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ACADEMIC COMPUTING AND NETWORKING AT NYU is edited and published by New York University’s Academic Computing Facility (ACF). Its scope includes information about computing and networking activities at NYU’s various schools, departments and administrative units.

Copies of Academic Computing and Networking at NYU are mailed to University faculty and staff and are also available from the ACF’s Documentation Office (Room 306 Warren Weaver Hall). Students holding ACF individual computer accounts are included automatically in the newsletter’s mailing list.

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 editors; please call 998-3036 for more information. Unless otherwise indicated, articles are authored by members of the ACF staff.

Those odd notes below many of the bylines in this issue of the newsletter are electronic mail (E-mail) addresses. If you do not use E-mail but would like to, see the box in the Networks and Network Services section of this newsletter.

This issue was prepared on Apple Macintosh IIx and Macintosh SE computers, using Aldus Freehand, Aldus PageMaker, Microsoft Word, Adobe Type Manager, Adobe Photoshop, Claris MacDraw Pro, Xerox MacImage, and a Microtek 600 ZS color/grayscale scanner. Fonts used in this issue: Gill Sans, Adobe Garamond, and Polo-SemiScript, along with Zapf Dingbats and Courier (for special effects), and Stone Sans and Times in the Schedule section.

Camera-ready copy for this issue was produced using a Varityper 4000 imagesetter and an Apple LaserWriter IIINT printer. Please see the January and March 1992 issues of this newsletter for more about the ACF’s new Varityper service, or contact John Kesich at the ACF (kesich@nyu.edu or 998-3047.)

Frances Bauer, Kathy Bear (NYU Book Center), Robert Burnham (Educational Administration, SEHNAP), Gary Chapman, Ed Friedman, John Hill (Medical Center), Bert Holland, Michael S. Landy (Psychology, FAS), Gary Rosenblum, Stephen Tihor, Rhonda Zangwill (Bobst Library)

Thanks also to Jeffrey Bary, Howard Fink, Ed Franceschini, Jacob Fried, Frank LoPresti, George Sadowsky, Ivor Smith, and Carmen Vasquez.
Using the Internet

Archie: Finding Programs, Documents, Directories for FTP from Distant Computers

by Karen Strauss
strauss@acfcluster.nyu.edu

In the last issue of Academic Computing and Networking at NYU, we explained some of the techniques for retrieving files over the Internet using Anonymous FTP, and we suggested a few repositories along this vast network from which you might acquire various types of files.

But what if you were looking for a specific file or program or for a group of files relating to a specific operating system or subject? How would you go about finding a particular file that could be located anywhere on the more than 600,000 computers connected to the Internet?

Fortunately, McGill University, with help from people at other institutions connected to the Internet, has created a database of files available via Anonymous FTP. Called Archie, the database regularly obtains a listing of directories and files located at a large number of machines on the Internet. The listing includes the location of every file and directory at each site that can be retrieved via Anonymous FTP.

Using Archie is fairly simple, but it does require a full-service VMS, UNIX, or CMS account, or a PC or Macintosh connected to NYU-NET from your NYU campus office. (PCs using NIU or ADU connections and PCs and Macintoshes located in the ACF’s microcomputer labs cannot directly access Archie or FTP to sites off the NYU campus but require the intermediate step of using one of the accounts mentioned above.)

Connecting to Archie

From a VMS or UNIX computer — or from an IBM-type PC connected to NYU-NET — you access Archie by simply typing the command

telnet archie.ans.net

at the main system prompt (such as $ or C>). From a Macintosh located in your campus office, run NCSA Telnet, open a connection (command-O) and enter archie.ans.net as the session name.

This will connect you to the Archie server located in New York and provide you with a login prompt.

At the login: prompt, enter archie and press return. No password is required. For example:

IBM AIX Version 3 for RISC System/600
(C) Copyrights by IBM and by others 1982, 1990.
login: archie

When you have successfully logged into the Archie server, you will see something like Figure 1 on your screen and you will get the prompt archie>.

Basic Archie Commands

When using Archie, you will mainly be interested in the commands help, list, mail, prog, and quit. All commands are issued by typing them at the archie> prompt and pressing return.

Typing help at the prompt will give you a listing of Archie commands and further information about the database.

