acfcluster.nyu.edu.

Reduced to small individual jumps, made by cross-dissolving from one static scene to another. The quality of the images has increased, but at the expense of the quality of movement.

Neither approach is superior; each creates an alternative reality. One longs, though, for a time when the moves of Guest can be depicted with the visual detail of Myst. Movies can combine both qualities, but without interactivity. And interactive narrative is the key to an experience that is far more seductive than the linear narrative of film. Each of these games also handles the aspect of interactivity differently.

The core of Guest is a series of mathematical and word puzzles, which are loosely structured within a supernatural horror story. Hints are embedded within video clips that advance the story and alternate with the puzzles. These brainteasers are not at all easy: elements of graph theory, modern algebra, and computer searching techniques are useful for some solutions. I completed the game in one marathon session running about a dozen hours, and the only problem I have with the game is that now that I’ve solved it, I have little motivation to revisit it except to introduce friends to it. (A sequel, The Eleventh Hour, is due out soon, and I will certainly give it a try.)

In Myst, on the other hand, each of the very many tasks you must complete is simple, even trivial. The puzzle lies in understanding the alternative reality itself. You are dropped into the middle of a strange and beautiful world; you must explore, probe, look for hidden clues, and experiment endlessly, trying to assemble a theory of how things work and interconnect in this fantastic universe. It’s absolutely fascinating — a lot like science, a lot like life. But it’s also a lot like swimming, upstream, through strawberry Jell-O. It’s hard work, progress is frustratingly slow, and eventually you lose your taste for strawberry. I have spent about an equal amount of time with Myst and barely scratched the surface; yet, I am not sure whether I will follow it through.

The potential for CD-ROMs in games and other applications has just begun to be explored. As raw computing and communications power increases, so will the complexity and level of “reality” achievable. As new authoring programs and other software tools are developed, the production process will be marked by new levels of ease, efficiency, and sophistication. But perhaps most important, as a large body of such works becomes widely available to the general public, a new medium will mature and a new “language” will infuse our multi-layer information-mediated culture. Whether their influence on our daily lives will be for good or ill, or both, is the real CD-ROM mystery.

— David M. Geshwind

David Geshwind is a Research Scientist at, and Operations Manager of, the NYU Center for Advanced Technology in Digital Multimedia.
Back-to-School Specials: Trade-ins, Discounts, and Deferred Payments

Kathy Bear
beark@acfluster.nyu.edu

Over the summer months, the staff of the NYU Computer Store has been working diligently to improve the quality and range of services it offers to the NYU community. We have implemented a new trade-in service, increased the number of Hewlett-Packard printers we can repair, and made arrangements with Microsoft for a volume license agreement for NYU departments.

Computer Trade-Ins

During the spring, we held two trade-up days, with the cooperation of Sun Remarketing and Apple Computer. Customers were able to bring in older, but still operable, equipment and receive credit toward the purchase of new Apple equipment. The trade-in was so successful that we decided this was a service we could offer on an on-going basis. We will therefore continue to accept trade-ins for credit toward the purchase of new Apple equipment.

The procedure is simple. Call Sun Remarketing at (800) 992-1449 and get a quote on what Sun will pay for your older equipment. What you trade in does not have to be Apple equipment — Sun will accept a wide range of manufacturers’ products. However, the credit you receive can be used only toward the purchase of Apple products, and only at the NYU Computer Store. The quote Sun gives to you is effective for 30 days. If, during that time, you decide not to trade in your older equipment, you merely bring it to our service location at 7 East 12th Street, 5th floor. The staff there will verify that the equipment is operable and issue a voucher, good for 30 days, applicable toward the purchase of new Apple equipment at the NYU Computer Store.

NYU departments are eligible to participate. Their tagged equipment must be accompanied by a property-disposal form, signed by NYU’s Property Management Office. Forms are available at the NYU Computer Store or at the Property Management Office, 269 Mercer Street.

Hewlett-Packard Repairs

Over the summer, our technicians had time to become certified on more Hewlett-Packard printers. We are currently able to repair the DeskWriter and DeskJet family, the LaserJet IIIsi, the LaserJet IIp, the LaserJet IIIp, and the LaserJet 4 family. Please call our service department at 998-4231 for any of your service needs on Apple, IBM, or Hewlett-Packard equipment.

Microsoft Open Licenses

We have recently implemented a volume license program with Microsoft for NYU’s institutionally owned equipment. Departments can purchase licenses for Microsoft products for their departments at substantial discounts off the regular educational price. These licenses do not, however, come with disks or documentation. So, if you do not already have a copy of the particular software package, it will be necessary to purchase a copy; or you may purchase the disks or documentation separately.

We are currently licensed for both system software and application software. There is a minimum of twenty units per order, but some packages (Microsoft Office, for example) count for two units per license. You may order less than the twenty units; if you do so, we will have to combine your order with...
others to meet the twenty-unit minimum, so there could be some delay in processing an order for less than twenty units.

There is also a maintenance component to the agreement, enabling departments to purchase maintenance for any Microsoft software they already own. Maintenance must also be purchased in twenty-unit blocks, and it has to be purchased for the number of quarters remaining on NYU’s contract. Please stop by the Computer Store for more information and pricing on this Microsoft program.

**Back-to-School Specials**

It’s that time of year again, and Apple and IBM are both offering specials on back-to-school products. This year, Apple is offering seven different configurations with reduced prices and special software until October 15, 1994. Included are three Performa bundles, a product that Apple offered originally, with great success, in the retail market; two Power Macintosh 7100 bundles; and two PowerBooks. With every StyleWriter II or Personal LaserWriter 300 purchased during this time frame, customers will receive a font disk containing forty-three additional fonts.

IBM is offering three of their popular ValuePoint desktop models plus one ThinkPad at educational discounts. With the purchase of an IBM system during this time period, customers are eligible for their Buy and Fly Program, which offers substantial discounts on air travel. Please stop by for information on these specials and price lists.

**Student Deferred-Payment Program**

Last year, the NYU Computer Store offered a pilot program in which students could defer payment of up to $1500 of their computer purchase price. This amount was added to their Bursar’s bill, and was payable in two equal installments during the academic year. Again this year, we are offering this program for qualified NYU students. The deadline for application is September 15, 1994, and a $500 deposit is required on your purchase. Please stop by for applications and information.

As we start another school year, we would like to reiterate that the NYU Computer Store exists to serve all members of the NYU community with their computing needs. If you have any suggestions or comments on our operation, please let us know. We look forward to seeing you!

What Hath Thoth Wrought (continued from page 4) examine a block or pot *in situ* from several different viewpoints. It was also possible to “peel away” levels of earth so that the interrelationship of finds at a certain depth could be readily understood. The program was also capable of quickly producing fine multicolored draft sketches of the site. What was most amazing, however, was that this complex reconstruction of the excavation had been relatively easy to create as the dig was under way. In short, here was a program that had actually been tested under field conditions during an excavation.

