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

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

Below many of the bylines in the newsletter are electronic mail (e-mail) addresses. If you do not use e-mail but would like to, see the box on page 7 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, and Adobe Photoshop. 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. Camera-ready copy of text and screen shots was produced using a 600-dpi HP4Si printer. Color tabloid-size prints from a Tektronix Phaser IIIxi were used for preparing the cover; later, a negative was made from digital output sent to the Agfa Compugraphic 9400 Imagesetter in the Bobst Library Electronic Resources Center. Echo Graphics printed and bound the newsletter.

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Thanks also to Lisa Barnett, Vincent Doogan, Edi Franceschini, Estelle Hochberg, Dean Margo Horn (GSAS), Lu Ratanil, Yutong (Bobst Library), and Carmen Vasquez.
Information Superhighway: Under Construction

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Last week I attended National Net '94, a short annual meeting in Washington oriented towards discussion of policy aspects of national networking. In the past this meeting has been a good place to observe trends in the national network, listen and talk to key players in that arena, and compare ideas with my colleagues. This year was no exception.

The problems of success that I discussed in the last issue of Academic Computing and Networking at NYU were reported by my colleagues at other universities. Many commented, "We can't add connections fast enough to keep up with the demand." A good number of campuses appear to be planning significant extensions and upgrades to their campus networks. NYU is not alone in feeling the strains of increasing demand for electronic network services.

This strain on the internal networking fabric of institutions appears to be replicated on a national, and perhaps even on an international, basis. Traffic on the national networks, which has been growing at some 15 percent per month for the last five or ten years, seems to be straining the national infrastructure. This has happened at several points in the past, when the demand for sending information has caught up with the bandwidth, or transmission capacity, provided by national networks. In 1988, just before the capacity of the Net was raised from 56,000 bits per second to 1,500,000 bits (or 1.5 megabits), the patience of network users was severely tested by long delays in response times. Again during 1991-92, as this capacity was being increased to about 45 megabits per second, there were periods of increasingly frustrating sluggishness. Now, as the national infrastructure is being actively reshaped by multiple government departments, and bandwidth is increasing further, it appears that we are again entering a period where the highway is not wide enough for all the traffic we want to put on it. Until the highway is widened, there will be traffic jams.

What drives this growth in electronic data traffic? First, new users discover electronic networks and start to make use of their services. Second, as they learn about what is available, they often make broader and more intensive use of what is available. Finally, this increase in demand encourages the creation of new services — which fuel further use. All of these effects are multiplicative, leading to the rapid rates of growth that we have observed in recent years.

One new service in particular has fueled recent growth and promises to continue for some time. I refer to the information structure known as the World-Wide Web (initially a creation of the international physics community) and programs for "browsing" that multimedia structure, such as NCSA Mosaic. Until recently, the networks were used mainly to transmit text, generally in the Latin alphabet. While images and other objects were transmitted from time to time, this generally occurred in a specialized or experimental context. But the World-Wide Web and browsing programs such as Mosaic that run on a Macintosh or a PC have made it vastly easier to introduce images, sounds, and video clips into the "information space," and to retrieve them. Combine this newfound ease with the fact that images, sound, and video require vastly more bandwidth on the information highway — by several orders of magnitude — and the further fact that both the Mosaic program and access to World-Wide Web are essentially free, and you have
a reliable recipe for electronic congestion.

Since late 1992, another key element has been added to the picture. The Clinton administration is a vocal champion of the development of the national information infrastructure (NII), and government departments in Washington are actively implementing the technology themselves as well as funding research and development programs much more generously and visibly than in the past. The information infrastructure is regarded as a key element of increased competitiveness in the world economy, and therefore its growth and availability are seen as desirable.

Infrastructure by its nature has the habit of becoming increasingly invisible over time in the sense that it is assumed to be present and available and to work properly, and this is becoming increasingly true of the information infrastructure. The value of infrastructure becomes dramatically evident when it is interrupted. Think back to the last electricity, water, or telephone outage, the last subway strike, or at a more basic level, the last time your plumbing stopped working. In this context, the level of irritation we feel when the electronic infrastructure slows down or breaks is a reflection of its increasing importance and value for us.

A new, and major, element of growth in network use is just beginning — commercial services and transactions on the Internet. You may recall that the roots of the Internet were established in the late 1960s and were used to support scientific research. More general use of the network in education began only about eight years ago, in 1986. Elements of the network that could legally carry commercial traffic were only being built three or four years ago. The elements of infrastructure that enabled the creation of commercial services are therefore quite new.

A particularly interesting recent development is the announcement (New York Times, April 13) of CommerceNet, an initiative to enhance the Internet's infrastructure in a way that will permit reliable and secure electronic commerce on the net. The CommerceNet initiative — which is supported by the federal government and a broad coalition of major Silicon Valley firms — provides for such secure communication by adding the technologies for both data encryption and digital signatures to messages between participants on this logical network. In the past it has been impossible to rely upon the integrity and authenticity of a message received over the Internet to the extent required for high-volume automated commercial transactions; this development provides the level of security that provides an extraordinarily high degree of confidence that a message received was really sent by the named sender, and that the contents have not been altered.

The technology that makes CommerceNet possible, called public key encryption technology, has been known (continued on page 9)
Get GIGS: "Grants in Graduate Studies" Goes Online

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What do you get when you combine over five hundred files of information on grants and fellowships, a forward-looking Dean, and a user-friendly information server? You get GIGS! Where once there was a booklet, there is now an electronic resource, updatable and online. GIGS — Grants in Graduate Studies — is an electronic publication on funding opportunities for graduate students at NYU, located on the NYU CWIS, the Campus-Wide Information System.

Margo Horn, Assistant Dean of the Graduate School of Arts and Science, came up with the idea for GIGS last fall when she began to review and update the information for a booklet called Grants for Graduate Students, formerly printed every two years: "I brought a growing familiarity with the magic of online databases to my publications projects in my new position of Assistant Dean of GSAS. I realized that materials on grants and fellowships constantly became obsolete. I thought that the information should at least be available by computer, so that it could be readily updated."

"The idea of putting the material on the Internet quickly struck me as I considered the issue of the accessibility of the data. If we created an online database and made it available through the Internet, graduate students at NYU and elsewhere could have access to the most timely information on funding opportunities."

What’s in GIGS? The resource includes funding agencies — U.S. government, international, corporate, and private — that support graduate study and research in the humanities, social sciences, and sciences. The competitions and opportunities listed take many different forms. There are cash prizes, internships, exchange programs, and loans, as well as renewable fellowships. Some provide full predoctoral financial assistance. Others support dissertation research and write-up, special projects, study, and travel abroad.

"As we have worked on the design of this database," Dean Horn explained, "we have tried to organize and cross-reference the information so that each graduate student will be able to find all of the funding opportunities appropriate to their disciplinary focus. This is an exciting innovation that I hope will enable students to receive more funding for their academic work."

The database has been organized according to the departments in the Graduate School of Arts and Science. In addition, GIGS lists resources targeted at special groups of students, such as minority fellowships, grants for women, disabled students, and international students.

The menu system of the NYU CWIS clearly displays how the information is organized and allows users to browse through individual files online. Every file highlights a description of the grant, eligibility requirements, stipend amounts, deadlines, and contact information. Grants are cross-referenced when they are applicable to more than one department or student group. The NYU CWIS also has the very convenient feature that allows students, once they

Lucia Ruedenberg is receiving her doctorate this spring from the Dept. of Performance Studies. She has been working with Dean Horn to create GIGS, under the guidance of the ACF’s David Ackerman.
Getting to GIGS on the NYU CWIS: From the main menu, select Admissions, Financial Aid, and Registrar, then GIGS: Grants in Graduate Studies. This brings you to the main GIGS menu (top), then submenus that lead to the grant listing (bottom). These images are from a Macintosh running TurboGopher; on other computers, the menu looks different, but the information is the same.

have located descriptions of promising grants in GIGS, to mail the files back to their own computer account, to be saved, downloaded, or printed. (For more about the NYU CWIS, see the box opposite, as well as articles in the previous issues of this newsletter.)

What’s special about GIGS? David Ackerman, project manager of the NYU CWIS, describes GIGS as “the first time an NYU publication has abandoned print for distribution exclusively in electronic form.” In its electronic form, GIGS can be updated continually, and thus will maintain a timely relevance to a greater number of students and faculty. In contrast, the printed booklet was out of date the moment it was published. In addition, Dean Horn noted that “putting the material online is cost-effective, when compared to periodic publication and revision of a printed edition.” Students can continue to come in to the Office of Academic and Student Affairs at 6 Washington Square North to review the binders of original grant information, but now they can also review the same information via modem from their own homes.

Why use GIGS? Because it enables you to find the right resource at the right time. Every graduate student should check in and explore GIGS periodically. Throughout the year, grant deadlines vary, and new grants come in with differing eligibility qualifications. Some are based on performance, ethnicity or age. Others are based on need. Some request applications in the fall, others in the spring. GIGS will now enable any graduate student to stay on top of this information and take advantage of what’s out there in the changing world of academic funding.

In addition to disseminating the grant information on GIGS, the Graduate School sponsors workshops during the academic year to give students specific support in preparing fellowship and grant proposals. GIGS went online on May 1, though some of the data and links are not yet complete. We anticipate that the information online will be essentially complete in June. Meanwhile, we invite users to send their feedback and responses to horn@acf2.nyu.edu or to the GSAS Office of Academic and Student Affairs at 998-8060.
Traffic on the NYU CWIS: People from All Over NYU — and the World — Looking for Everything

As more and more information becomes available on the NYU CWIS, more and more people go to it to find the information. But who looks? How many people? From where? What are they looking for?

The software that runs the CWIS compiles data that can give us answers to many of the questions: not how many people, but the Internet address of the computers and how many requests for information there were.

In October, we reported that there were an average of 6,000 connections in a week; by early April, that number had tripled, approaching 18,000. On Wednesday, April 6 — an unremarkable day — there were 3,083 connections from 276 different host computers. That doesn’t mean that there were 3,083 “visits” to the CWIS, since each new document a user looks at counts as a request for information. It’s reasonable to estimate that about 1,000 people used the system. For example, from ACF6, one of the computers in the ACfcluster, there were 212 connections, representing numerous users. From a machine at Vassar, there was one connection, presumably indicating only one person.

So where do those 1,000 visitors come from?