Figure 1. Archie database welcoming screen gives information about the database, how to get help, and other sites where the database is available.

---

Welcome the ANS Archie Server!
*** As of 02/19/92, the default search method is set to "exact".
*** Type "help set search" for more details.

Australian users: archie.au (139.130.4.6)
Canadian users: archie.mcgill.ca (122.206.2.3)
European users: archie.funet.fi (129.214.6.100)
archie.doc.ic.ac.uk (146.159.11.3)

Other U.S. servers:
archie.sura.net (128.167.254.179) archie.unl.edu (129.93.1.14)
archie.rutgers.edu (128.6.16.15)

*** 'help' for help
** Problems reports and questions to archie-admin@ans.net
** Please report problems!

Client software is available on ftp.ans.net /pub/archie/clients, and documentation can be found in /pub/archie/doc on the same machine.

* ten set to vt100 24 80
archie>
The list [pattern] command lists the sites stored in the Archie database and the time at which they were last updated. If you issue the list command by itself, you will get a listing of all of the sites in the database. If you issue the list command, followed by some search string (such as list .de$), you will get a listing only of sites that match the pattern. (In this example, all German sites would be listed.)

The prog [pattern] command is used to find all occurrences of programs with names matching the given pattern. Archie is set so that the pattern is matched exactly. The output of this command lists the names of hosts with matching entries, the size of the matching program, its last modification date and its path. For example, if you issue the command prog win3 you will get up to the first 1000 entries in the Archie database that match win3. In this case, you will get a listing of win3 directories located at 24 sites. With this type of information, you can FTP to those sites and browse through the available files.

One thing you should be aware of when using the Archie database, is that the search can sometimes be quite slow. This is because the database contains thousands of entries. The more specific you can be in your search term, the faster and more accurate Archie will be.

For information on other Archie commands, read the documentation. Documentation, including a short manual on using Archie, can be retrieved using Anonymous FTP to ftp.ans.net and then issuing a cd to pub/archie/doc.

**A Sample Archie Search**

Using the win3 example, the database found 24 entries for win3. The results of the search come in the form shown in Figure 2. Notice that the first line of the search results shows you the number of matches and the percentage of the database that has been searched. The subsequent lines of the search show the name of the host computer, the date the database listing was last updated, and the location of the directory or file that matched the search criteria.

If you wish, you can ask the Archie database to E-mail the search results to you. At the archie> prompt, type the command mail name@address, where name@address is your E-mail address. For example,

```
archie> mail strauss@acfccluster.nyu.edu
```

Once you have located the program, file or directory that you are searching for, exit Archie by typing quit and pressing return. Then follow the directions provided in the FTP article in the March 1992 issue of this newsletter to connect to the host, login and retrieve the file.

If you have trouble connecting to the Archie database at archie.ans.net, you might try connecting to Archie servers at the following locations, substituting one of the hostnames below for archie.ans.net in the telnet command given earlier:

- archie.sura.net
- archie.rutgers.edu
- archie.unl.edu

**Caveats on FTPing Software**

Viruses are a major area of concern when acquiring software. They can do serious damage to your computer and can even render it inoperable. Therefore, when you acquire programs from any source, it is essential that you check them for viruses before running them on your computer. Virus-detecting and -cleaning programs are available from the ACF.

Software in archives is often checked by the archive managers, but new viruses can slide through. While the chances of acquiring a virus-ridden program from archives on the Internet are somewhat slim, we nevertheless strongly recommend that you acquire antiviral software and check each application that you retrieve before using it.

When retrieving files, you should be especially careful of any directory named "Uploads." These directories contain files that have not yet been screened for viruses or checked for other problems. Therefore, it is better to wait until the files are moved into the main archive directories before acquiring them.
Some new electronic conferences of interest.

Electronic conferences like the BITNET discussion "lists" allow scholars at universities around the world to exchange information and views quickly and conveniently via international networks and electronic mail (E-mail).

Previous issues of this newsletter have featured discussion lists focusing on Shakespeare, Jane Austen, technology, linguistics, ancient texts, academic software, multimedia and more. In this issue, we present a few newly created lists that we thought might be of interest. The accompanying box tells you how to subscribe to these lists using E-mail. Users of ACF mainframes and mini-computers automatically have access to E-mail. Other members of the NYU community can obtain Electronic Mail Accounts, which are available to all faculty, staff and students with valid NYU ID's (see page 4 for details).