In future issues of this publication, I hope to describe other examples of how scholars in the humanities have adapted computers to the problems they must face. In particular, I would like to focus on the problems of internationalization such as Unicode (which allows the use of tens of thousands of alphabetic characters, rather than the 128 of seven-bit ASCII code or the 256 of eight-bit extended ASCII) — questions which I feel that we in the United States have tended to ignore, but which the Internet will force us to confront in the coming years.

Expanding Services at ACF (continued from page 17) seventy-four users at once. We are also installing a single workstation with hardware and software to provide a voice-based alternative to the usual visual display, for the use of people who have difficulty reading from a computer monitor. The same system will include text-magnification software.

• At the Third Avenue North Residence computer lab (75 Third Ave, level C3; 998-3504), a large area that formerly housed mainframe machines is being turned into a twenty-four-seat PC area, with new 486 Gateway computers. The old Macintosh SEs, whose lack of hard drive has bemused many users, are being retired, to be replaced with more powerful Macs. Julia O’Brien (998-3436) will be taking over the management of the site, which will soon have 110 computers.

• The lab at 14 Washington Place (downstairs; 998-3457) remains a lab concentrating in PCs (62 of them), often used as front ends for the ACF’s larger VMS- and Unix-based systems. David Ackerman (998-3505) will be site manager here, after two years managing the lab at Third Avenue.

In future issues of this publication, I hope to report on other areas of ACF’s User Services, such as education and training programs, and documentation and publications.
Coming Events

**NYSERNet Conference ’94: Connecting New York**
NYSERNet Conference ’94 will take place in Albany and Rensselaer from September 29 through October 1. Sponsored by NYSERNet, the New York State Educational and Research Network, the conference takes as its theme the motto “Connecting the New New York.” It will bring together experts from across the United States to discuss Internet topics concerning education, libraries, online information, and network technologies. For tracks of meetings include programs such as

- Teacher Education: In-Service and Preservice
- Internet Protocols: The Next Generation
- Networking Local Government

For more information about the program, contact NYSERNet at info@nysernet.org or (515) 453-2912; for registration details, contact the Marketing and PR Group, 13 Belmore Pl., Rensselaer, N.Y. 12144, or (518) 449-5069.

**Other Meetings of Interest**

2nd International Colloquium on Grammatical Inference (ICCG-94): September 20–23, Alicante, Spain. Contact José Oncina: by fax at +34 6 5903464 or e-mail at JOnicina%EALIUN11.BITNET.

7th International Working Conference on Scientific & Statistical Database Management: September 28–30, Charlottesville, Virginia. Contact Jim French: 7ssdbm@virginia.edu or french@virginia.edu or (804) 924-6270.

**SA/GIS Meeting Is Set**
The Spatial Analysis and Geographic Information Systems (SA/GIS) group of NYU will meet September 28, 6:10-8:00pm, in Warren Weaver Hall, room 313. The meeting will be held in cooperation with the Statistics, Demographics, and Mapping Software SIG of the New York PC Users group (NYPC).

Zvia Segal Naphtali of the Metropolitan Studies program (Wagner) and Leonard Naphtali (SCE) will be demonstrating the latest versions of SPSS (version 6.1) and MapInfo (version 3.0) and showing how they are linked. They will use maps and data from the Wessex CDs and will report on GIS in Israel.

**Internet Training at Bobst Library**

**Internet Basics**
Three-hour combination lecture-demo and hands-on with guided exercises. Introduction to the basic concepts of interactive networked information: e-mail, scholarly conferencing (listservs), Usenet newsgroups, Gopher. Prerequisite for hands-on: ACF NYU-Internet account.

- **Tuesday Oct. 11** 9:30am-12:30pm
- **Wednesday Oct. 19** 6:30–9:30pm
- **Tuesday Oct. 25** 9:30am-12:30pm
- **Wednesday Nov. 2** 6:30–9:30pm

**Introduction to FTP**
One-hour lecture-demo with optional additional hour of guided hands-on exercises on how to find and navigate to ftp sites of interest via Archie and Veronica on the NYU-Internet menu. This class is given on the intermediate level. Basic Internet and microcomputer concepts will not be covered. Prerequisites: ACF NYU-Internet account; some experience using the Internet, including e-mail, Gopher.

- **Wednesday Nov. 2** 10–12am
- **Tuesday Nov. 15** 5–7pm

**Introduction to the World-Wide Web**
One-hour lecture-demo with optional additional hour of guided hands-on exercises using Lynx (on the NYU-Internet menu) to navigate the World-Wide Web. Basic concepts of hypertext and hypermedia will be covered, along with comparisons between Gopher and WWW, Mosaic demonstration. This class is given on the Intermediate Level. Basic Internet and microcomputer concepts will not be covered. Prerequisites: ACF NYU-Internet account; some experience using the Internet, including e-mail, Gopher.

- **Tuesday Nov. 15** 10–12am
- **Wednesday Nov. 16** 5–7pm

All classes are given in the Electronic Resources Center (Bobst Library, B-level) and available to NYU students, faculty and staff. Reservations required. For more information and reservations, contact Gloria Rohmann, Electronic Resources Librarian, at 998-2534 or rohmang@elmerl.bobst.nyu.edu.
## Index to the Schedule of ACF Instructional Sessions