Most come from NYU, of course—about three-quarters of them: of the 10 most-used hosts, accounting for 1,300 connections, all but one are at NYU. But the others come from all over. Skimming through the addresses and ignoring the ones I can’t quickly decode (vm1.NoDak.edu is pretty obviously North Dakota), I find visits from thirty-two states, from nine different universities in Canada, and from ten other foreign countries: Brazil, the Czech Republic, Germany, Israel, the Netherlands, Po-

(continued on page 22)
NYU-Internet System Debuts with Streamlined E-Mail and Network Access

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This spring, the ACF has been developing NYU-Internet, a new system for campuswide e-mail service and Internet access. Still in the testing stage as this article goes to press, NYU-Internet is scheduled to go into live operation this summer.

By providing fast, simple, and comprehensive Internet access for the NYU community, NYU-Internet will serve as one of the University’s principal “on-ramps” to the Information Highway — what we now know as the Internet. The new system will be available for dialup and on-campus use, and can be used by anyone who has at least a VT-100 terminal or communications software that can emulate a VT-100 terminal.

NYU-Internet is a full-service Internet computer interface that offers all major network services, including mail, Gopher, World-Wide Web, Telnet, FTP, Network News, and POPmail. When the system goes live, accounts will be available on request (see the box on page 7 for eligibility requirements).

The new system has been designed for speed, reliability, and simplicity, and is menu-driven — that is, a brief menu is displayed, and you can make selections from among the choices. There will be detailed, context-sensitive online help for every menu option. Experienced users can bypass the menu altogether, and enter commands directly at the system command prompt.

NYU-Internet is the ACF’s next-generation system for anyone at NYU who wants access to the rich and growing world of online information and services.

Beyond the ACFcluster

NYU-Internet is based on the Unix operating system, and runs on a DEC 5900 computer. The ACF has designed it to be expandable as system demand grows.

Starting during the summer, the ACF will create new e-mail accounts on NYU-Internet.

At the present time, the ACF provides e-mail and Internet accounts on the ACFcluster, which is a group of linked computers that hold approximately 5000 accounts. Eventually, accounts on the ACFcluster will be moved to the new system. The ACFcluster will remain in service for instructors who need it for course work, and for special software requirements.

The ACF has attempted to shorten the learning curve for new users and for people making the transition from the ACFcluster. The new system was designed to be used without the need for complex manuals. In fact, the group that recently tested the system received only a small, introductory pamphlet when their accounts were assigned.

NYU-Internet’s menus have been carefully composed in plain English, and the menu structure is extremely spare. If some systems can be described as mazes, NYU-Internet is more like a single corridor that has a handful of doors and only one exit.
To Get Your NYU-Internet Account ... 

The ACF’s NYU-Internet accounts provide e-mail connectivity and network access — through the NYU CWIS — from your desktop computer to information resources at NYU and around the world. (E-mail is also available automatically to those with accounts on ACF shared systems.)

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.

For example, Mail is an entry on the main menu that leads directly to Pine, the mail program; CWIS leads instantly to the system’s Gopher software. Other entries, such as Network, lead to a second-level menu. That’s it. No menu choice is more than a single step away from the main menu.

Mail Is Easy to Use

NYU-Internet’s mail program is Pine, which was developed at the University of Washington. Pine, like NYU-Internet itself, is menu-driven and simple to use. Pine includes a friendly full-screen text editor,
and lets you create address books and mailing lists. Pine also conforms to an exciting new e-mail standard known as MIME (Multipurpose Internet Media Extensions), which allows you to mail any kind of file — pictures, sound recordings, movies, file — without using complex file-conversion software.

**Tap into the World-Wide Web**

NYU-Internet also includes a program called Lynx, which allows you to browse through files and collections of data available through the Internet, under the umbrella of the World-Wide Web (WWW) project.

WWW was developed at CERN, the European Laboratory for Particle Physics. The initial motivation at CERN was to provide easy access to a wide body of physics information — any part of which might be available on any computer in the world — via the Internet. The idea caught on, and now the WWW project includes a breathtaking collection of information, ranging from one extreme (a database of plot summaries of the TV show *The Simpsons*) to the other (the U.S. Geological Survey’s instant postings of earthquake information).

One of the project’s goals was to avoid requiring that researchers remember addresses, locations, and login information for dozens of computers around the world. And rather than arranging the information in traditional database form — like hierarchical lists — the WWW developers instead use a model more like an encyclopedia. You can browse through an encyclopedia, and follow cross-references to other articles if you want more information. The text at left below shows NYU-Internet’s main WWW display. (In WWW parlance, this is a “home page.”)

Notice that in the first paragraph, the phrase “World-Wide Web” is highlighted. This highlight is known as a link, which is the cross-reference to another document. To follow the link, you can place your cursor on the highlighted phrase, and press the Enter key; that brings up the document on the right.

Lynx displays text — it cannot show graphics or play sounds — but because it is character-based, it is exceptionally fast. A similar program, Mosaic, was described in the January 1994 issue of this newsletter, and has received considerable media attention in recent months. While Mosaic is a powerful browsing tool, it requires that you have a graphical display, and is not currently practical for dialup access. Lynx can be used on workstations that have the simplest communication programs. The WWW project has been called the “killer application” of the Internet, the program that makes Internet access indispensable for scholars and researchers.

**A Rich Help System Makes a Difference**

NYU-Internet provides two kinds of online help. Simple help can be displayed for any menu entry. Just highlight the menu choice and press the question mark key to display a screen of help text.

Detailed help is available for each menu through the system’s “HyperHelp” feature. Each detailed help screen is a hypertext document. You can read that initial screen, and move through it for more information on any topic you select. In HyperHelp, you get only as much help — or as little — as you need. The HyperHelp system is based upon Lynx, and will consist of a selection of hypertext documents to help both novice and advanced users of the NYU-Internet system.

**Tested by People Who Will Use It**

A test team began using the system in April. The team — composed of twenty people who currently use several different types of shared systems at NYU — found the system easy to learn. And the team also found the Help system simple to use.

The program Lynx gives you rapid character-based connection to the World-Wide Web and other Internet services.
Information Superhighway (continued from page 2) for a number of years. The CommerceNet announcement, then, means essentially that a critical mass has formed — enough actors on the national networking stage have been able to get together, secure the rights to use the technology on a very broad scale, and offer it, apparently at no charge to the end user. The participants apparently assume that they will recapture the costs of licensing the technology through growth and profitability of transactions in the electronic market. I think the assumption is justified.

How will this technology be made available to the consumers of such services, which includes all of us? The Times reports that the CommerceNet developers are using Mosaic as the model, are adding the data encryption and digital signature to it, and plan to give away those secure versions of Mosaic. In effect, Mosaic then provides the secure electronic envelopes that will link buyers and sellers to effect transactions in the electronic market.

Those of you who have used the Mosaic program and its equivalents to explore the World-Wide Web may be aware that there are already fledgling efforts to define and expand a marketplace in commercial services and electronic transactions. I first noticed these efforts this February, when a commercial florist established an electronic service for ordering flower deliveries for Valentine’s Day. Using Mosaic, you could browse a menu of offerings, click on an icon to see a color picture of the product, and order a delivery. More recently, a company in upstate New York has initiated the equivalent of a nationwide multiple-listing service for residential and commercial properties. The subscribers are realtors; they can now get listings and pictures of available properties over the network. Using today’s technology, it would be relatively easy to extend these property descriptions to include floor plans and video clips of walks through the property, and to retrieve them on your desktop computer connected to the network.

These specific services, and CommerceNet itself, may not succeed. The electronically facilitated market for goods and services is in its infancy, and it would be hard to predict how any single initiative will do or what shape the market will take in the long run. But its size is not in question; it will be enormous, and its infrastructure will be as essential as any other we have, if not more so. This infrastructure will require a very broad and very fast highway.

As we move toward this future, it’s useful to remember that this electronic infrastructure we use is still in its infancy, under intensive construction. Traffic jams, detours, washouts, and closed lanes are inevitable parts of that construction and of our use of networks, and testify to their increasing importance in our work and our lives.

Developed at the ACF for the NYU Community

NYU-Internet was developed entirely at the ACF. Unix system manager Chetan Dube wrote the program that provides the fast, efficient menu displays. A diverse group of ACF staff worked behind the scenes for several months to shape the system. The design philosophy reflects the ACF’s experience offering Internet access through the ACFcluster.

As George Sadowsky, director of the ACF, has noted in this newsletter, the Internet is becoming so universal and decentralized that in many ways the network itself is the computer. NYU-Internet has roots in the past, but it looks to the future, too. As a shared central system, it resembles traditional services like the ACFcluster. But much of its software operates on the client-server model.

For example, when you select CWIS from the NYU-Internet menu, the information that is displayed on your screen is not coming to you from the NYU-Internet system itself. Rather, it is retrieved from somewhere else — either from another NYU system or a computer somewhere else in the world. In either case, you do not need to know any of the underlying technical details that are involved in putting the information on your screen.

We at the ACF are confident that NYU-Internet will serve the NYU community as a bright, new system that provides full access to the Internet and its services.
Each year the automobile industry unveils new car models: fresh styles, more fuel-efficiency, new features. The annual rollout places a discipline on the research, development, and production cycles of the industry.

If only the field of computing technologies were that orderly! The application of computing and communications technologies to every aspect of academic life is evolving at a furious pace, and so we all face the challenge of more or less continual change. And at the same time, yesterday's electronic tools — such as several-year-old machines and programs — continue to be used profitably. Indeed, here at the Academic Computing Facility, we sometimes face a difficult choice: shall we eliminate an older but still useful item that takes some work to keep running, so that we can better support new machines and applications?

Of course, we work continuously at the ACF to keep the computers and network humming, to solve problems as they arise, to answer myriad questions — and in our spare time, to make progress on a new set of projects large and small.

How are these projects identified? Members of the ACF staff are in close touch with other technologists in academia and industry, and we see trends and possibilities as they begin to emerge; working continuously with teachers, researchers, and students here at the university, we see the desires and needs for applying new technologies (in the form of hardware, software, services, assistance) every day. In addition, each of the technologies currently deployed (Macintoshes, Unix machines, networks, file and print servers, and so on and on) has an evolutionary life of its own, calling for continual extension, upgrade, or reconfiguration.

So what's coming soon from the ACF? Several articles in this newsletter describe various projects under way at the ACF; here let me outline some of the projects the ACF technical staff is working on.

**Computer Labs: Enhancements and Upgrades**

This summer we plan to upgrade the oldest Macintosh and IBM PC computers at the ACF's microcomputer labs with up-to-date systems, including members of Apple's new line of PowerPC-based Macintoshes. More units will be added to the lab in the Third Avenue North Residence Hall, and we hope to equip some of the new systems in the Education Building lab with multimedia peripherals such as CD-ROM drives, Syquest removable drives, and flatbed scanners.