Consortium of art and architectural historians. An electronic forum for serious scholars and professional teachers to exchange research information and discuss various topics in the field of Art and Architecture History. The ultimate goal is to prepare electronic colloquia and publications in the field. (List suggested to newsletter staff by Max Marmor (Institute of Fine Arts, FAS).) Subscription address:
LISTSERV@PUCC (Bitnet) List name: CAAH

History of authorship, reading, and publishing. A new list devoted to the history of the printed word, affiliated with the newly-founded Society for the History of Authorship, Reading, and Publishing. Subscription address: LISTSERV@IUBVM.UCS.INDIANA.EDU List name: SHARP-L

Research and educational applications of computers in the humanities. REACH exists solely to provide a means of distributing an electronic version of the paper newsletter of the same name, a publication of the Humanities Computing Facility of the University of California, Santa Barbara. Subscription address:
LISTSERV@UCSBUXA (Bitnet) List name: REACH

Women in science and engineering. Women in science, mathematics or engineering, and women students interested in these disciplines are encouraged to join a newly established Midwest network to help them progress in their careers. Subscription address:
LISTSERV@UICVM.UIC.EDU List name: WBIENET

Interpersonal computing and technology. This list, created by the Center for Teaching and Technology (CTT) at Georgetown University, is an international forum for issues involving teaching with technology, connectivity, and networking in higher education. Subscription address:
LISTSERV@GUVM.GEORGETOWN.EDU List name: IPCT-L

British and Irish history. A new list for the discussion of British and Irish history. All time periods and fields are welcome. Subscription address:
LISTSERV@UCSBVM (Bitnet) List name: ALBION-L

Erratum
The subscription information given for the Multimedia list described in the January issue of this newsletter was incorrect. The correct subscription address is LISTSERV@VMTECMEX (Bitnet) and the correct list name is MMEDIA-L.

Subscribing to Discussion Lists from NYU

Users of the ACF's UNIX, VAX/VMS and VM/CMS computers — and holders of the ACF's Electronic Mail Accounts — can subscribe to these discussion lists by sending an E-mail message containing only the command

SUBSCRIBE list_name your_name

replacing "list_name" with the appropriate list name (e.g., acsoft-l) and "your_name" with your first and last name — for example,

subscribe acsoft-l mary smith

Send the message to the "subscription address" listed in the article. If you are using an Electronic Mail Account or a regular account on the ACF cluster of VAX/VMS computers, use the address format shown below under "VMS." Address formats for UNIX and CMS systems are also shown.

VMS
Internet in%"username@node"
   e.g., in%"listserv@vm.usc.edu"
BITNET bitnet%"username@node"
   e.g., bitnet%"listserv@wumvd"
E-mail Between the Internet and Other Systems

The expanding use of electronic mail on an increasing number of networks — including the Internet and such commercial systems as CompuServe, MCI Mail, AT&T Mail and SprintMail — raises the questions of how to send E-mail from an account at NYU to a user of one of these systems and how to tell a user of one of these systems to send E-mail to you at NYU. The following chart should help. Much of the information that it provides was adapted from a January 1992 article in Network Computing magazine and was discovered by Gary Rosenblum on a Usenet newsgroup.

The directions for sending mail between the Internet and MCI Mail and CompuServe have been checked by the newsletter staff; all other information is provided as presented in Network Computing.