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCs of Computers</td>
<td>33</td>
</tr>
<tr>
<td>ACFcluster — Using the</td>
<td>34</td>
</tr>
<tr>
<td>Choosing Your Computer</td>
<td>33</td>
</tr>
<tr>
<td>Computers and Operating Systems</td>
<td>34</td>
</tr>
<tr>
<td>CWIS — An Introduction to the Campus-Wide Information System</td>
<td>36</td>
</tr>
<tr>
<td>E-Mail</td>
<td>35</td>
</tr>
<tr>
<td>E-Mail — Eudora</td>
<td>35</td>
</tr>
<tr>
<td>E-Mail — NUPop</td>
<td>35</td>
</tr>
<tr>
<td>E-Mail — Pegasus</td>
<td>35</td>
</tr>
<tr>
<td>E-Mail — Using Your ACF E-Mail Account</td>
<td>35</td>
</tr>
<tr>
<td>Eudora</td>
<td>35</td>
</tr>
<tr>
<td>Excel</td>
<td>38</td>
</tr>
<tr>
<td>Exploring for Scientific Resources on the Internet</td>
<td>38</td>
</tr>
<tr>
<td>Geographic Information Systems</td>
<td>35</td>
</tr>
<tr>
<td>Getting Started on Your New Computer</td>
<td>33</td>
</tr>
<tr>
<td>GIS Packages — Introduction to</td>
<td>35</td>
</tr>
<tr>
<td>GNU Emacs</td>
<td>39</td>
</tr>
<tr>
<td>Graphics and Multimedia</td>
<td>36</td>
</tr>
<tr>
<td>High-Performance Supercomputer Resources</td>
<td>37</td>
</tr>
<tr>
<td>HyperCard</td>
<td>36</td>
</tr>
<tr>
<td>Image Processing Using Photoshop</td>
<td>36</td>
</tr>
<tr>
<td>Internet Browsing Tools: A Demo of Gopher, Lynx and Mosaic</td>
<td>37</td>
</tr>
<tr>
<td>Kermit — Uploading and Downloading with</td>
<td>36</td>
</tr>
<tr>
<td>Mac — Painting and Drawing</td>
<td>36</td>
</tr>
<tr>
<td>Mac — Troubleshooting and Maintaining</td>
<td>33</td>
</tr>
<tr>
<td>Mac — Using a Macintosh at an ACF Lab</td>
<td>33</td>
</tr>
<tr>
<td>Mac — Uploading and Downloading Using Kermit</td>
<td>36</td>
</tr>
<tr>
<td>Mathematica</td>
<td>38</td>
</tr>
<tr>
<td>Microsoft Word</td>
<td>39</td>
</tr>
<tr>
<td>Networks and Network Services</td>
<td>36</td>
</tr>
<tr>
<td>NUPop</td>
<td>35</td>
</tr>
<tr>
<td>Painting and Drawing on a Macintosh</td>
<td>36</td>
</tr>
<tr>
<td>PC — Troubleshooting and Maintaining</td>
<td>33</td>
</tr>
<tr>
<td>PC — Uploading and Downloading Using Kermit</td>
<td>36</td>
</tr>
<tr>
<td>PC — Using a PC at an ACF Lab</td>
<td>33</td>
</tr>
<tr>
<td>Pegasus</td>
<td>35</td>
</tr>
<tr>
<td>Photoshop — Image Processing Using</td>
<td>36</td>
</tr>
<tr>
<td>SAS — Introduction to</td>
<td>38</td>
</tr>
<tr>
<td>Scientific Computing and Visualization</td>
<td>37</td>
</tr>
<tr>
<td>Scientific Visualization Resources at the ACF</td>
<td>37</td>
</tr>
<tr>
<td>SPSS — On the IBM Risc-based RS/6000</td>
<td>39</td>
</tr>
<tr>
<td>SPSS — SPSS for Windows</td>
<td>38</td>
</tr>
<tr>
<td>Statistics, Spreadsheets, and Databases</td>
<td>38</td>
</tr>
<tr>
<td>Supercomputer Resources</td>
<td>37</td>
</tr>
<tr>
<td>UNIX — Advanced Topics</td>
<td>34</td>
</tr>
<tr>
<td>UNIX — Using UNIX at the ACF</td>
<td>34</td>
</tr>
<tr>
<td>Uploading and Downloading Using Kermit</td>
<td>36</td>
</tr>
<tr>
<td>Using the ACFcluster</td>
<td>34</td>
</tr>
<tr>
<td>WordPerfect</td>
<td>39</td>
</tr>
<tr>
<td>Word processing</td>
<td>39</td>
</tr>
<tr>
<td>WYLBUR — Using WYLBUR at the ACF</td>
<td>34</td>
</tr>
</tbody>
</table>
ACF Classes, Workshops, and Talks

All members of the NYU community are welcome at the ACF's classes, workshops, and talks. There is no charge for any of the ACF Instructional sessions, but participants should have a current, valid NYU ID. In some cases, as noted just after a course description, a reservation or an appropriate computer account is required.

The courses are grouped in categories that are largely self-explanatory. Those in the first category, "ABCs of Computers," are intended for both computer novices and people new to the ACF facilities, and should serve as introductions to the computers and their operating systems, as well as the other parts of the mix — networks, printers, file servers, and so forth — that the user will be dealing with.

The format of each entry, shown below, helps clarify the information:

<table>
<thead>
<tr>
<th>Category</th>
<th>Title of the Course or Software</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Platform—the machine the program runs on)</td>
</tr>
<tr>
<td></td>
<td>A brief description of the course, the software or machines used, and the main topics covered. Instructor's name.</td>
</tr>
<tr>
<td></td>
<td>Requirements, such as account or reservations; whether workshop, class, or talk; special arrangements, etc.</td>
</tr>
<tr>
<td></td>
<td>Building and room</td>
</tr>
<tr>
<td></td>
<td>Days and Times</td>
</tr>
<tr>
<td></td>
<td>Dates</td>
</tr>
</tbody>
</table>

Classes are introductory, walk-in, hands-on training sessions about an hour long. Reservations are sometimes required; when not, simply arrive a few minutes early at the classroom.

Classes by Arrangement: Faculty members may sometimes 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 IBM WYLBUR or VM/CMS, call John Lee (998-3406); for statistics, call Frank LoPresti (998-3398); for other applications, call the ACF HelpLine (998-3333).

Workshops are more intensive sessions that run about three hours. They are held in computer classrooms where each participant can work on a computer (occasionally shared by two participants), so reservations are usually required.

Talks cover more advanced topics in greater detail, usually with a demonstration of relevant software and computer screens. They generally run about an hour and a half.

Reservations: To reserve a place, please call the ACF HelpLine at 998-3333 during the week of the workshop or class.

Computer accounts: There are several kinds of ACF accounts, which give the holder access to different types of machines and services. For information on general, individual, and class accounts, see the box on page 44. For electronic mail accounts, see the box on page 35. All are available through the ACF Accounts Office (Warren Weaver Hall, room 305; 998-3035).

Platform: The type of computer on which the subject of an instructional session operates. (For example, our Microsoft Word class is taught on Macs, and the platform is therefore "Mac".)
ABCs of Computers

Choosing Your Computer (Mac and PC)
This talk is intended to help you select the best personal computer for your needs. It will cover the basic components of a computer, as well as the other hardware required for various tasks. We will also discuss how you can assess your particular needs to establish your criteria for selecting computer tools. Taught by staff from the NYU Computer Store.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Friday 12:00-1:30
September 16

Getting Started on Your New Computer (Mac and PC)
This introductory talk will help familiarize you with your new computing equipment. It will focus on such basic operations as setting up your computer; setting up a printer; and configuring your operating system with the fonts and tools you need.
This talk will be particularly helpful to recent or prospective purchasers of computing equipment. Taught by staff from the NYU Computer Store.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Friday 12:00-1:30
September 23

1. For Mac Owners
Warren Weaver Hall, room 313
Friday 12:00-1:30
September 23

2. For PC Owners
Warren Weaver Hall, room 313
Friday 12:00-1:30
September 30

Troubleshooting and Maintaining Your Mac (Mac)
Discussion will include troubleshooting techniques and other strategies for dealing with problems that you might encounter while using your Macintosh. Taught by staff from the NYU Computer Store.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Friday 12:00-1:30
October 21

Troubleshooting and Maintaining Your PC (PC)
Discussion will include troubleshooting techniques and other strategies for dealing with problems you might encounter while using your PC. Taught by staff from the NYU Computer Store.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Friday 12:00-1:30
October 28

Using a PC at an ACF Lab (PC)
A hands-on introduction to the PC — the “IBM-type” personal computer. Topics include working with the user menus on the PCs in the labs, understanding the file system, choosing printers and file servers, and launching software applications. ACF staff.
Limited seating; first come, first served; hands-on class.
Tisch Hall, room LC8
Saturdays 11:00-12:00
September 17, 24
October 1
14 Washington Place, basement
Thursdays 11:00-12:00
September 15, 22, 29

For More Information:
Call the ACF HelpLine at 998-3333.