**NetWare 4**

The file servers at the ACF's computer labs now run Novell NetWare 3.11; we hope to upgrade by the fall semester to version 4.01, the newer and more powerful version of the server software — the first deployment of this software on NYU-NET. NetWare 4.01 will allow us to create individual student accounts on this group of file servers. With fully authenticated accounts, users of the ACF labs will be able to access — directly from lab microcomputers — both the full range of ACF resources and the fast-growing set of information and services on the Internet at large.

**New Printers, New Spooling Approach**

For many years, the ACF has provided bulk laser printing from VMS and Unix host computers with a group of high-speed Imagen laser printers. Now ob-
obsolete and suffering from increasingly frequent hard-
ware problems, these printers need to be replaced. We are evaluating high-volume models from Hewlett-Packard and Xerox. We also plan to use a new spoolling method to provide greater control and fuller information about print jobs, both to ACF staff members and to those whose files are being printed.

**New Menu System for Internet Access**
The ACFcluster system has provided general electronic-mail and Internet-access services to the NYU community for the past several years. A new multi-user platform, based on the Unix operating system and incorporating a faster and more user-friendly set of programs, has been developed for wide use at NYU beginning this summer (See page 6).

**Electronic White Pages**
As at many other universities, the ACF provides a network-based electronic “white pages” or “phone book.” A database server — containing information compiled from the NYU Telecommunications phone book and the ACF electronic-mail addresses — is maintained on one of our host computers. Complementary client programs exist for many platforms and are built into several electronic mail programs (such as Eudora and NUPop, which are used on many computers on NYU-NET).

This spring we are updating the information in this database, and are, for the first time, including the full campus addresses and departmental affiliations for members of the community. Within the next six months or a year, we hope to augment this information with student electronic-mail addresses.

Within the next year we hope also to begin using new database software that follows the international X.500 standard for directory services. Eventually these tools should provide ready electronic access to information about all members of the NYU community, with provision for each person to update his or her own information as desired.

**Improved AppleTalk Zone Organization**
Macintosh computers and other devices (such as printers and servers) that use the AppleTalk communications protocols on NYU-NET are assigned to “zones,” so users can readily find the device or service they need. Typically, there is a zone for each department or location. Until now, however, all such devices attached via Ethernet to the campus network have appeared in a single huge zone called NYU Ether. As the number of AppleTalk devices on campus has grown from a few score in the late 1980s to many hundreds today, the present zone configuration has become increasingly unworkable. By early summer, we shall reconfigure the AppleTalk routers on campus to allow any AppleTalk device to appear in the zone of choice, thus clearly indicating its location or affiliation.

**NYU-NET Becomes Increasingly “Routed”**
For those interested in how NYU-NET, our campus-wide data communications network, is evolving, here’s some technical information on recent developments. Up until the past year, NYU-NET was essentially a single very large Ethernet, with a number of “bridges” used to reduce unnecessary flow of data between segments. More recently, in order to improve manageability, security, and flexibility on the network, an increasing number of “routers” have been introduced: at the Medical Center, at the Stern School of Business, and now at the ACF facilities in Warren Weaver Hall. By this summer, all subnets of NYU-NET associated with this building will attach to NYU-NET through a new multiprotocol router.

**New World-Wide Web Home Page**
The World-Wide Web (WWW) is a growing collection of multimedia information (text, graphics, sound, video) on computers around the Internet. These resources are accessed via graphical, hypertext viewing programs such as NCSA Mosaic. (For more about Mosaic, see the article in the January issue of this newsletter.) In order to pave the way for inclusion of New York University information in the World-Wide Web, the ACF recently established a WWW server (www.nyu.edu) with a prototype “home page.” The “home page” is the introductory hypertext document one views at NYU, and is meant to give people outside NYU a window into the university, and people within the university a gateway to the large “Web” of information available on the Internet. By early summer, we hope to have a revised and more polished home page that can form a strong, long-term framework for organizing NYU information within the World-Wide Web.

**Enhanced Dial-In Connections:**
**Support for SLIP, PPP, and ARA**
An eagerly awaited enhancement of the NYU-NET dial-in modem pool should be in place this summer. (continued on page 29)
NYU Chosen as Site of New Media Center for Arts Instruction

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At Intermedia '94, it was announced that New York University and twenty-one other universities and colleges were chosen as flagship sites in the New Media Centers Program, an initiative that teams industry and academia to foster multimedia in higher education. The selections were announced at the Intermedia conference on multimedia and CD-ROM by the industry consortium that will partner with the winning campuses (see box below). Also announced at that time were the addition of U.S. Senator Bob Kerry of Nebraska to the Executive Board of the program, and Kodak and Clement Mok as two new technology partners.

The proposal from NYU focused on instruction in arts programs. The NYU New Media Center (NMC) is essentially the ongoing collaboration among the Academic Computing Facility, the Tisch School of the Arts, and the arts-related departments of the School of Education to plan, create, and use shared facilities in support of classes, student projects, and faculty projects in the digital arts. Participation in the New Media Center program will allow the ACF to

New Media Center Program — Member Organizations
In 1994, twenty-two schools were selected as academic charter members to create new media centers that will serve as models for other institutions:
- California Polytechnic at Pomona
- California State University at Long Beach
- Stanford University (California)
- Georgia Institute of Technology
- University of Hawaii at Manoa
- Lewis-Clark State College (Idaho)
- University of Michigan
- University of Minnesota
- University of Nebraska at Lincoln
- Princeton University (New Jersey)
- University of New Mexico
- Cornell University (New York)
- Hostos Community College, CUNY
- New York University
- Elizabeth City State University (North Carolina)
- Ohio State University
- Pennsylvania State University
- Houston Community College (Texas)
- Bennington College (Vermont)
- Virginia Tech
- University of Wisconsin at Madison
- University of Calgary (Alberta, Canada)

Nine corporate members now provide technology products and expertise to the New Media Centers Program:
- Adobe — Software for design, imaging, and digital video
- Apple — Computer hardware; system and multimedia software
- Clement Mok — Commercial design
- Eastman Kodak — Products for digital photography and multimedia
- FWB/Hammer — High-performance mass-storage technology
- Macromedia — Software for multimedia, animation, and publication
- Prentice-Hall — Electronic publishing
- Sony — Video and mass storage technology
- Supermac — Display, print, and digital-video technology
expand the facilities supporting this activity in ways that would not be otherwise possible. These facilities include the Student Studio in the Education Building and, in Warren Weaver Hall, the Art Technology section of the Innovation Center, the Silicon Graphics Workstation Room, and the Videographics Room (see box below).

While the main emphasis of the New Media Center Program is on new delivery media such as CD-ROM, NYU's participation will in large part include the use of new technology in the production of traditional media. For example, current classes teach nonlinear film and video editing, computer animation, digital photography, and digital audio production.

This ongoing focused activity has been accepted by the NMC Program as a "Center." This is not meant to confer any particular academic status, but rather to designate it as a production facility with a particular purpose and user base. The benefits of the NMC (continued on next page)

**Enlarged and Updated Facilities for Artists at the ACF**

Over the summer, we plan to make some major improvements to the ACF Art Technology facilities. These facilities represent ACF's support for arts instruction at NYU, and have recently been designated as a New Media Center as part of a major innovative partnership between industry and higher education (see story above).

At press time, some of these plans were tentative and subject to change. More details will be available in the September issue of this newsletter.

It should be noted that in order to fulfill commitments to support specific classes, and to meet the requirements of the New Media Center program, access to the facilities is limited to departments providing instruction in arts production. These classes, as often as not, use computer technology to produce traditional forms such as film, video, photography, and music, although interactive art and performance are also explored.

The ACF is currently planning support for multimedia applications in other disciplines. Faculty members who are interested in instructional uses of multimedia are invited to contact Vincent Doogan, the ACF's Assistant Director for User Services, at 998-3449 or doogan@nyu.edu.

**Student Studio**

The Student Studio in the Education Building supports classes and individual student art projects with systems available to students on a reservation basis, and a small classroom that can be reserved by faculty members for class sessions.

This facility will be expanded from the current eight Macintosh systems to sixteen systems, including models from the Power Macintosh line. In addition, the studio will be reconfigured to provide systems that are tailored to specific production tasks. Several digital video systems will provide S-video quality input and output, and 16-bit audio, allowing their use for animation, nonlinear editing, rotoscoping, and other video production tasks. Audio production systems will provide SMPTE lock-up to video decks, MIDI, and digital audio DAT transfer, allowing their use in film scoring, dialog editing, and sound design. Imaging stations will provide improved flatbed scanner and 35 mm film-scanning capabilities. Finally, multimedia systems will provide input for General-MIDI, CD-quality audio, and 30 fps video for instruction in interactive art.

**Innovation Center**

The Innovation Center, on the second floor of Warren Weaver Hall, provides new, exotic, or relatively expensive technologies for use by pioneering faculty members and their advanced students. The Art Technology area in the Innovation Center will continue to support photography classes and other arts applications by providing an imaging station with a high-end Leaf 45 multi-format film scanner, and a second station for tabloid-sized photographic-quality prints from a 3M Rainbow dye-sublimation printer. In addition, a CD-R system will be added to produce "one-off" audio CDs, digital-photography portfolios, and interactive CD-ROMs. Finally, a digital video system similar to the one in the Student Studio will be provided for faculty use.

**Videographics Room and Workstation Classroom**

The Silicon Graphics workstations used to support 3D animation classes and projects in TSOA will be moved to a classroom on the second floor of Warren Weaver Hall, providing an improved teaching environment. RGB switching will be added allowing students to view either their own screens or the instructor's screen. In addition, the current Avid Media Suite Pro system will be upgraded to version 3.0 at the end of the summer. With that upgrade, the Avid system will combine a nonlinear editing capability with broadcast-ready real-time video output.

—PG

Academic Computing and Networking at NYU May 1994 13
Moving 3D Images through a 2D “Space”

As three-dimensional models and animations become increasingly widespread in the realms of entertainment, visualization, and communications, NYU students continue their development and increasingly sophisticated accomplishments in 3D modeling, image rendering, and animation. The illustration on the cover and the animation on the opposite page are just two examples of the exciting work being done in classes offered by the Tisch School of the Arts, both in the Animation Area of the Department of Film and Television, and in the Interactive Telecommunications Program (ITP).