<table>
<thead>
<tr>
<th>From Internet</th>
<th>To Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT&amp;T Mail</td>
<td></td>
</tr>
<tr>
<td>in%&quot;<a href="mailto:lastname@attmail.com">lastname@attmail.com</a>&quot;</td>
<td>\mh{internet:domain:user}</td>
</tr>
<tr>
<td>CompuServe</td>
<td></td>
</tr>
<tr>
<td>in%&quot;<a href="mailto:70000.123@compuserve.com">70000.123@compuserve.com</a>&quot;</td>
<td>\INTERNET: user@domain</td>
</tr>
<tr>
<td>Internet</td>
<td></td>
</tr>
<tr>
<td>in%&quot;user@domain&quot;</td>
<td>in%&quot;user@domain&quot;</td>
</tr>
<tr>
<td>MCI Mail</td>
<td></td>
</tr>
<tr>
<td>in%&quot;<a href="mailto:0001234567@mciemail.com">0001234567@mciemail.com</a>&quot;</td>
<td>To: lastname (EMS) EMS: Internet MBX: user@domain</td>
</tr>
<tr>
<td>Sprint Mail</td>
<td></td>
</tr>
<tr>
<td>in%&quot;firstname.lastname @orgname.sprint.com&quot;</td>
<td>(ID:user(a)domain, SITE:INTERNET)</td>
</tr>
</tbody>
</table>

Conventions in the chart: Firstname, lastname, user, domain, orgname and unique ID should be replaced with the appropriate information for the intended recipient. For CompuServe, 70000.123 should be replaced with the recipient's CompuServe ID number. Note that when sending mail to CompuServe from the Internet, the comma in the ID number is replaced by a period as in 70000.123. For MCI Mail, 1234567 should be replaced with the seven digit ID number of the recipient. Note that when sending mail to MCI from the Internet, the seven digit MCI ID number is preceded immediately by three zeros, as in 0001234567. Addresses for mail from the Internet are shown in the format used with E-mail and VMS accounts. Also note that all addresses, except when sending from MCI Mail, should be typed on one line. They are broken here due to space considerations.

Gary Rosenblum with Karen Strauss
rosenbl@nyu.edu and strauss@acfduster.nyu.edu

Distant dial-ins to NYU computers, with just a local call

If you are planning to travel this summer, then you may want to obtain a PSinet account. Accounts on PSinet are available free of charge to NYU faculty, staff and students through the University’s NYSERNet affiliation. They allow you to dial in to NYU computers from many cities across the country with just a local call. Connections can be at 300, 1200, and 2400 bps. Application forms are available in the ACF Accounts Office, Room 305 Warren Weaver Hall (998-3035).

Obtaining an E-Mail Account

The ACF’s Electronic Mail Accounts are available free of charge to NYU faculty, staff, and students. Electronic mail (E-mail) is also available automatically to individuals with accounts on ACF minicomputers and minicomputers.

NYU students, faculty and staff members may apply for E-mail Accounts at any of the ACF microcomputer labs (see inside back cover for locations and hours). You will need to complete a very brief application form and to show your current valid NYU ID.

Faculty and staff members, if they prefer, may also request E-mail Accounts by letter. Please use departmental letterhead showing the department’s address and phone number, and include your name, title, campus address and campus phone number.

Please send your request to the Academic Computing Facility Accounts Office, Room 305, Warren Weaver Hall. For additional information on ACF computer accounts, please contact the ACF Accounts Office, at 998-3035.

Connecting to Internet Services

Anyone with an ACF VMS, UNIX or CMS account — or with a workstation or personal computer connected directly to NYU-NET from an NYU campus office — can connect directly to Internet-linked host computers at remote locations. (Those with NIU or ADU network connections cannot directly telnet to hosts off campus, but must use one of the accounts mentioned above instead.)

From a PC, VMS, UNIX or CMS machine, you simply type the command telnet hostname at your computer's system prompt and press return. (Replace hostname with the name of the remote host.) For example, entering the command telnet library.dartmouth.edu will connect you to a computer at Dartmouth University offering a number of library catalogs and the Dante Database (see page 11 for more on Internet-accessible library resources). Macintosh users should run NCSA Telnet, open a session (command-O), and use the hostname as the session name.

Typically, upon connecting to the host computer, you will receive information on its services and login procedure (if required). Note that you cannot telnet from an E-mail Account.
Macintosh Interface for E-mail

**Eudora: A Macintosh-based Mailer for Communicating over the Internet**

by Estelle Hochberg

For the past several months, ACF staff members have been experimenting with a new, easy-to-use electronic mail program. The program, *Eudora*, runs on Apple Macintosh computers and has the lucid, menu-based, point-and-click interface typical of Macintosh software. It provides easy-to-use word processing, simple transfer of text and other file formats, easy organization of mail messages, simplified address syntax, and many other convenient features.