Academic Computing and Networking at NYU September 1994
Using the ACFcluster (DEC/VMS)
An introductory class on using the VMS operating system on DEC minicomputers that make up the ACFcluster, as accessed at ACF labs through PCs, Macs, and terminals. The basics will be covered: logging onto the cluster, organizing files, editing text, printing files, and using applications. ACF staff.
ACFcluster account required: limited seating; first come, first served; hands-on class.
Tisch Hall, room LCS
Fridays 11:00-12:00
September 23, 30

Using UNIX at the ACF (UNIX machines)
An introductory class on using the UNIX operating system, variants of which run on several different classes of computer at the ACF. Most are accessed at ACF labs through PCs, Macs, and terminals, but the SGI workstations also use UNIX. The basics will be covered: logging onto the host machines, organizing files, editing text, printing files, and using applications. See also UNIX: Advanced Topics, under “Computers and Operating Systems”. ACF staff.
ACF UNIX account required: limited seating; first come, first served; hands-on class.
Tisch Hall, room LC8
Tuesdays 11:00-12:00
September 20, 27
October 4, 11
14 Washington Place, basement.
Fridays 1:00-2:00
September 16, 23, 30

Using WYLBUR at the ACF (IBM mainframe)
Introduction to accessing and using WYLBUR, the text editor on the IBM mainframe, from the PCs in the ACF Tisch Hall Lab. ACF staff.
WYLBUR account required. Upon request. For further information, please call the ACF HelpLine at 998-3333.

Computers and Operating Systems

UNIX: Advanced Topics (Ultrix)
An intermediate talk on using the UNIX operating system for those who have attended Using UNIX at the ACF (see under “ABCs of Computers”) or have equivalent knowledge. Topics include file permissions, path, aliases, pipes, redirect, filename completion, command substitution and a number of commonly used UNIX utilities such as man, vi, and grep. David Ackerman.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Wednesdays 12:00-1:30
September 28
October 26

Q&A ACF & HelpLine Q&A

Q: Will I have the same e-mail address as I had last year?
I’ve been out of town for the summer. Last year I had an ACF EMIS account, and my address was abc1234@adcluster.nyu.edu. Can I still use the same account this year?
A: Yes, this fall you can still use your old EMIS account on the ACFcluster.
This year, EMIS accounts will not need to be renewed during the fall semester. So if you remember your password from last year, just log on and you are back in cyberspace.
If you don’t remember your password and you have a student account (with a username such as abc1234), you can go to any of the ACF computer labs to have your password reset. If you are on the NYU faculty or staff, call the ACF accounts office at 998-3035 to have it reset over the phone.
One note: for security reasons, passwords must be changed every six months. So don’t be surprised if, as soon as you log in to your account, you are asked to change your password. Just keep in mind that you cannot reuse an old password, that it must be from six to thirty-six characters long, and should ideally have both letters and numbers in it.
Safeguard your password; don’t tell it to anyone. And feel free to change it as often as you want. It’s your account—you are responsible for what happens to it, and what comes out of it. — L. Barnett

Puzzled? Call the ACF HelpLine at 998-3333

September 1994  Academic Computing and Networking at NYU
Electronic Mail

Electronic Mail: Using Your ACF E-Mail Account (Ultrix)
This talk-demonstration will introduce new and prospective holders of the NYU-Internet Account to its menu interface and components. Electronic mail concepts and commands will be explained and demonstrated. The account runs on ACF's DEC minicomputer and is connected to NYU-NET and the worldwide Internet. Lisa Barnett and Vincent Doogan.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Wednesdays 12:00-1:30
September 14, 21
October 5, 12
November 2, 9

Eudora
(Mac)
An introductory class for new users of Eudora, an interface for handling electronic mail on Macintoshes connected to NYU-NET. ACF staff.
Upon request. For further information, please call the ACF HelpLine at 998-3333.

NUPop
(PC)
An introductory class for new users of NU Pop, an interface for handling electronic mail on PCs connected to NYU-NET. ACF staff.
Upon request. For further information, please call the ACF HelpLine at 998-3333.

Geographic Information Systems

Introduction to GIS Packages Available at the ACF (UNIX)
A panel discussion describing and comparing the four Geographical Information Packages available at the ACF—ArclInfo, MapInfo, Atlas GIS and GRASS. Frank LoPresti.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Wednesday 2:00-3:30
October 26

Getting an NYU-Internet Account ...
All new e-mail and Internet accounts are now being created on the ACF's new NYU-Internet system. (For a full description of this system, please see the article in the May 1994 issue of this publication.) These accounts provide e-mail connectivity and network access from your desktop computer to information resources at NYU and around the world. (E-mail is also available automatically to those with accounts on other ACF shared systems.)

Older Accounts Will Be Moved Later
Older accounts on the ACFcluster system (EMIS Accounts) will be moved to the new system starting later in the fall semester. The ACF is planning for an orderly transition to the new system after the semester is underway. However, accounts cannot yet be moved on demand. Although every attempt will be made to meet reasonable requests, holders of ACFcluster accounts should plan to use them through the fall semester. The ACF will announce more details about the migration to NYU-Internet later in the semester, in this publication and online.

For New Accounts
These NYU-Internet accounts are available to all NYU faculty, research staff, and administrators, and to all students enrolled in degree or diploma programs. Simply apply at any ACF computer lab (see inside back cover for locations and hours). And, if you are unfamiliar with e-mail and network use, ACF classes and pamphlets will help you get started.

Faculty and staff members, if they prefer, may request NYU-Internet accounts by letter. Please use departmental letterhead with the department's address and phone number, and include your name, title, NYU ID number, and campus address and phone number. Send your request to the Academic Computing Facility Accounts Office, room 305, Warren Weaver Hall. For more information, contact the ACF Accounts Office at 998-3035.
HyperCard (Mac)
HyperCard is a software package for organizing and presenting information as text, graphics, sound, and animation. Joseph Citta.
Education Building, 2nd floor.
Reservations required (call 998-3333 during week of class); hands-on class.