The cover image, Volcano, was created by Iñigo Cores, a student in Peter Bardazzi’s undergraduate class Intermediate 3D Computer Animation. The students were exploring the intricacies of animating water; Cores’s volcanic island is bathed by gently swelling waves. Birds fly overhead; later, a shark’s fin emerges, and then a school of sharks is seen from underwater. These sequences were compiled with others produced in the class to form a six-minute film shown as the computer-animation entry in the Animation Festival presented to the press and public at Town Hall on April 29 by TSOA’s Animation Area.

The penguin images were produced by Ignacio Ayestarán in my graduate class, Virtual Space: 3D Modeling and Animation. His Penguin Theater forms part of his master’s thesis on 3D modeling and animation.

The two classes are taught at the ACF’s Workstation Classroom, with the support of Phil Galanter and Jeff Bary, as well as other ACF personnel. The computer animation is done with high-end Alias software running on Silicon Graphics Indigo computers. The elements of the animations were first modeled in wireframe, then were...
rendered to disk, frame by frame. The frames were edited and output to video, and in some cases reproduced on film. For reproduction here, individual frames were converted to TIFF (tagged-image file format) files, transferred via FTP to a Macintosh, and converted in Adobe Photoshop to grayscale, and imported into Aldus PageMaker. The halftone positives for the newsletter's offset plates were produced on an AGFA Compugraphic imagesetter at Bobst Library.

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(Philip Sanders teaches computer animation and electronic painting in the Interactive Telecommunications Program, TSOA.)

Left above, Ifiigo Cores produced rotating title bars for the class video and film. Right and below: Blowing kisses to his (imagined) audience, the MC emerges from between the stage curtains in the Penguin Theater to host a variety show. Ignacio Ayestarán created this sequence to frame other computer animations, which appear on the stage or the screen behind the curtain.
Through the Digital Looking Glass: Virtual Reality in France and New York

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In just the last three months, I have attended two conferences on virtual reality (VR) and skipped at least a half dozen others. The number of conferences, publications, and publicly traded stocks devoted to this most ethereal of industries is growing exponentially. While the number of people making a living by doing VR (other than pure research) is vanishingly small, talking about doing VR is a booming business.

The first of the two conferences, held in Montpellier, France, in early February, was called Interface to Real and Virtual Worlds. The French take their culture, including Informatiques, and the impact that outside influences may have upon it, more seriously than we do in the States, and this conference was no exception. Following two days of tutorials, speakers from France, Germany, Great Britain, and the United States participated in sessions covering basic VR technology and applications in education, business, science, and the arts. Many of the presentations, and the follow-up question-and-answer sessions, included discussions of the appropriate way to use these new technologies and even questioned whether they should be introduced at all. In particular, at the arts-and-media workshop (at which I presented my work in Virtual Sculpture, first seen publicly on the cover of the September 1993 issue of this newsletter), several issues were explored: how works developed for VR differ from works in traditional media; whether existing works can be validly translated to VR; what skills and education are required to successfully work in such media; what embodiment of virtual artworks can be acquired or

(continued on page 26)

Q. I depend on my EMIS account for e-mail and exploring the Internet; can I keep on using it through the summer?

I won't be taking any summer classes here at NYU, but I'll be back in the fall, and I don't want to lose access to the Internet.

A. Your ACF account can be used over the summer whether or not you are taking classes.

All EMIS accounts run until August 31, 1994, when they will have to be renewed for the next academic year.

You may renew your account when you receive your fall ’94 ID sticker. Go to any ACF computer lab, fill out an EMIS application and renewal form, and present your validated NYU ID to the lab staff.

Other accounts are somewhat different. Class accounts normally expire at the end of the semester. Individual research accounts expire on August 31, at the end of the fiscal year, and should be renewed before then.

Call the ACF HelpLine at 998-3333
Annual Max Goldstein Prize Goes to CS Junior

Troy Downing is this year’s recipient of the Max Goldstein Memorial Prize, announced ACF Director George Sadowsky. Downing, a junior in the Department of Computer Science (FAS), is currently experimenting with direct-PC control devices for the Media Research Lab.

The prizewinner has had a varied career: he started at TSOA in 1986 as a dance major, left to spend several seasons as a professional dancer, then returned to NYU, maintaining computers at the School of Education, while beginning studies in the Computer Science Department.

At that time he also began work with Professors Ken Perlin and Lorie Loeb on setting up a Macintosh lab in the animation area of the Department of Film and TV (TSOA). He later worked with them and Peter Bardazzi on the cross-departmental Immersive Environment project (see the September 1993 issue of this newsletter).

At press time, the prize is scheduled to be awarded at a reception in Warren Weaver Hall on April 28.

NYU Colloquia on Computers and Communications

This popular series of colloquia on uses of computers and communications is sponsored by the ACF and the Faculty of Arts and Science, with support from Apple Computer, Inc. Individual colloquia are co-sponsored by additional university departments, depending on the topic. The colloquia are open to all NYU faculty, staff, and students. The remaining presentations in the spring series will be announced in NYU Events, the university’s biweekly calendar, and on the NYU CWIS, and flyers will be mailed to all NYU faculty. To receive an e-mail flyer, ask to be added to the ACF’s mailing list: either call 998-3333 or send e-mail to document@acfcluster.nyu.edu.

Since the spring of 1993, all the colloquia have been videotaped. Copies may be borrowed from the ACF Documentation Office, Warren Weaver Hall, room 312 (998-3036).

Mylonas on Perseus, Kambil on EDGAR: Colloquia at ACF

Elli Mylonas, who has been deeply involved with the Perseus Project since its inception, described and demonstrated the forthcoming version 2.0 of the hypermedia program and database on Classical Greek culture at a well-received colloquium on April 8. The presentation took place in Warren Weaver Hall under the auspices of the ACF, FAS and several of its departments, and TSOA.

Professor Ajit Kambil of the NYU’s Stern School of Business was scheduled for a colloquium on the EDGAR Project on April 29. The EDGAR database is the mass of material about publicly traded corporations that the SEC makes available electronically; the EDGAR Project will, for the first time, make the material freely available on the Internet. Furthermore, the project is devising software tools to make it possible and productive to search EDGAR.

We’ll have more on these two colloquia in a future issue of this newsletter.

With the Browser in Perseus, one can search by classes of keywords in one of several groups of artifacts; here the search produces thumbnail images of vases depicting Atalanta.
much as possible to duplicate the look of the printed journals. The press aims to publish all forty-two or its journals over the Internet, but has started with three: Configurations, Modern Language Notes, and English Literary History.

The journals are converted to HTML, the format used on the World-Wide Web, and can be viewed with one of browsing programs such as NCSA Mosaic on high-end machines, and Lynx on shared systems; the latter is used in the new NYU-Internet account (see page 6). If you want to view the journals, enter the address http://muse.mse.jhu.edu.

### Internet-on-a-Disk

Electronic texts continue in the news, whether as versions of standard texts being prepared for the Gutenberg Project and similar efforts, or as federal documents being made available over the Internet, or as the Britannica announcing plans to go online. In January, we noted Please Copy This Disk, a program to disseminate the same texts by low-cost disk to those who don’t have the Internet connections, or time, to retrieve the files themselves; by early April, 240 titles were available.

That effort is being spearheaded by B & R Samizdat Express, a small Massachusetts book publisher. In March, it published the second issue of a electronic monthly called Internet-on-a-Disk, “a newsletter of public-domain and freely available electronic texts.” Like the first, this issue contained a list of texts recently made available over the Internet, and an editorial on keeping public-domain material freely available.

Here’s a sampling of the newsletter’s list of newly available texts. Each heading is followed by an address — for an FTP, Gopher, or World-Wide Web server — and sometimes by a directory path. Individual titles are followed by the appropriate filenames by which you can retrieve the texts.

#### From the Gutenberg Project

- **FTP:** mrcnext.cs.uiuc.edu  
  **dir path:** /Gutenberg/etext94/  
  - Austen: Persuasion (persu10.txt)  
  - Austen: Northanger Abbey (nabby10.txt)  
  - Hardy: Return of the Native (nativ10.txt)  
  - Millay: Renascence and Other Poems (ednam10.txt)

- Stevenson: Treasure Island (treas10.txt)  
- Twain: A Tramp Abroad (tramp10.txt)  
- Historical tables of U.S. population statistics (uscen10b.txt)

#### From the Oxford Archive

- **FTP:** ota.ox.ac.uk  
  **dir path:** /ota/english/  
  - Jonson: Bartholomew Fair (bfair.2033)  
  - Jonson: Volpone (volpone.2032)  
  - Cooper: The Last of the Mohicans (mohicans.1976)  
  - Sir Gawaine and the Grene Knynght (gawain.1680)

#### From the Libellus Project

- **FTP:** ftp.u.washington.edu  
  **dir path:** /pub/user-supported/libellus/texts  
  - Caesar: Gallic Wars (Latin) (dbg4.tex)  
  - Ovid: Heroides (Latin; books 1-15) (heroides1-15.tex)

#### From Electronic Frontier Foundation

- **FTP:** ftp.eff.org  
  **dir path:** /pub/Publications/  
  - Gopher: gopher.eff.org  
  - Publications/  
  - Articles, speeches, interviews, etc. from Bruce Sterling, Jerry Berman, John Perry Barlow, Mitch Kapor, and others.

(continued on page 26)
Text-Analysis Software: New Tools for Qualitative Research

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The Electronic Text Center was set up last year in Bobst Library to provide access to a growing number of machine-readable standard texts in the humanities and to "electronic books" such as the Oxford English Dictionary and Granger’s Index to Poetry on CD-ROM. In addition, researchers are encouraged to bring in their own texts, which may be scanned and put in machine-readable form, and to analyze them using one or more of the software programs for textual analysis that the Center has acquired (see box on next page for details).

Recently, researchers in the social sciences have expressed interest in using this type of software to analyze qualitative data — the rationale being that data such as ethnographic field notes or interview transcripts are of a nonquantitative, textual nature. Just as importantly, for results of such research to be meaningful, every attempt should be made to keep such data “in context” and not influence the outcome by too much directional structure.

Are the software packages traditionally used by humanities researchers — concordancers, indexers, generators of word and phrase lists — appropriate to the special needs of qualitative research? What are they? What are the capabilities of existing software, both what is now available in the Electronic Text Center, and what will soon be there? What new directions are in store for computer-assisted research?

In a special issue of Qualitative Sociology in 1991, Renata Tesch identified three kinds of qualitative-research needs:

1. Descriptive or interpretive research — concerned

with the meaning of a phenomenon. To do this, researchers must identify appropriate text segments, attach codes (or markers) to these segments, and search and retrieve these segments. Programs like The Ethnograph and HyperQual are able to perform some of these tasks.