The ACF has been exploring *Eudora*'s usefulness for members of the NYU community, and we now believe that, for anyone with a Macintosh and an Ethernet connection to NYU-NET, *Eudora* is the mail program of choice. The ACF is also starting to help people with NIU connections to implement *Eudora* on their Macs. In addition, *Eudora* can be used with dialup connections, although there are some minor difficulties with the program's dialup capability.

Electronic mail (E-mail) is becoming increasingly popular in the NYU community as a means of communicating with other individuals at NYU and elsewhere, and of taking advantage of many of the information services available over the Internet (see the Network Services section of this newsletter for some examples). Today, most people use E-mail by logging in from a personal computer to a larger computer on which they have an account. They write, send, receive and read their E-mail using special E-mail software that runs entirely on the larger machine.

Programs like *Eudora* run on your personal computer and act as an interface to the larger machine. They provide the functionality and connectivity of mail programs running on larger systems, but add the convenience of wordprocessing and other software tools — all integrated into a familiar Macintosh or PC environment. Called mail "clients," these programs handle all of your transactions with the larger machine, which in turn acts as a mail "server," transporting your mail messages to and from your Mac or PC.

The ACF plans to start distributing *Eudora* free of charge to members of the NYU community in the Fall '92 semester. If you are interested in trying this new software before then, please contact Larry Mingione at the ACF's Faculty Microcomputer Lab (998-3043).

A more detailed article on *Eudora* is planned for the next issue of this newsletter. Incidentally, the ACF will also be seeking a PC client with comparable capabilities and features. It was the existence of a superior Macintosh client that led us to begin with a Macintosh platform for desktop-based electronic mail.

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*Eudora, below, gives E-mail a standard Macintosh interface, complete with menus, multiple windows, and access to the Macintosh clipboard.*

---
XferIt Software for FTP Now Available from ACF

The ACF has site-licensed XferIt on behalf of New York University. XferIt is an FTP client program for Apple Macintoshes connected via LocalTalk or Ethernet to NYU-NET. It affords users high-speed file transfer between their Macintoshes and other machines — at NYU and around the world — that support FTP (file transfer protocol) and TCP/IP networking. The most recent version is 1.5. (For more information on FTP, see the March 1992 issue of this newsletter.)

XferIt enables simultaneous connections to multiple transfer hosts, all with a consistent, easy-to-use, windowing interface. Hosts can be VAX/VMS, UNIX, VM/CMS and Macintosh FTP servers, and text, binary, MacBinary, and BinHex are among the transfer modes supported.

To obtain a copy of XferIt, bring one high-density or two double-density Macintosh floppies to the ACF Faculty Microcomputer Lab, Room 312 Warren Weaver Hall (998-3043). MacTCP (also licensed by the ACF on behalf of the University) is needed to run XferIt, and may be obtained at the same time. There is no charge for either of these programs. Please note that the software has been licensed for use on NYU equipment, and may not be redistributed outside of the University under the terms of our license.  

Gary Chapman  
chapman@acfduster.nyu.edu

New Macintosh Antiviral Software Available from the ACF

A new Macintosh virus, known as INIT 1984, was discovered in the Netherlands and in several US locations in March. INIT 1984 is a malicious virus designed to trigger if an infected system is restarted on any Friday the 13th.

The virus damages folders and files by changing the names to random one to eight character strings. File creator and type-codes are changed to random four character strings. This changes the icon associated with the files and destroys the relationships between programs and their documents. Creation and modification dates are changed to January 1, 1904. In addition, the virus can delete a small percentage of files.

Macintosh antiviral programs Disinfector version 2.7.1 and GateKeeper 1.2.5 have been updated to detect and destroy the INIT 1984 virus. These programs are available from the ACF. To obtain them, use Kermit to connect to INFO and then access the Downloads section and retrieve the files from the Mac directory. Alternatively, a copy may be obtained from the ACF Faculty Microcomputer Lab, Room 313, Warren Weaver Hall. Bring one diskette with you.

Gary Chapman

New Version of Kermit for IBM PCs and Compatibles

A new version of MS Kermit for IBM PCs and compatibles will be available from the ACF by early May. Version 3.12 incorporates a variety of bug fixes and enhanced features.