1. Introduction to HyperCard
Education Building, 2nd floor
Friday 2:00-3:30
October 7

2. Advanced Topics in HyperCard
Education Building, 2nd floor
Friday 2:00-3:30
October 21

Image Processing Using Photoshop (Mac)
Photoshop is a software package that is commonly used to manipulate and enhance digitized images. In this class, the use of a flatbed scanner to digitize photographs and artwork will be covered, as will the use of Photoshop to do photo-retouching and composition. Basic knowledge of the Macintosh is required.
Howard Fink
Reservations required (call 998-3333 during week of class); hands-on class.
Education Building, 2nd floor
Thursday 2:00-3:30
October 6

For More Information:
Call the ACF HelpLine at 998-3333.

Painting and Drawing on a Macintosh Computer (Mac)
An introduction to painting and drawing on the Macintosh computer, using SuperPaint 3.0. ACF staff.
Reservations required (call 998-3333 during week of class); hands-on class.
Education Building, 2nd floor
Thursday 2:00-3:30
October 27

Networks and Network Services

An Introduction to the Campus-Wide Information System (NYU CWIS)
The NYU CWIS, developed by the ACF, is a growing system for disseminating and retrieving information in electronic form. This talk will focus on what is contained in the NYU CWIS and how it is organized. Other topics will include a discussion of the underlying Gopher software and a demonstration of tools for searching Gopherspace. David Ackerman.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Tuesdays 2:00-3:30
September 27
October 25

Uploading & Downloading using Kermit
A useful class for those who want to do their wordprocessing and other work on their desktop PCs or Macs, and then send the files by E-mail or upload them to VMS or UNIX machines, or need to download files from distant machines to their own computers. Telnet, ftp, and LISTSERV access will be discussed. ACF staff.
Limited seating; first come, first served;
Account is required; hands-on class.

1. For PC Users
Warren Weaver Hall, room 313
Wednesday 2:00-3:30
September 28

2. For Macintosh Users
Warren Weaver Hall, room 313
Wednesday 2:00-3:30
October 12
Internet Browsing Tools: A Demo of Gopher, Lynx and Mosaic (Mac, Ultrix, Windows)

Gopher is the software on which the NYU Campus-Wide Information System (CWIS) is based. Lynx and Mosaic are programs that allow you to browse the Internet world of gopher and 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.

David Ackerman.

Limited seating; first come, first served; talk.

Warren Weaver Hall, room 313
Tuesday 2:00-3:30
October 4

Scientific Computing and Visualization

High-Performance Supercomputer Resources (IBM RISC cluster; NSF supercomputers)

An introduction to supercomputer resources available to NYU faculty and students, both local resources and those accessible via the Internet.

Local resources include a cluster of high-performance RISC-based RS/6000 workstations that has recently been acquired as part of a new Center for Applied Parallel Computing that the ACF, in collaboration with the IBM Corporation, is setting up at NYU. The discussion will cover the RISC farm's intended uses and software, as well as the availability of additional resources for computationally intense applications.

The speaker will then focus on the use, from NYU, of high-performance systems at the National Science Foundation supercomputing centers. NYU researchers and students have been given access via the Internet to these centers as well as to supercomputing centers operated by NASA and DOE. (A kit available from the ACF in Room 305, Warren Weaver Hall, describes how to apply to some of the NSF centers.)

Edward Friedman.

Limited seating; first come, first served; talk.

Warren Weaver Hall, room 313
Tuesday 3:00-4:30
October 11

Scientific Visualization Resources at the ACF (Silicon Graphics, Mac, and PC)

An introduction to the various scientific visualization software systems available on the ACF and other NYU computing systems. They include the NCAR-GKS software system, a popular two-dimensional graphics library featuring color fill, contouring, and maps of the earth; AVS from Advanced Visualization System, Inc.; Khoros, a system from the University of New Mexico; Minneview from the University of Minnesota; and scientific image processing systems from NASA and DOE. This talk will include discussion of the options available for obtaining output from these systems—printed images in color or black-and-white, or moving images on laserdisk or videotape. Additionally, the speaker will talk about the content, structure and future directions of the most popular two-dimensional graphics software package in the world. The NCAR library is based on two ISO standards, GKS and CGM, and is operational on systems from microcomputers to supercomputers. It contains utilities for a range of graphic applications, from drawing simple X-Y plots to creating complex color images that allow overlaying and masking. Demonstration will include examples of the capabilities of the package and how it has been used by researchers at NYU.

Edward Friedman.

Limited seating; first come, first served; talk.

Warren Weaver Hall, room 313
Wednesday 2:00-3:30
September 21
Mathematica
(Mac, PC, and UNIX)
Mathematica is a general system for doing many sorts of mathematical computations by computer. It can function as a calculator, programming language, or tool for scientific visualization in two or three dimensions. Howard Fink.
Limited seating; first come, first served; talk.
Education Building, 2nd floor  
Friday 2:00-3:30  
October 14

Exploring for Scientific Resources on the Internet (X-Terminals, SGI Irix)
This talk will be devoted to a discussion and practicum on how to gain access to available national and international science resources on the Internet.
Attendees will be shown how to locate and retrieve information from science related information servers on the network.
Hands-on use of large screen color X-terminals in the new ACF Innovation Center using software from NCSA called Mosaic will provide a state-of-the-art multimedia interface to the resources. Some of the servers that will be visited include the National Science Foundation’s Supercomputing Centers, Netlib, a repository of mathematical and statistical software and publications, and the Computational Science Education Project (CSEP). A visit to servers on SUNET, the Swedish University Network, will include stops at the Karolinska Medical Institute and the Royal Institute of Technology. Edward Friedman.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313  
Tuesday 2:00-3:30  
October 18

Statistics, Spreadsheets, and Databases

Excel
(Mac)
Microsoft’s Excel is a major spreadsheet for the Macintosh.

1. Introduction to Excel
This will be a start-up class on creating a basic spreadsheet. Howard Fink.
Reservations required (call 998-3333 during week of class); hands-on class.
Education Building, 2nd floor  
Thursday 2:00-3:30  
September 29

2. Advanced Topics in Excel
In this advanced session, formulas and charting will be covered.
Knowledge of Excel and Macintosh basics required. Howard Fink.
Reservations required (call 998-3333 during week of class); hands-on class.
Education Building, 2nd floor  
Thursday 2:00-3:30  
October 13

Introduction to SAS
(PC, WYLBUR, CMS, and VMS)
An introduction to the analyses offered by the software package. Discussion will include such topics as program structure, language syntax, data handling, and running programs written with the particular package. Robert Yaffee.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313  
Friday 10:00-11:30  
September 23

SPSS: SPSS for Windows
(PC, VMS, and WYLBUR)
SPSS (Statistical Package for the Social Sciences) is a comprehensive, integrated system for statistical data analysis. While this hands-on presentation will use the new Windows version of SPSS, the programming concepts are applicable to all versions of SPSS.