2. Theory-building or theory-testing — looking for concepts or categories, such as marital status or customer satisfaction, and testing propositions like “If X is always present, then Y.” Several HyperCard (Macintosh) applications, and such programs as ATLAS/ti and NUDIST, are helpful with this.

3. Traditional content analysis or cultural analysis — making wordlists, comparing occurrences of words and phrases, concordancing. Most programs designed for humanities research, such as WordCruncher, TACT, and Micro OCP, are good at this.

How do these programs work? On the most basic level, most word-processing programs and database-management systems (DBMS) can search out and identify the occurrences of words and phrases. Traditional concordancing programs (such as Micro OCP and WordCruncher) allow the creation of alphabetical wordlists, which they then use as databases to allow the display of textual information in alphabetical indexes, KWIC (key word in context) indexes, and concordances. Some even allow the graphical display of statistical information about word frequency, distribution, and collocations (TACT).

A feature of most DBMS (AskSam is a good one for flexibility and user-friendliness) is the ability to take key words that have been identified and attach them
to each other, providing a kind of "Boolean" search across texts. Many text-analysis programs can also do this, including further limits by special conditions — for example, all female respondents (Micro OCP, WordCruncher, TACT).

The Problem of Coding
When, as is often the case with descriptive or theory-building research, the basic units of text to be analyzed and compared are sentences or parts of sentences, the database-building and search-and-retrieval features of most traditional text-analysis programs (including word-processors and DBMS) are not sufficient. While such programs as NUDIST and The Ethnograph can connect such codes after they have been applied, the "interpretive" task of defining the units and assigning the codes still falls to the human researcher.

An attempt to address the problem of interpretive coding by way of an "expert system" is a program called CETA (Computer-aided Evaluative Textual Analysis), described by Jan J. van Cuijlenburg. To assist in the parsing of sentences into meaningful "nuclear sentences" for analysis, the program asks a series of step-by-step questions about the text. Next, the computer applies "predicate scoring" (on a negative-to-positive-scale) to the segments, by using a preconfigured dictionary of predicates with corresponding evaluative loads. Such projects represent interesting directions for future developments in artificial intelligence.

What other computer-aided tools for qualitative analysis are on the horizon? Tesch suggests that programs will employ graphic enhancements for visualizing interpretive structures, allowing the rotation of a three-dimensional model of results, which might suggest further research. Much more advanced techniques in voice recognition might allow qualitative data to be entered directly on a computer, bypassing the need for written text.

REFERENCES
Census Data Become More Accessible through the ACF’s Social Science Group

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In the last issue of this newsletter, we announced that the Inter-university Consortium for Political and Social Research (ICPSR) was now making data available over the Internet. ICPSR, of which the Academic Computing Facility is a member, is increasing these offerings and has now added many of the Justice Department’s National Crime surveys and American National Election studies.

This collection now includes over 150 studies. Researchers may now ask ACF Social Science staff to order these studies and obtain them immediately via electronic file-transfer protocol (FTP). We can also facilitate direct transfer of the data to the researcher’s own computer.

Two New Titles from ICPSR

- Domestic Violence Experience in Omaha, Nebraska, 1986-1987 (ICPSR 9481) Along with the data, ICPSR has made available SAS and SPSS data definition statements and a machine-readable codebook.

The purpose of this data collection was to corroborate the finding of the Minneapolis Domestic Violence Experiment (1984) that arrest is an effective deterrent against continued domestic assaults. The data addressed the following questions: (1) To what extent does arrest decrease the likelihood of continued violence, as assessed by the victim? (2) To what extent does arrest decrease the likelihood of continued complaints of crime, as assessed by police records? (3) What are the differences in arrest recidivism between cases that involved arrest versus cases that involved mediation, separation, warrant, or no warrant? Based on three data sources, domestic-violence cases in the three sectors of Omaha were assigned to one of five experimental treatments: mediation, separation, arrest, warrant, and no warrant. Data for victim reports were collected from three interviews of the victims conducted one week, six months, and twelve months after the incident. Other variables include self-esteem, locus of control, welfare dependency, changes in the relationships between the suspect and victim, characteristics of police action taken, extent of the victim’s injury, and the extent of drug use. Demographics included race, age, sex, income, occupation, and marital status.

- For teaching statistics, Charles Prysyby and Carmine Scavo have prepared SETUPS Voting Behavior: The 1988 Election (ICPSR 9249). Their book by the same title was published in 1989 by the Ameri...
can Political Science Association (APSA), in Washington, D.C.

This SETUPS file is designed as an introduction to the study of elections, voting behavior, and survey data through the analysis of the 1988 United States general election. The data are taken from the American National Election Study, 1988: Pre- and Post-Election Survey (ICPSR 9196), conducted by Warren E. Miller and the National Election Studies. Items including behavioral, attitudinal, and sociodemographic data were drawn from the full election survey.

All respondents completed both a pre- and post-election interview in the 1988 American National Election Study. The sampling universe for that study was all US citizens of voting age on November 8, 1988, residing in nonmilitary housing units in the 48 contiguous states. The file includes 1,775 cases and 132 variables.

Manuals for use with the data are available from the APSA. Arrangements have been made for individuals at ICPSR member institutions to obtain a discount on the price of APSA manuals. For users with PCs running DOS, the dataset can be supplied as an ABC file on floppy disks, with a runtime version of the ABC statistical software package included on the disks.

**Good Places to Explore over the Internet...**

The US Census Bureau now offers network access to increasing amounts of its data. FTP is the old reliable, but several newer networking programs and protocols can also bring the data to you: Gopher, Mosaic, and Lynx. The announcements at Census promise the data and information will be increasingly available.

- For the Census Gopher server, either go through the NYU CWIS (see the box on page 5) or, on a shared ACF computer, type gopher.census.gov. The Census Gopher is still new, and, as I write, the entries are sparse.

- Both Mosaic and Lynx access the World-Wide Web (WWW) server at www.census.gov with the appropriate protocol. Lynx is part of the new NYU-Internet account; see the article on page 6.

- Old-fashioned users of FTP may connect to ftp.census.gov. If you use the ftp address, you will be instructed how to log in anonymously. Some knowledge of Unix file commands is necessary to move from the main directory down to interesting-looking directories (type dir to see the directories or files that are available; type cd to change directories). When you find a file you want, type get and the filename to download the file to your account.

Which method should you use? Using FTP, you can’t read files until they are downloaded. You can read them through the other connections, and they are considerably easier to navigate.

For more help, the ACF offers tutorials on various methods of accessing the Internet. The summer schedule starts on page 30; a wider range of courses is offered in the fall.

Another goodie: a tutorial on geographical information systems is offered over WWW through Mosaic. The URL (universal resource locator) that will connect you directly to the tutorial is http://info.er.usgs.gov/research/gis/title.html.

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NYU CWIS Traffic (continued from page 5)

land, Spain, Sweden, Switzerland, and the United Kingdom. Most computer addresses are readily identifiable by the last element or two. In most of the world, the final element is a two-letter country code: .se for Sweden, .pl for Poland. In the US, the final element sometimes indicates the state, but more commonly it’s an organizational code: .edu for educational institutions, .gov for federal agencies, .org for noncommercial organizations, .com for commercial firms, .net for network services. On the Wednesday in question, the vast majority were .edu addresses, but there were about 5 .govs, 2 .orgs, 3 .nets, and 10 .coms, including IBM and WordPerfect.

And what did all these visitors find? Considering that all of the visits came from people at computers, it shouldn’t be surprising that many of the visits went to Academic Computing menu and its submenus at the ACF and elsewhere (including, I’m happy to say, quite a few to ACF Publications, where the text of many articles in this newsletter can be found). Calendars got a lot of attention: 210 connections. NYU libraries accounted for about 150. So did various enrollment services; probably there are grounds for fiscal optimism in the fact that only a third of the visitors were checking on Financial Aid, and two-thirds went to the Registrar’s section to find out which classes were available and which were closed. And fortunately only one visitor to the NYU CWIS needed Emergency Phone Numbers under Security.

Another popular destination was Other Information Systems, an option that allows the user to explore and search the Internet.

As more units on campus supply more information to the CWIS, and as access to it becomes easier, we’ll undoubtedly see usage of the NYU CWIS continue to rise.

— David Frederickson with David Ackerman

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New Developments in Atlas GIS: Software for MS Windows

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Atlas GIS is an integrated package for spatial analysis and modeling that can be used to solve various problems such as site location, land-use planning, market research, and disease control.

The first release of Atlas GIS for Microsoft Windows was demonstrated at the Academic Computing Facility on February 23, 1994. The meeting was co-sponsored by two groups with an interest in spatial analysis (SA) and geographic information systems (GIS): NYU’s SA/GIS group and a special-interest group (SIG) of the New York PC users’ group (NYPC) devoted to statistics, demographics, and mapping software.

Users of the Atlas GIS for DOS version can easily convert their data and map files to the new Windows version. The new version provides “point-and-click” access to information and commands, which greatly reduces the time needed to learn the program. Many convenient features — such as a button bar with built-in shortcuts, and a floating tool palette — make it easier for users to get up and running quickly. Furthermore, the user can now export a map produced in Atlas GIS to another Windows application via the clipboard.

As with the DOS version, it is possible to link an Atlas GIS map to virtually any external database. Data files in Atlas GIS for Windows are standard dBase files, insuring compatibility with other software such as dBase, Paradox, and Foxpro. Multiple data tables can be linked to geographic objects.

A strong point of the program is the ability to perform geographic analysis interactively, continually adjusting variables and seeing the results. Provisions are being made within Atlas GIS for the development of special-purpose programs tailored to a particular user’s needs. This feature will be added in the near future, through extensions to Microsoft’s Visual Basic programming languages. Users will be able to use their knowledge of Visual Basic for creating special GIS applications.

Later this year, Strategic Mapping, the producer of Atlas GIS, is expected to introduce a linkage to the C and C++ programming languages, compatible with the standard compilers. A developer will be able to incorporate geographic capabilities in programs written in C/C++. These developments will enable users to create their own tools for geographic analysis, or to incorporate the Atlas tools in their programs, without having to learn a proprietary language.

The first version of Atlas GIS for Windows does not include all the features that were available in the DOS version; however version 2.0 which will include those features, is expected shortly.

Future meetings of the combined SA/GIS and NYPC group will be announced. They are held bi-monthly at 6:10-8:30 pm, in Room 313, Warren Weaver Hall.