Among the most important improvements are support for SLIP (IP over serial links), corrected TCP/IP support for use of Kermit over Ethernet, support for terminal emulation of the Prime PT200 terminal, support for Japanese character sets in file transfers, and a variety of macro command language enhancements.

The official guide to using Kermit is Using MS-Kermit by Christine Gianone (Second Edition), a book from Digital Press. A new edition will probably be forthcoming following the release of this new version of Kermit.

Kermit is a family of communications programs. The ACF supports versions of Kermit for PCs and Macintoshes and distributes them free of charge to the NYU community. Either version can be obtained by bringing a diskette to the ACF Faculty Microcomputer Lab (998-3044) or from the ACF’s electronic download archive (connect to INFO via NYU-NET, then select DOWNLOADS from the menu).

Gary Chapman

At the ACF’s Instructional Micro Labs, Summer ‘92

NYU students, faculty, and staff may use ACF microcomputers at no charge to the individual as general users or under two types of accounts: individual ("research") accounts, and class accounts.

Obtaining an ACF account. To use the lab as a general user, simply bring your current, valid NYU ID to any of the labs listed below; no account application procedure is required. Individual and class accounts (also called priority access accounts) are obtained through the ACF’s Accounts Office (Room 305 Warren Weaver Hall, 998-3035). They are issued for specific academic purposes and allow priority access to ACF computers. For priority access accounts, a special form must be filled out and, for students requesting an individual account, an instructor’s signature is required. Please see the Accounts Office for details.

What’s available at the labs in Spring ‘92. The following microcomputer equipment is available at the ACF’s instructional computer labs. All systems are connected to local networks linked to the campus-wide network, NYU-NET, and are connected locally to Novell-based file servers and laser printers. Each site has two or more laser printers. A large collection of software (over 85 packages) is available. For hours of operation, please see inside back cover; for usage restrictions, if any, please see notes below.

Third Avenue North Residence hall, basement (62 computers):  
• 32 IBM and IBM-type computers with mouse and VGA color monitor  
• 30 Apple Macintosh SE computers, with two floppy drives

Education Building, second floor (82 computers):  
The following does not include Arts and Media Studio equipment.  
• 38 Macintosh IIsi computers with hard disks and color monitors  
• 20 Macintosh IIci computers with hard disks, color monitors, and 16 MB memory  
• 24 IBM PS/2 computers, model 555X, with mouse, VGA color monitor  

Tisch Hall, Room LC-8 (50 computers):  
• 12 IBM PS/2 computers, model 555X, with mouse, VGA color monitor  
• 15 IBM PS/2 computers, model 30, with monochrome monitor  
• 23 Macintosh Plus computers with hard disks

14 Washington Place (54 computers):  
• 9 Gateway 2000 computers with 486 processors, 8 MB of memory and Super-VGA monitors  
• 19 IBM PS/2 computers, model 555X, with mouse, VGA color monitor  
• 26 IBM PS/2 computers, model 70, with mouse, VGA color monitor; 25 with numeric coprocessor and joystick

Currently available to general users and to instructional/research users (students and faculty with individual and class accounts) during all hours of operation (see inside back cover).
Software and Data for Sequence Analysis

Computing and Molecular Biology

by John Hill
hill@mccb0.med.nyu.edu

John Hill is a Research Assistant Professor in the NYU Medical Center's Department of Cell Biology and the molecular biology computing consultant for the Research Computing Resource.

Isolation and analysis of the gene for Duchenne's Muscular Dystrophy... court cases based on DNA isolated from blood or semen... investigation of the origins of AIDS based on sequence analysis of different strains of the HIV I virus...

As the twentieth century comes to a close, the public can no longer ignore the impact that science has on their lives, and nowhere is this impact more apparent than in the biomedical sciences. Almost every day articles like those mentioned above appear in the news. The common factor underlying all of these advances in biomedical research is molecular biology and a key tool in molecular biology is the computer. Computers provide the means of archiving the vast amount of sequence data that is accumulating. (As of February 23, 1992, more than 65,000 sequences were in GenBank, the repository of DNA sequence data maintained at the Los Alamos National Laboratory; since then GenBank released more than 6,000 new sequences.) Software running on a variety of computing platforms allows scientists to analyze sequence data obtained from their labs or the sequence databases and to plan future experiments.