1. Introduction to SPSS
Data input, transformations of variables, creation of “system files,” and other manipulations of data will be discussed. Frank LoPresti.
Reservations required (call 998-3333 during week of class); hands-on class.
Tisch Hall, room LC8  
Thursday 6:00-7:30  
September 29  
Monday 6:00-7:30  
October 10  
Wednesday 6:00-7:30  
November 9

2. Intermediate SPSS
Elementary statistical procedures for the analysis of data will be covered. Frank LoPresti.
Reservations required (call 998-3333 during week of class); hands-on class.
Tisch Hall, room LC8  
Thursday 6:00-7:30  
October 6  
Monday 6:00-7:30  
October 24  
Wednesday 6:00-7:30  
November 16
SPSS Running on the IBM Risc-based RS/6000 at ACF (AIX)

An introduction to SPSS running on a high-performance Unix resource available to NYU faculty and students. This is a Windows-like GUI (Graphics Users Interface) version of SPSS new at ACF. Data and output are displayed in windows rather than through traditional command line mode. Such an application running in a Unix X-windows workstation environment holds interest for academic researchers whose storage, speed and support needs are beyond the capabilities of a personal computing system. Frank Lopresti.

Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Wednesday 2:00-3:30
October 5

Wordprocessing

GNU Emacs (UNIX)
An introduction to GNU Emacs—a powerful, programmable, full-screen word processor. Discussion will include loading and exiting the program; the basic commands; the kill and mark rings; writing macros; working with multiple buffers; the concept of "modes"; and its utility as an operating environment for interactive programs. Alex Harvey.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Wednesday 2:00-3:30
October 19

Microsoft Word (Mac)
Microsoft Word is a major word-processing program on Macintosh computers and is especially strong on typography and formatting.

1. Introduction to Microsoft Word
This is a getting-started class. The basics of creating a document will be covered. Howard Fink.
Reservations required (call 998-3333 during week of class); hands-on class.
Education Building, 2nd floor
Thursday 10:00-11:30
September 29

2. Advanced Topics in Microsoft Word
Topics will include mailmerge and tables. Knowledge of Microsoft Word and Macintosh basics required. Howard Fink.
Reservations required (call 998-3333 during week of class); hands-on class.
Education Building, 2nd floor
Thursday 10:00-11:30
October 13

WordPerfect (PC)
WordPerfect is the most widely used PC wordprocessing program, with excellent control of such scholarly tools as footnotes, tables, and equations.

1. Introduction to WordPerfect
The basics of creating a document in WordPerfect will be covered. Julia O'Brien.
Reservations required (call 998-3333 during week of workshop); hands-on workshop.
Tisch Hall, room LC8
Thursdays 9:00-12:00
September 22
October 6
Friday 1:00-4:00
September 23

2. Intermediate WordPerfect
Reservations required (call 998-3333 during week of workshop); hands-on workshop.
Tisch Hall, room LC8
Thursday 9:00-12:00
September 29
Fridays 1:00-4:00
September 30
October 7

For More Information:
Call the ACF HelpLine at 998-3333.
Important Dates for ACF Users

Users of ACF facilities should be aware of the following dates and deadlines, when schedules change, accounts expire, and files must be stored. For schedules and dates of operation of the ACF facilities, see the inside back cover; for information on general, individual, and class accounts, see page 44; for E-Mail (NYU-Internet) accounts, see page 35.

September
Current
Instructors apply for Fall 1994 computer Class Accounts as early as possible.
Current
Individual computer account renewal applications are being accepted for fiscal year 1994/1995.
Sept. 3-4
Labor Day Weekend ....................................................... holiday hours†
Sept. 5
Labor Day* ................................................................. all labs closed
Sept. 6
(Tues.) Rosh Hashanah ................................................... regular hours
Sept. 8
(Thurs.) Students with Class Accounts register for computer use for fall semester, starting today.
Sept. 8
(Thurs.) ACF’s summer hours end; regular fall hours resume ............... see inside back cover
Sept. 8
(Thurs.) Fall Semester begins.
Sept. 15
(Thurs.) Yom Kippur ...................................................... regular hours

October
Oct. 10
(Mon.) Columbus Day .................................................... regular hours

November
Nov. 8
(Tues.) Election Day ..................................................... regular hours
Nov. 11
(Fri.) Veterans’ Day ....................................................... regular hours
Nov. 24
(Thurs.) Thanksgiving Day* ............................................. all labs closed
Nov. 25 – 27
Thanksgiving Day Weekend ............................................. holiday hours†

December
Dec. 5 – Jan. 20
Instructors apply for Spring 1995 computer accounts for their classes.
Dec. 5 – 22
Students who expect Incompletes in fall semester courses should apply for computer account extensions. (Instructor’s signature required.)
Dec. 5 – 22
Students with fall semester Class Accounts should store all files they wish to keep after Dec. 22.
Dec. 16 – 22
Fall semester final examinations ........................................... regular hours
Dec. 22
(Thurs.) Student Class Accounts issued for the fall semester expire.
Dec. 23 – Jan. 2
Christmas* – New Year’s* Recess ....................................... all labs closed
Dec. 23 – Jan. 21
Winter Recess ............................................................... holiday hours†

January
Jan. 3
(Tues.) ACF offices reopen after Christmas-New Year’s Recess
Jan. 14 – 15
Dr. Martin Luther King, Jr., Day Weekend ................................ holiday hours†
Jan. 16
Dr. Martin Luther King, Jr., Day* ........................................ all labs closed
Jan. 23
(Mon.) Spring semester begins. Instructors, please apply for Spring 1995 Class Accounts if you have not already done so.

* University holiday   † Please note: Confirmed holiday schedules will be posted on the NYU CWIS and via our online news and bulletin-board facilities. They can be obtained by calling the ACF HelpLine at 998-3333.
## Fall '94 Calendar