Professor Naphtali will be teaching in the Summer Institute on Geographic Information Systems for Urban Planning and Strategic Decision Making at NYU’s Wagner School of Public Service. For more information, please contact her at 877-1475.

Zvia Segal Naphtali teaches in NYU’s Metropolitan Studies Program and heads the NYPC Statistics, Demographics, and Mapping Software SIG. Frank Ruggiero studies in the School of Education.
Improved Tools for Scientific Visualization at the ACF Innovation Center

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The Innovation Center on the second floor of Warren Weaver Hall gives us at the ACF the opportunity to make new resources and instruments available to facilitate and enhance scientific research.

These include cost-effective high-resolution color printers capable of producing color prints and transparencies in a variety of sizes from 8.5"x11" to 12"x18". Color plates generated on these devices are being used not only to permanently record the results of scientific simulations and experiments, but to enhance the quality of the papers being submitted to scholarly journals. Output from the printers is also used in proposals for research grants. Faculty members and researchers routinely use these printers to produce color transparencies that can be used with overhead projectors in the classroom and at professional meetings.

Several large-screen color X-terminals have been installed. These devices — which are not computers, but connect to other shared computers — can provide a multi-windowed, multi-session environment at much less than the cost of a workstation or microcomputer. The indirect costs are also minimal, compared to the cost of buying software and maintaining hardware for the alternatives. The X-terminals can be used in a variety of ways:

• For intense training in the use of scientific software and programming tools, which will enable scientists and graduate students to make effective use of the latest high-performance computing systems.

• As an up-to-date vehicle to gain access to shared systems at the ACF, to other scientific computing resources at NYU, and to high-performance computing systems on the Internet, such as those located at the NSF Supercomputing Centers.

• To provide sophisticated, high-speed access to global Internet resources through World-Wide Web and the browsing program NSCA Mosaic. Here the high speed and fine resolution (1280 by 1024 pixels) of these terminals come to the fore, showing off the high-quality color images accessible on the Web.

It will soon be possible to equip these X-based devices with sound and video cards to support multimedia applications over NYU-NET, as well as the Internet. The MIT X-11 Project — which sets the standards for X-based machinery and software — recently announced that it will support audio and video capability with its release 6.

In addition, there are two microcomputers, a Gateway PC and an Apple Macintosh, connected to the Internet and equipped with CD-ROM players to explore and use science-related applications.

HPCwire for Supercomputing News

For some time now, HPCwire has carried current news of developments in high-performance computing over the Internet (see note in the November issue of this newsletter). The ACF has had a subscription to the full service, and has posted the contents on acf2 under notes acf-hpcwire. If there is enough interest, we will get a site license for this resource; that will make it possible for NYU researchers to retrieve articles of specific interest.

— Frances Bauer
bauer@acfcluster.nyu.edu
A New CAT on Broadway: NYU’s Center for Digital Multimedia

David M. Geshwind
geshwind@cs.nyu.edu

*CAT* has become a Broadway fixture at the Winter Garden Theatre. Now, there’s a new CAT, forty-five blocks downtown and twelve floors up. Somewhere between the Tisch School of the Arts and the Courant Institute of Mathematical Sciences (CIMS) at Warren Weaver Hall (both geographically and philosophically) is the recently inaugurated NYU Center for Digital Multimedia Production, Publishing, and Education.

As one of thirteen of New York State’s Centers for Advanced Technology, the CAT is funded by a substantial five-year grant from the New York State Science and Technology Foundation. The grant must be matched by donations of hardware and software, and by funding from industrial sponsors and clients.

Under the direction of Professor Jacob T. Schwartz, a founder of the CIMS Computer Science Department, the mission of NYU’s CAT is to help move advanced technology in multimedia (the combination of audio, video, graphics, animation, and text, presented under control of interactive computer software) out of the laboratory and into commercial applications, primarily in education and in the publishing and entertainment industries, all of which are heavily represented in and around New York City. In addition to this technology transfer, the CAT will also work to develop new tools and technologies to advance the field of multimedia production. This last goal is to be done in close collaboration with CIMS’s Media Research Laboratory, headed by Professor Ken Perlin, which is also housed on the twelfth floor of 715-719 Broadway.

David Geshwind is Facilities Manager of the NYU Center for Digital Multimedia.

CAT-operated facilities include: the Developer Support Laboratory (DSL), the Multimedia Software Library, and the Multimedia Studio Facility. In addition, two series of Industry Seminars, introductory and advanced, are conducted by the CAT for interested parties from local media-related industries. The introductory seminars, held Friday afternoons, are also open to the NYU community as space permits.

The DSL comprises two multimedia production systems, built around Pentium-based IBM compatibles, and several high-end Apple Quadras. These are made available on a scheduled basis: to outside companies and individuals for client-sponsored projects; to industry seminar attendees for hands-on training; and to NYU faculty and students for selected multimedia-related projects. Over the next year we are scheduled to add a top-of-the-line Apple Power Macintosh, and four more IBM-compatible multimedia production stations.

The Multimedia Software Library houses a large collection of published CD-ROM titles and multimedia authoring tools, many of them donated by their publishers. These are available for use with the CAT systems, allowing participants to review existing products during market research, design, and development of CAT-affiliated projects.

For larger-scale productions of commercial potential, a separate studio facility is being assembled; this will be made available on a long-term dedicated basis to sponsored projects. Currently consisting of two Apple Quadras and a Radius Video Vision system, it will soon include an Apple-based Media 100 computerized video-editing system, two Apple Power Macs, a Commodore Amiga with Video Toaster, a...
Apple Quadras and a Radius Video Vision system, it will soon include an Apple-based Media 100 computerized video-editing system, two Apple Power Macs, a Commodore Amiga with Video Toaster, a Silicon Graphics Indy, and digital audio and MIDI music equipment.

The first project to be produced at the Studio is a CD-ROM — Chaos Theory in Everyday Life — for Harper Collins, a New York print publisher exploring the electronic publishing market. Designed and produced by staff and students of TSOA's Interactive Telecommunications Program, the Chaos disk will be a highly visible pilot project for the use of multimedia as an effective enhancement to science education. Cross-discipline collaboration, such as that between CIMS and TSOA, is essential to the successful establishment of the multimedia industry, which is critically dependent upon accessible and reliable technology, as well as effective and well-designed content.

For further information, or to schedule a tour of the CAT facilities, call 998-3374.

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Virtual Reality (continued from page 16)
collected; and what place museums will have as art migrates to the Net.

In contrast, the conference Virtual Reality and Entertainment, held at the Grand Hyatt in New York during April, focused almost exclusively on the marketing and financing of VR-related ventures. It is generally acknowledged that (other than pure research, primarily in engineering and medicine) the only ventures showing any profits in VR are related to entertainment. For the purposes of this conference, the definition of entertainment was rather broad, encompassing advertising and home shopping (two of the most-developed and profitable areas), as well as interactive media, theme parks, and cable-television and phone-company services.

From one session: Similar to last year’s campaign for Bubble-Yum bubble gum, whereby children traded a gum wrapper for the chance to harvest bubble gum on the moon, Cutty Sark whiskey has commissioned a very-high-end, million-dollar-plus, custom VR — or Location-Based Entertainment (LBE) — system, built around an SGI Onyx Graphics Processor. This system will tour the country for eighteen months, at a cost of several million dollars more, visiting conventions, malls, bars, and other locations, where the public will be invited to don a VR immersion helmet and step into the deck shoes of a renowned Prohibition-era rum-runner who had a reputation for delivering a high-quality nonlethal bootleg product to the Long Island elite. The goal is to outwit and outrun the G-men, the mob, and the competition while navigating within a reasonably realistic rendition of the high seas. The hope is that such memorable product-name impressions will translate into sales as the expected audience of young adults (no one under eighteen admitted) mature into scotch-drinkers.

From another session: 100-MIP processors with large amounts of RAM and, often, with CD-ROM players, have been developed into what are called Set-Top Boxes, intended to sit on a home television, connected to the information superhighway via coaxial or fiber-optic cable. A substantial number of players are betting heavily that their particular hardware platform will be the one to become standard. Nonetheless, almost everyone agrees that programming content is still an open issue, and that one or more “killer applications” (i.e., the equivalent of what wordprocessing and spreadsheets were to the success of the PC) will be needed to ensure the success of the industry, let alone a particular piece of hardware. So far, home shopping and gambling, such as are available on GTE’s Main Street system, are the only two clearly profitable extant services. However, the commercialization of interactive games, some to be played using low-cost consumer head-mounted displays (HMDs), are widely predicted (for at least the third year in a row) to be less than a year away.

The clearest impression that one takes away from this conference is that the VR industry is still much more Virtual than Reality. And that, without the help of computers, it would be impossible to keep count of all these unhatched chickens.
As we near the end of our second academic year at 242 Greene Street, the news from the NYU Computer Store includes a new line of Apple computers, wider service on Hewlett-Packard printers, and an ever-expanding book department.

**Power Macintoshes**

Apple Computer recently announced a new and much-anticipated line of computers based on the PowerPC architecture. A result of the technological alliance of Apple, IBM, and Motorola, the PowerPC processor uses RISC (reduced-instruction-set computing) technology. Unlike CISC (complex-instruction-set computing) chips, RISC chips contain relatively few instructions — the ones that are most often used. Since the processor is optimized for those instructions, they can be executed very quickly. RISC chips have previously been used in workstations. Apple, though, is the first manufacturer to bring RISC technology to an affordable desktop line of microcomputers: the Power Macintoshes; which come in three different versions, each offering a variety of models.

The most basic is the Power Macintosh 6100/60, which runs at 60MHz, and has an integrated math coprocessor. The speed of the processor is enhanced by the 64-bit data bus, which allows 64 bits of data to be transferred between components at the same time. This is an improvement over older Macintoshes, which had either 16-bit or 32-bit buses. The 6100/60 has 8 megabytes of RAM (random-access memory) soldered onto the motherboard, and two slots for SIMM chips, allowing the memory to be expanded to 72MB. There is an internal floppy and hard drive, along with a bay for an internal CD-ROM drive. All Power Macintoshes have built-in Ethernet capability for network connections, and a high-speed SCSI port, in addition to the standard serial, ADB, and video ports. The 6100/60 has one internal expansion slot, for either a NuBus card or a processor-direct card.

The next step up is the Power Mac 7100/66. With a processor speed of 66MHz and an integrated math coprocessor, this model offers greater speed and more expansion options. In addition to the floppy drive, internal hard drive, and CD-ROM bay, the 7100/66 has three internal expansion slots. Like all Power Macintoshes, this one comes with 8MB of RAM on the motherboard, but the memory is expandable up to 136MB through the 4 additional SIMM slots. In addition to the standard ports, the 7100/66 has a second monitor port, so that two monitors can be used at once.