The Research Computing Resource (RCR) of the Department of Cell Biology at the NYU Medical Center maintains a VAX-6410 with several databases containing molecular biology data and software for nucleic acid and protein sequence analysis. Currently, we are the only site with this data and software in the NYU computing community; as such, we provide services to labs throughout the University. Although most of our users are at the Medical Center, several labs at the Washington Square campus (notably, in the Department of Chemistry (FAS)) rely on the RCR for molecular biology computing data, software, and technical support, as do Environmental Medicine Department labs located at Sterling Forest, NY.

One of the most important services of the RCR is to provide up-to-date databases of sequences and other data. The primary data-base used by researchers is GenBank. In addition to the official quarterly releases, sequences processed by GenBank are released over the Usenet network. By means of software written at the RCR by Ross Smith and Suzy Gottesman, these sequences are incorporated into our databases each night. Thus, our database is within 24 hours of being as current as the main GenBank repository, which also contains sequences from...
other major nucleic acid databases. In addition, we maintain the Swiss-Prot and PIR protein databases, the PROSITE database of protein motifs, the Eukaryotic Transcription Factor Database (TFD), and Rich Robert’s restriction enzyme database (REBASE).

Databases are only useful with software that can access them. The GCG Sequence Analysis Software is available to search for sequences based on their locus name, accession number, or by keywords in their annotation. Suzy Gottesman has written EZFETCH, a program that facilitates searching by accession numbers; similar programs for searching by an author’s name or keyword are in testing.

Sequence Alerting
One of the newest services offered by the RCR is GBNEWS, a sequence alerting service adapted here for VMS by Frieda Pavel for use on VAX/VMS machines. Each user can set up a query file containing keywords and phrases of interest. New sequences that arrive from GenBank are then searched for matches to the terms in the query files, and information about the matches are sent by E-mail to the user. The result is to alert the scientist to new sequences of interest as soon as they are available — a particularly important feature as more sequences are entered into GenBank that do not appear in the literature.

Sequence databases are also useful for the question: “What sequences in the database are similar to my sequence?” This question is one of the first that a researcher asks after determining a new DNA or protein sequence. GCG provides three different tools for answering it under specific situations: FASTA, TFASTA, and WORDSEARCH. As might be expected, such searches of the database, which are essentially special types of string searches, require extensive CPU time; therefore, interfaces to the most commonly used programs (EZFASTA and EZTFASTA) have been created to allow even the novice user to set up a search and submit it as a batch job. From the results the researcher can determine if their gene or protein has already been sequenced or if it resembles any other sequence in the database. Often the researcher knows the biological process in which the sequence is involved without knowing the precise manner in which it functions. Similarity of the sequence to other sequences whose functions are known can provide valuable clues to its role and thereby suggest additional experiments that should be done.

Predicting Protein Coding Regions
The other question first asked with a new DNA sequence is: “What regions are likely to make a protein?” GCG has programs that will predict possible protein coding regions. Based on the genetic code each triplet combination of the four nucleotides — the building blocks of DNA — corresponds either to one amino acid — the building blocks of proteins — or to a stop signal. Only one triplet combination can start a protein; therefore, in the simplest case one can search for a starting triplet and translate each succeeding triplet until a stop signal is reached. The figure on the previous page shows a graphic representation of such a prediction.

From the level of molecules to the level of human interactions, rarely does life limit itself to “the simplest case.” Developing or improving software to function in more complex situations is a major goal in bio-computing. Finding methods to store and to access the exploding volume of sequence data, which will only get worse as the human genome project builds momentum, is another important goal. For the end user, however, one of the most important developments is in using graphical interfaces, such as X-Windows, Microsoft Windows, and the Macintosh operating system, to facilitate access to sequence analysis software. The RCR is actively exploring how we can bring such programs to the researcher whose primary interest is “getting an answer” without remembering the details of a text-based system such as VMS, UNIX, or DOS.