### September 5 – October 16

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Sat./Sun.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SEPTEMBER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10/11</td>
</tr>
<tr>
<td>Labor Day—All labs closed</td>
<td>Rosh Hashanah</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17/18</td>
</tr>
<tr>
<td>Macs at the ACF, 11:00</td>
<td>E-Mail Intro, 12:00</td>
<td>PCs at the ACF, Yom Kippur</td>
<td>Choosing Your Mac</td>
<td>Macs at the ACF, 11:00 (Sat.)</td>
<td>Macs at the ACF, 11:00 (Sat.)</td>
</tr>
<tr>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24/25</td>
</tr>
<tr>
<td>Macs at the ACF, UNIX at the ACF, 11:00</td>
<td>E-Mail Intro, 12:00</td>
<td>WordPerfect Intro, 9:00</td>
<td>WordPerfect Intro, 11:00</td>
<td>Macs at the ACF, 11:00 (Sat.)</td>
<td>Macs at the ACF, 11:00 (Sat.)</td>
</tr>
<tr>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>OCTOBER 1/2</td>
</tr>
<tr>
<td>Macs at the ACF, UNIX at the ACF, NYU CWIS Intro, 2:00</td>
<td>UNIX: Advanced Topics, 12:00</td>
<td>Intermediate WordPerfect, 9:00</td>
<td>Intermediate WordPerfect, 1:00</td>
<td>Getting Started on Your New PC, 12:00</td>
<td>Macs at the ACF, 11:00 (Sat.)</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8/9</td>
</tr>
<tr>
<td>UNIX at the ACF, 11:00 Internet: Gopher, Lynx and Mosaic, 2:00</td>
<td>E-Mail Intro, 12:00</td>
<td>WordPerfect Intro, 9:00</td>
<td>Intermediate SPSS, 1:00</td>
<td>Intermediate WordPerfect, 1:00</td>
<td>HyperCard Intro, 2:00</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15/16</td>
</tr>
<tr>
<td>SPSS Intro, 6:00</td>
<td>UNIX at the ACF, 11:00</td>
<td>E-Mail Intro, 12:00</td>
<td>Advanced MS Word, 10:00</td>
<td>Mathematica, 2:00</td>
<td></td>
</tr>
<tr>
<td>Columbus Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Monday</td>
<td>Tuesday</td>
<td>Wednesday</td>
<td>Thursday</td>
<td>Friday</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>October 17</td>
<td>Exploring for Scientific Resources on the Internet, 2:00</td>
<td>NYU CWIS Intro, 2:00</td>
<td>GNU Emacs, 2:00</td>
<td>Mac—Painting and Drawing, 2:00</td>
<td>Troubleshooting the Mac, 12:00</td>
</tr>
<tr>
<td>October 24</td>
<td>Intermediate SPSS, 6:00</td>
<td>NYU CWIS Intro, 2:00</td>
<td>UNIX: Advanced Topics, 12:00 Intro to GIS Systems, 2:00</td>
<td>Mac—Painting and Drawing, 2:00</td>
<td>Troubleshooting the PC, 12:00</td>
</tr>
<tr>
<td>November 1</td>
<td>NOVEMBER 1</td>
<td>E-Mail Intro, 12:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>November 7</td>
<td>E-Mail Intro, 12:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>November 14</td>
<td>Intermediate SPSS, 6:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>November 21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>November 28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hanukkah 5</td>
<td>Instructors may begin to apply for Spring 1995 Class Accounts</td>
<td>Students who expect Incompletes may begin to apply for account extensions.</td>
<td>Students with fall semester Class Accounts should store all files they wish to keep after Dec. 22.</td>
<td>Students expecting incompletes apply for account extensions (through Dec. 22) as early as possible. Students with fall semester Class Accounts should store all files they wish to keep after Dec. 22.</td>
<td></td>
</tr>
<tr>
<td>December 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

42 September 1994 Academic Computing and Networking at NYU
<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Sat./Sun.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17/18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24/25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Final Examinations end. Student Class Accounts issued for the fall semester expire.</td>
<td>Christmas-New Year's Recess begins; Winter recess begins; all ACF offices closed through Jan. 2.</td>
<td>Christmas</td>
</tr>
<tr>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>JANUARY 31/1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>New Year's Day</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7/8</td>
</tr>
<tr>
<td></td>
<td>ACF offices reopen.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14/15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dr. Martin Luther King, Jr. Day Weekend—holiday hours</td>
</tr>
<tr>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21/22</td>
</tr>
<tr>
<td>Dr. Martin Luther King, Jr. Day—All labs closed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28/29</td>
</tr>
<tr>
<td>Spring semester begins. Instructors apply for Spring 1995 Class Accounts if you have not already done so.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The ACF’s Computer Laboratories...

From its five locations, the Academic Computing Facility provides a wide variety of computers and related services for faculty, research staff and students. The map on the opposite page shows the ACF’s locations, and the hours of operation are listed beneath it.

For some ACF services, an account is required. Priority access to ACF microcomputers is available in some cases; contact the Accounts Office (998-3035) for more information.

The ACF offers hundreds of computers for use by members of the NYU community. For a partial listing of what is available, see the box at right.

Access to the ACF’s Instructional Computer Labs

NYU faculty, staff and students in degree or diploma programs may use the PCs and Macintoshs in the ACF’s computer labs for limited hours without charge as general users. There is no application procedure; simply come to a lab with your valid NYU ID.

Obtaining an ACF Account

For priority access to the labs at all times, and to use most other ACF computers and special equipment, you will need to have an ACF priority account. There are two kinds. Faculty, staff, and students working on faculty-sponsored projects can obtain individual accounts. Instructors can obtain class accounts that cover all the students in a course section. To apply for a priority account, please contact the ACF Accounts Office (Room 305 Warren Weaver Hall, 998-3035). For hours of operation and availability to general users and to holders of priority accounts, please see facing page.

The ACF recommends that instructors obtain an ACF Class Account whenever a course requires that students have access to computers. These accounts give students priority access to ACF computers, and the application procedure helps the ACF to ensure that the appropriate software and training sessions are available. Students in courses associated with class accounts can register for computer use at any ACF computer lab.

At the Labs in Fall ’94

The ACF’s four instructional computer labs have over 325 Apple and IBM-type computers. All computers are linked to NYU-NET, the campus data network, and are connected locally to Novell-based file servers and printers. Each lab has two or more laser printers. Over 100 software packages are available. For hours of operation, please see opposite page.

Education Building, 2nd floor (100 computers)
- 32 Power Mac 6100 computers with CD-ROM drives and color monitors
- 24 Power Mac 6100 AV computers with CD-ROM drives, 24 MB of memory, 250 MB hard drives, 270 MB Syquest drives, and 17-inch multiscan color monitors
- 22 Macintosh Quadra 700 computers with 20 MB of memory, 80 MB hard drives, 16-inch color monitors
- 2 Macintosh Quadra 800 computers with CD-ROM drives, and color monitors
- 6 Mac Ilvtx computers with CD-ROM drives and color monitors
- Plus 14 Macintosh systems in the New Media Center dedicated to special projects and classes in the arts

Education Building, 3rd floor (200 computers)
- 60 IBM and IBM-type computers with color monitors
- 1 DEC 486 computer with 486DX processors, 8 MB of memory, 120 MB hard drives, and Super-VGA color monitors
- 36 Power Mac 6100 computers with CD-ROM drives, 24 MB of memory, 250 MB hard drives, and color monitors
- 6 Mac Ilvtx computers with CD-ROM drives and color monitors
- Plus 14 Macintosh systems in the New Media Center dedicated to special projects and classes in the arts

Third Avenue North Residence Hall, basement (92 computers)
- 30 IBM and IBM-type computers with VGA color monitors
- 7 DEC 486 computers with 8 MB of memory, 120 MB hard drives, and color monitors
- 33 Macintosh IIsi computers with color monitors
- 22 Macintosh Ilci computers with 17 MB of memory, and color monitors

Tisch Hall, Room LC-8 (74 computers)
- 1 IBM-type computer with Accent Text-to-Speech Synthesizer, Vocal-Eyes Screen Navigation Software, and Zoom-Text Screen Magnification Software
- 49 IBM PS/2, Model 55SX, with VGA color monitors
- 24 Gateway P4D/66 computers with 486DX2 processors, CD-ROM drives, 5.25-inch and 3.5-inch diskette drives, 340 MB hard drives, and 15-inch color monitors