*Kathy Bear is Manager of the NYU Computer Store.*
The Power Macintosh 8100/80 is the fastest and most expandable of the models. Its 80MHz processor speed is enhanced by a 256K memory cache and the integrated math coprocessor. The 8MB of internal memory can be increased to 264MB through 8 additional SIMM slots. The 8100/80 offers an internal floppy drive, an internal hard drive as large as 1 gigabyte, and bays for two additional 3.5-inch devices and one 5.25-inch one, such as a CD-ROM reader. Like the 7100/66, this model has dual monitor support in addition to the standard Apple ports.

All the Power Macintoshes come in a variety of configurations, with hard drives of different sizes and optional CD-ROM drives. There is an AV (audiovisual) configuration of each model, which allows the user to import and export full-motion video and to view it in a window on the screen. There is also a SoftWindows configuration of each model, which uses software to allow you to use MS Windows applications alongside your favorite Macintosh applications.

For the first time, Apple was ready with upgrades for its older line of microcomputers when the Power Mac was announced. There are two types of upgrades available. The most economical is the addition of a processor-direct card, which will double the clock speed of your existing Macintosh. For example, if you have a Macintosh Quadra 650 running at 33MHz, with the addition of this card, your processor would then run at 66MHz. You would not get all the speed of a true Power Macintosh, however, because your data bus still only carries 32 or 16 bits (depending on your model). Apple also announced logic-board upgrades, which will transform your existing Macintosh into a true Power Macintosh. There are upgrades for most current Macintosh models, and they are more economical than Apple's previous upgrade prices.

We have Power Macintoshes in stock and a 6100/60 model on display in the NYU Computer Store. Please stop by our store at 242 Greene Street, try out this new line of microcomputers, and ask for more information and pricing.

**Hewlett-Packard Service**

The NYU Computer Store Service Department is in the process of becoming certified to repair Hewlett-Packard printers. Technicians must pass service training courses on each individual printer to obtain certification. Currently, we are certified to repair the LaserJet 4 series, the LaserJet IIIP, the DeskWriter, and the DeskJet. We can perform both warranty and out-of-warranty repairs on these products. We are working to obtain further Hewlett-Packard certifications, and will let you know as we progress. For more information about our repair and upgrade services, please call the Service Department at 998-4231.

**Unix Books**

With the spread of Unix technology on the NYU campus (including a new generation of Unix-based e-mail at the ACF), the NYU Computer Store has expanded its selection of books on Unix. Some of our more popular titles are *Learning the Unix Operating System* by Grace Todino, *The Unix Programming Environment* by Brian Kernighan and *Unix in a Nutshell* by Daniel Gilly. If you are looking to increase your knowledge on this increasingly popular operating system, please stop by and examine our selection.

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**ACF HelpLine Q&A**

**Q. How can I connect to NYU-NET from a distance?**

I’ll be spending the summer out of state. Is there an 800 number I can use to connect to my NYU computer account without paying long-distance telephone charges?

**A. There’s no 800 number, but you can probably connect without paying long-distance charges.**

PSI — the company that provides NYU and NYSERNet with our connection to the Internet — does offer an Individual Dialup Service (IDS) account. Once you have an IDS account, in many U.S. cities you can dial a local phone number for a direct connection to PSI-Net, the Internet, and NYU-NET.

The accounts are available to NYU faculty, students, and staff.

- You may pick up the application form at the ACF Accounts Office, Room 305, Warren Weaver Hall, or you may call 998-3035 and they’ll mail you the application form. There is a one-time registration charge of $19.
- On the application, you must give an NYU office address. (This is PSI’s way of being sure the accounts only go to people with legitimate NYU connections.) If you are a student without a campus address, ask a professor if you can use his or her office for the purpose of this application.
- It takes time for PSI to activate an account — close to eight weeks. Plan accordingly.

**Call the ACF HelpLine at 998-3333**
Meetings of Interest

Virtual Reality '94: May 11–13, San Jose, California. Conference and exhibition devoted to VR utilization in design, entertainment, medicine, the military, networking and training. Sponsors: Virtual Reality World magazine and Cyberedge Journal. For information, contact meckler@jvnc.net or (800) 632-5537.

Yale Hypertext Conference: May 12–13, New Haven, Connecticut. This conference, “Beyond Gutenberg: Hypertext and the Future of the Humanities,” has assembled a distinguished group of speakers to discuss the implications of hypermedia on scholarship, publishing, and authoring in the humanities. Sponsor: Yale University Library. For registration information, contact Yale University Conference Services at (203) 432-0465. For program-related questions, contact Yale Library Administration at (203) 432-1818.

DB/Expo '94: May 23–27, San Francisco, California. The world's largest database, client-server, and information technology exposition and conference. For sponsorship and information, contact Jill Reynolds at (800) 232-3976.

Workshop on Advanced Visual Interfaces: June 1–4, Bari, Italy. Sponsors: University of Bari, SIGCHI. For information, contact Maria Francesca Costabile at costabile@astrba.ba.cnr.it or by telephone at +39 80 243300.

The Grace Hopper Celebration of Women in Computing: June 9–11, Washington, D. C. Sponsors: ACM, CRA. For information, contact Anita Borg at borg@pa.dec.com or (415) 688-1367.

NYSERNet Conference '94: September 29-30, Albany, NY. Sponsor: NYSERNet (New York State Education and Research Network), the network for New York professionals in K-12 schools, colleges, libraries, state-funded technology organizations, state agencies, and private-sector companies and corporations. For more information, contact NYSERNet Inc. by phone at (315) 453-2912 or by fax at (315) 453-3052.

Looking Ahead (continued from page 11)

provision for SLIP (serial-line Internet Protocol), PPP (point-to-point protocol), and ARA (AppleTalk Remote Access) connections via modem to NYU-NET. These enhancements enable network-level attachments to be made to NYU-NET from remote locations: the remote machine becomes a peer computer “on” NYU-NET for the period of its connection. SLIP and PPP are used for TCP/IP connections (the most common network type); ARA is used for remote Appletalk connections.

What does this mean for members of the NYU community? Although the connections are made through modems, resulting in slower communications than with a direct on-campus connection, the same network software (such as Gopher, Telnet, Mosaic) can be used at home as on campus. During the early months of this new service, only a small number of accounts (fewer than 75 and limited initially to faculty and staff) will be available, as we phase the service in, gauge its performance, and acquire new modems.

New Network-Service Hosts

Behind-the-scenes network services on NYU-NET — domain name service, boot protocol service, time service, network-news distribution, electronic white pages, and so on — are currently provided by a pair of ACF Unix computers. As the network has grown, these services have come to overload the host computers. We now envision procuring new systems (in somewhat larger numbers) in order to provide greater redundancy and reliability in providing these services, and hope to begin the process this summer and fall.

These and many other projects are now under way at the ACF: I've not even tried to mention the many activities in our areas of user services, scientific computing, and arts-related computing. It's a busy and exciting time, to say the least!
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:

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<td><strong>(Platform—the machine the program runs on)</strong></td>
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<td>A brief description of the course, the software or machines used, and the main topics covered. Instructor’s name. Requirements, such as account or reservations; whether workshop, class, or talk; special arrangements, etc.</td>
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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 36. For electronic mail accounts, see the box on page 7. All are available through the ACF Accounts Office (Warren Weaver Hall, room 305; 998-3035).

Platform: The type of computer a certain type of software runs on.

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<td>WYLBUR — Using WYLBUR at the ACF</td>
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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 ACF and Kevin Edwards from the NYU Computer Store.

Limited seating; first come, first served; talk.

Warren Weaver Hall, room 313
Friday 12:00–2:00
July 8

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 ACF and Kevin Edwards from the NYU Computer Store.

Limited seating; first come, first served; talk.

1. For Mac Owners
Warren Weaver Hall, room 313
Friday 12:00–2:00
July 15

2. For PC Owners
Warren Weaver Hall, room 313
Friday 12:00–2:00
July 22

Using a Macintosh at an ACF Lab (Mac)
A hands-on introduction to the Macintosh computer. Topics include working with the graphical user interface, understanding the file system, choosing printers, and other devices, and launching software. ACF staff.

Limited seating; first come, first served; hands-on class.

Education Building, 2nd floor
Tuesdays 11:00–12:00
Thursdays 2:00–3:00
May 24 - June 9
July 5 - July 21
Third Ave. North Res. Hall, level C3
Tuesdays 2:00–3:00
Thursdays 11:00–12:00
May 24 - June 9
July 5 - July 21

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.

Education Building, 2nd floor
Mondays and Wednesdays 11:00–12:00
May 25 - June 8
July 6 - July 20
Third Ave. North Res. Hall, level C3
Wednesdays 2:00–3:00
May 25 - June 8
July 6 - July 20

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 LC-8
Mondays 2:00–3:00
May 23
June 6
July 11, 18
Third Ave. North Res. Hall, level C3
Wednesdays 11:00–12:00
May 25
June 1, 8
July 6, 13

Using Unix at the ACF (Unix machines)
An introductory class on the Unix operating system. Variants run on several computers at the ACF; most are accessed through PCs, Macs, and terminals, but SGI workstations also use Unix. The basics will be covered: logging onto the host machines, editing text, organizing and printing files, and using applications. ACF staff.

ACF Unix account required; limited seating; first come, first served; hands-on class.

Tisch Hall, room LC-8
Tuesdays 11:00–12:00
May 24, 31; June 7
July 5, 12, 19
Third Ave. North Res. Hall, level C3
Thursdays 2:00–3:00
May 26; June 2, 9
July 7, 14, 21

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, by appointment; call John Lee at 998-3406.
Electronic Mail

Electronic Mail: Using an ACF E-Mail Account (DEC/VMS or Ultrix)
This talk-demonstration will introduce new and prospective holders of an E-Mail account to its menu interface and components. Initialization of the account, and elementary electronic-mail concepts and commands will be explained and demonstrated. The E-Mail account runs on ACF's DEC minicomputers and is connected to NYU-NET. Vincent Doogan.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Wednesdays 12:00-1:30
June 1, 8
July 13

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

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

Pine
(Ultrix)
An introductory class for new users of Pine, a UNIX electronic mail utility.
For further information, please call the ACF HelpLine at 998-3333.