Tisch Hall, Room LC-7 (20 computers)
- 1 IBM-type computer with Accent Text-to-Speech Synthesizer, Vocal-Eyes Screen Navigation Software, and Zoom-Text Screen Magnification Software
- 49 IBM PS/2, Model 55SX, with VGA color monitors
- 24 Gateway P4D/66 computers with 486DX2 processors, CD-ROM drives, 5.25-inch and 3.5-inch diskette drives, 340 MB hard drives, and 15-inch color monitors

Tisch Hall, Room LC-8 (74 computers)
- 1 IBM-type computer with Accent Text-to-Speech Synthesizer, Vocal-Eyes Screen Navigation Software, and Zoom-Text Screen Magnification Software
- 49 IBM PS/2, Model 55SX, with VGA color monitors
- 24 Gateway P4D/66 computers with 486DX2 processors, CD-ROM drives, 5.25-inch and 3.5-inch diskette drives, 340 MB hard drives, and 15-inch color monitors

14 Washington Place (62 computers)
- 25 DEC 486 computers with 486DX processors, 8 MB of memory, 120 MB hard drives, and color monitors
- 7 Gateway 2000 computers with 486 processors, 8 MB of memory, and Super-VGA color monitors
- 30 IBM PS/2 computers, model 70, with VGA color monitors; 25 with numeric processors and joysticks
**Important ACF Telephone Numbers**

ACF HelpLine
Account Information
Computer Documentation
Innovation Center
Statistical Consultants
Computer Labs:
  - 14 Washington Place
  - Tisch Hall
  - Education Building
  - Warren Weaver Hall
  - Third Ave. North Res. Hall

Dial-in Access to ACF Computers

To connect via modem to NYU-NET, NYU's campuswide network, set your modem to 8 data bits, 1 stop bit, full duplex, no parity, and dial one of these numbers.

<table>
<thead>
<tr>
<th>Modem Speed (bps)</th>
<th>Dial</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>300-2400</td>
<td>995-3600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9600, 14400</td>
<td>995-4343</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300-1200</td>
<td>995-4335*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Use this number if you have an older modem with no error-correction.

Exceptions to regular hours: confirmed Holiday schedules at the labs will be posted via our online news and bulletin-board facilities. ACF offices in Warren Weaver Hall are closed on University holidays.

---

**Fall Hours at ACF Labs (for exceptions, see above, left)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Washington</td>
<td>closed</td>
<td>8:30 am - 11:30 pm</td>
<td>8:30 am - 11:30 pm</td>
<td>8:30 am - 5:30 pm</td>
</tr>
<tr>
<td>Tisch Hall*</td>
<td>closed</td>
<td>8:30 am - 11:30 pm</td>
<td>8:30 am - 11:30 pm</td>
<td>8:30 am - 5:30 pm</td>
</tr>
<tr>
<td>Education Building*</td>
<td>closed</td>
<td>8:30 am - 11:30 pm</td>
<td>8:30 am - 11:30 pm</td>
<td>8:30 am - 5:30 pm</td>
</tr>
<tr>
<td>Third Ave. North</td>
<td>10:30 am - 1:30 am</td>
<td>10:30 am - 1:30 am</td>
<td>10:30 am - 5:30 pm</td>
<td>10:30 am - 5:30 pm</td>
</tr>
</tbody>
</table>

*Open to general users from 8:30 am to 1:00 pm, Mon. through Fri., and to priority access account holders during all hours of operation.
In This Issue

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>From the Director</td>
<td>In Support of the Global University</td>
<td>1</td>
</tr>
<tr>
<td>Computing in the Humanities</td>
<td>What Hath Thoth Wrought: Databases, Thesauri, and International Scholarship</td>
<td>3</td>
</tr>
<tr>
<td>Networks and Networking</td>
<td>Lynx Provides Easy Access to the WWW</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>The World-Wide Web</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Anatomy of a World-Wide Web URL</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Finding Lynx on ACF Computers</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Keeping Up with the News</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>GIGS Is Growing: School of Ed Adds</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Grad Grant Info on the NYU CWIS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>What Is the NYU CWIS?</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Ethernet Links Available at Dorms</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>ACF HelpLine Q&amp;A: NYU-NET Software for Windows</td>
<td>11</td>
</tr>
<tr>
<td>Science and Visualization</td>
<td>Undergraduate Scholars Explore New Tools at the ACF Visualization Lab</td>
<td>12</td>
</tr>
<tr>
<td>Instructional Computing</td>
<td>NYC High-Schoolers Compute at ACF</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Fall: Colloquia on Multimedia Publishing, Community Networks, and the NII</td>
<td>15</td>
</tr>
<tr>
<td>User Services</td>
<td>Expanding Services at ACF’s Labs, Innovation Center, and Help Center</td>
<td>16</td>
</tr>
<tr>
<td>Social Science Computing</td>
<td>Westchester Maps and Data at ACF</td>
<td>18</td>
</tr>
<tr>
<td>Supercomputing</td>
<td>More High-End Machines at ACF’s CAPC</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Adapting Fortran Code for Parallel Computers with XHPF</td>
<td></td>
</tr>
</tbody>
</table>

The Digital Arts
Enlarged and Upgraded Facilities for Artists in the ACF's New Media Center | 21 |
Shelly J. Smith Joins Arts Tech Group | 21 |
Software at ACF's New Media Center | 22 |

Online at Bobst Library
BobCat Sports New Look | 24 |
Britannica Online and on Mosaic | 25 |
Multimedia at Bobst Library | 25 |

Center for Digital Multimedia
Immersion in the Myst | 26 |
The CAT Multimedia Collection | 27 |

At the NYU Computer Store
Back-to-School Specials: Trade-ins, Etc. | 28 |

Coming Events
NYSERNet Conference '94:
- Connecting New York | 30 |
- Internet Training at Bobst | 30 |

Fall '94 at the ACF
Index to the Schedule of Classes | 31 |
ACF Classes, Workshops, and Talks | 32 |
ABCs: 33 • Computers and Operating Systems: 34 • Electronic Mail: 35
• Geographic Information Systems: 35
• Graphics and Multimedia: 36 • Networks: 36 • Scientific Computing: 37
• Statistics, Spreadsheets, and Databases: 38 • Word processing: 39
ACF HelpLine Q&A: Keeping Old E-Mail Address | 34 |
Getting an NYU-Internet Account | 35 |
Important Dates for ACF Users | 40 |
Calendar | 41 |
ACF Computer Laboratories | 44 |
Map of ACF Sites | 45 |

Published by
the Academic Computing Facility
of New York University
251 Mercer Street
New York, N.Y. 10012

Cover: Students from eighteen NYC high schools at the ACF's 27th Summer in Computing Workshop (see page 14). Photos by Joseph Hargitai.