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
Wednesdays 2:30-4:00
June 8
July 13

Statistics, Databases, and Spreadsheets

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.
In this class, data input, transformations of variables, creation of "system files," and other manipulations of data will be discussed.
Frank LoPresti.
Reservations required (998-3333), call week of class; hands-on class.
14 Washington Place, basement
Wednesday 5:00-6:30
June 8
July 20

Microsoft Word
(Mac)
Microsoft Word is a major word-processing program on Macintosh computers and is especially strong on typography and formatting. This is a getting-started class. Howard Fink.
Reservations required (998-3333), call week of class; hands-on class.
Education Building, 2nd floor
Thursday 10:00-12:00
June 16

WordPerfect
(PC)
WordPerfect is the most widely used PC wordprocessing program. Julia O'Brien.
Reservations required (998-3333), call week of workshop; hands-on workshop.
Education Building, 2nd floor
Wednesday 1:00-4:00
June 15
Thursday 1:00-4:00
June 16

For More Information:
Call the ACF HelpLine at 998-3333.
Users of ACF facilities should be aware of the following dates and deadlines, when schedules change, accounts expire, and files must be archived. 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 36; for electronic mail accounts, see page 7.

### May

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<td>Current</td>
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<td>Commencement</td>
</tr>
<tr>
<td>May 18</td>
<td>Student Class Accounts issued for the spring semester expire.</td>
</tr>
<tr>
<td>May 23</td>
<td>ACF’s Summer Hours begin</td>
</tr>
<tr>
<td>May 23</td>
<td>Summer Session I begins.</td>
</tr>
<tr>
<td>May 28–29</td>
<td>Memorial Day weekend</td>
</tr>
<tr>
<td>May 30</td>
<td>Memorial Day*</td>
</tr>
<tr>
<td>May 23–June 6</td>
<td>Students with Summer Session I Class Accounts register for computer use.</td>
</tr>
</tbody>
</table>

### June

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 20–July 1</td>
<td>Students who expect incompletes in Summer Session I courses should apply for extensions of their computer accounts (instructor’s signature required).</td>
</tr>
<tr>
<td>June 20–July 1</td>
<td>Summer Session I Class Account holders should archive all files they wish to keep after July 1.</td>
</tr>
</tbody>
</table>

### July

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1</td>
<td>Summer Session I ends.</td>
</tr>
<tr>
<td>July 2–3</td>
<td>Independence Day Weekend</td>
</tr>
<tr>
<td>July 4</td>
<td>Independence Day*</td>
</tr>
<tr>
<td>July 5</td>
<td>Summer Session II begins.</td>
</tr>
<tr>
<td>July 5–18</td>
<td>Students with Summer Session II Class Accounts register for computer use.</td>
</tr>
<tr>
<td>July 25–Aug. 12</td>
<td>Students who expect incompletes in Summer Session II courses should apply for extensions of their computer accounts (instructor’s signature required).</td>
</tr>
<tr>
<td>July 25–Aug. 12</td>
<td>Students with Summer Session II Class Accounts should archive files they wish to keep after Aug 12.</td>
</tr>
</tbody>
</table>

### August

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 12</td>
<td>Summer Session II ends.</td>
</tr>
<tr>
<td>August 12</td>
<td>Student Class Accounts issued for the Summer Sessions expire.</td>
</tr>
<tr>
<td>August 31</td>
<td>Individual Accounts issued for 1993/94 expire.</td>
</tr>
<tr>
<td>August 31</td>
<td>Individual Account holders who will not renew for 1994/95 should have archived files by now.</td>
</tr>
</tbody>
</table>

### September

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 1</td>
<td>New Individual Accounts and those renewed for the 1994/95 academic year begin.</td>
</tr>
<tr>
<td>Sept. 3–4</td>
<td>Labor Day Weekend</td>
</tr>
<tr>
<td>Sept. 5</td>
<td>Labor Day*</td>
</tr>
<tr>
<td>Sept. 8</td>
<td>Fall Semester begins</td>
</tr>
</tbody>
</table>

*University holiday  †Please note: confirmed holiday schedules will be posted via our online news and bulletin-board facilities and in the NYU CWIS, or can be obtained by calling the ACF HelpLine at 998-3333.
<table>
<thead>
<tr>
<th>May 2 – June 26</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday</strong></td>
</tr>
<tr>
<td>MAY 3 4</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>Individual Account holders not returning for 1994/95 should archive their files.</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>23</td>
</tr>
<tr>
<td>Using the ACFCluster, 2:00</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>PCs at the ACF, 11:00 Using the ACFCluster, 2:00</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>Students who expect incompletes in Summer Session I courses should apply for computer account extensions (through July 1)</td>
</tr>
</tbody>
</table>

34 May 1994 Academic Computing and Networking at NYU
## Summer '94 Calendar

### June 27 – September 11

<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>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td></td>
<td>Independence Day — all labs closed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
<td>9/10</td>
</tr>
<tr>
<td></td>
<td>Macs at the ACF, 11:00, 2:00 UNIX at the ACF, 11:00 Summer Session II begins. Students with Summer Session II Class Accounts register for computer use (through July 18)</td>
<td>PCs at the ACF, 11:00, 2:00 Using the ACFcluster, 11:00</td>
<td>Macs at the ACF, 11:00, 2:00 UNIX at the ACF, 2:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td></td>
<td>16/17</td>
</tr>
<tr>
<td>PCs at the ACF, 11:00 Using the ACFcluster, 2:00</td>
<td>Macs at the ACF, 11:00, 2:00 UNIX at the ACF, 11:00</td>
<td>PCs at the ACF, 11:00, 2:00 Using the ACFcluster, 11:00 Intro to E-Mail, 12:00 Intro to NYU CWIS, 2:30</td>
<td>Macs at the ACF, 11:00, 2:00 UNIX at the ACF, 2:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td></td>
<td>23/24</td>
</tr>
<tr>
<td>PCs at the ACF, 11:00 Using the ACFcluster, 2:00</td>
<td>Macs at the ACF, 11:00 UNIX at the ACF, 11:00</td>
<td>PCs at the ACF, 11:00, 2:00 Intro to SPSS for Windows, 5:00</td>
<td>Macs at the ACF, 11:00, 2:00 UNIX at the ACF, 2:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td></td>
<td>30/31</td>
</tr>
<tr>
<td>Students with Summer Session II Class Accounts should archive all files they wish to keep (through Aug. 12)</td>
<td>Students who expect Incompletes in Summer Session II courses should apply for computer account extensions (through Aug. 12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### August

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6/7</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13/14</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20/21</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27/28</td>
</tr>
</tbody>
</table>

### September

<table>
<thead>
<tr>
<th>29</th>
<th>30</th>
<th>31</th>
<th>2</th>
<th>3/4</th>
</tr>
</thead>
</table>

### Academic Computing and Networking at NYU

- New and renewed Individual Accounts expire for the 1993/94 academic year begin.
- Labor Day Weekend — holiday hours

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**Labor Day — all labs closed.**
The ACF’s Microcomputer 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. Please see below, and contact the Accounts Office (998-3035) for more information.

The ACF offers several hundred 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 Micro Labs

NYU faculty, staff and students in degree or diploma programs may use the PCs and Macintoshes in the ACF’s computer labs 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.

What’s at the Labs, Summer 1994

The following microcomputer equipment is available at the ACF’s instructional computer labs (the 14 Washington Place lab is closed for the summer months). All systems are connected to local networks and are linked to the campus-wide network, NYU-Net, and are connected locally to Novell-based file servers and laser printers. Over 100 packages of software are available. For hours of operation, see opposite page.

Third Avenue North Residence Hall, basement (86 computers):
- 7 DEC 486 computers with 8 MB of memory, 120 MB hard disks, and color monitors
- 30 IBM and IBM-type computers with VGA color monitors
- 19 Macintosh IIsi computers with color monitors
- 30 Apple Macintosh SE computers, with two floppy drives

Education Building, 2nd floor (96 computers, excluding Arts and Media Studio):
- 21 Macintosh Quadra 700 computers with 80 MB hard disks, 20 MB memory, and 16-inch color monitors
- 2 Quadra 800 computers with CD-ROM drives and color monitors
- 6 Mac IIvx computers with CD-ROM drives and color monitors
- 16 Macintosh IIsi computers with color monitors
- 21 Macintosh Iicci computers with color monitors, and 17 MB memory
- 24 IBM PS/2 computers, model 55SX, with VGA color monitors
- 6 DEC 486 computers with 8 MB of memory, 120 MB hard disks, color monitors and 486DX processors

Tisch Hall, Room LC-8 (68 computers):
- 25 IBM PS/2 computers, model 55SX, with VGA color monitors
- 15 IBM PS/2 computers, model 30, with monochrome monitors
- 28 Macintosh Plus computers

36 May 1994 Academic Computing and Networking at NYU
**Important ACF Telephone Numbers**

ACF HelpLine 998-3333  
Account Information 998-3035  
Computer Documentation 998-3036  
Innovation Center 998-3044  
Statistical Consultants 998-3434

Computer Labs:  
14 Washington Place 998-3457  
Tisch Hall 998-3409  
Education Building 998-3421  
Warren Weaver Hall 998-3456  
Third Ave. North Res. Hall 998-3504

**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>Modern Speed (bps)</th>
<th>Dial</th>
<th>300-2400</th>
<th>995-3600</th>
<th>9600, 14400</th>
<th>995-4343</th>
<th>300-1200</th>
<th>995-4335*</th>
</tr>
</thead>
</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.

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**Summer 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 Place</td>
<td>closed</td>
<td>closed</td>
<td>closed</td>
<td>closed</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>

**Consultant Hours:**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Washington Place</td>
<td>closed</td>
<td>closed</td>
<td>closed</td>
<td>closed</td>
</tr>
<tr>
<td>Tisch Hall</td>
<td>closed</td>
<td>9:00 am – 9:00 pm</td>
<td>9:00 am – 9:00 pm</td>
<td>9:00 am – 5:00 pm</td>
</tr>
<tr>
<td>Education Building</td>
<td>closed</td>
<td>9:00 am – 9:00 pm</td>
<td>9:00 am – 9:00 pm</td>
<td>9:00 am – 5:00 pm</td>
</tr>
<tr>
<td>Third Ave. North</td>
<td>10:30 am – 10:00 pm</td>
<td>10:30 am – 10:00 pm</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 account holders during all hours of operation.
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HPCwire for Supercomputing News

Center for Digital Multimedia
A New CAT on Broadway: NYU’s Center for Digital Multimedia

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Map: ACF Sites

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May 1994

Cover: Take a virtual vacation at NYU: For a TSOA Computer Animation course, Inigo Cores created these gentle waves lapping at the beach of a volcanic island. For details, see page 14.