If you are interested in using the RCR facilities in your research, contact John Hill (263-7689 or hill@mcb0.med.nyu.edu) for more information.
Software for UNIX Workstations

The HIPS Image Processing System

by Michael S. Landy
landy@nyu.edu

HIPS is a software package for image processing that runs under the UNIX operating system. It is general-purpose image processing software, and has been used for image coding and compression, computer vision, medical imaging, satellite imaging, oil exploration, mechanical engineering, and so on.

Now a commercial product that is used at universities, government research laboratories, and corporate labs worldwide, HIPS (short for the Human information processing laboratory's Image Processing System) was originally developed at NYU by Michael Landy, Yoav Cohen and George Sperling for a research project on the coding of American Sign Language. Michael Landy is an Associate Professor of Psychology and Neural Science, and George Sperling is a Professor of Psychology and Neural Science at NYU. Yoav Cohen is at the National Institute for Testing and Evaluation in Israel.

Because it was developed at NYU, HIPS is freely available for research use at NYU. Currently, it is used by researchers in the Department of Psychology (FAS), the Center for Neural Science and the Brain Research Laboratory at the Medical Center.

HIPS is modular and flexible, provides automatic documentation of its actions, and is almost entirely independent of special equipment. As such, it has been used successfully on almost every variety of UNIX workstation. It handles sequences of images (movies) in precisely the same manner as single frames. Programs have been developed for simple image transformations, filtering, convolution, Fourier and other transform processing, edge detection and line drawing manipulation, digital image compression and transmission methods, noise generation, and image statistics computation. Source code is supplied, which allows users to easily integrate their own custom routines.

HIPS images are self-documenting. Each image stored in the system contains a history of the transformations that have been applied to it. HIPS includes a small set of subroutines which primarily deal with a standardized image sequence header, and a large library of image transformation tools which are available both as user-callable subroutines and in the form of UNIX "filters". For image display and input, drivers have been developed for a few image processors and framebuffer, as well as image display, animation and analysis tools for the SunView, X, and XView windowing systems.

Members of the NYU community interested in using HIPS for their own research should contact Michael Landy (998-7857 or landy@nyu.edu).
Image Database Software from Berkeley Is Site-Licensed by ACF

by Ed Friedman
friedman@nyu.edu
with Karen Strauss
strauss@acfcluster.nyu.edu

The Berkeley Image Database Project, developed by the Advanced Technology Planning group at the University of California at Berkeley, is an image-oriented database access system that runs on networked UNIX computers and can be used with a variety of commercial database management packages. It has been site-licensed by the ACF for use on the NYU campus. For information on the software, please contact Ed Friedman at 998-3051 or at friedman@nyu.edu. Documentation is available from the ACF Documentation Office, Room 306, Warren Weaver Hall (998-3036).

The image database software has applications in the arts, humanities, and sciences. Prototype databases were developed at Berkeley for the Lowie Museum of Anthropology, the University Art Museum, the Architecture Slide Library, the Geography Map Library, and the University Herbarium. Scientific users at the Berkeley campus include the Department of Molecular and Cell Biology, the Quantitative Anthropology Laboratory, the College of Environmental Design, the Department of Electrical Engineering and Computer Sciences, and the Department of Mechanical Engineering.

The system's graphical user interface runs under the X Window System on a variety of UNIX workstations — Sun, IBM, Digital Equipment, and Apple Macintosh. The database software can run on any UNIX system. Data can be organized in flat files or as INGRES, Oracle or Sybase databases.

The Berkeley Image Database Project was the subject of a recent presentation at NYU co-sponsored by the ACF along with the FAS Department of Fine Arts and Metropolitan and Museum Studies programs (see page 17).

NCSA Imaging Software Available Via the Internet

The National Center for Supercomputing Applications (NCSA) Software Tools Group has developed a suite of public domain data analysis and visualization tools for the Macintosh II family of computers. These tools allow researchers to store data, generate images, analyze the data and create presentation-quality slides. NCSA imaging tools are available via Anonymous FTP from ftp.ncsa.uiuc.edu. The file README.BROCHURE, located in the login directory, contains information about the available software.

Included in the suite of tools are the following programs, most supporting distributed capabilities across TCP/IP network connections:

NCSA Distributed DataScope. Interactive data analysis tool that displays 32-bit scientific data values in spreadsheet form or as simple scaled, interpolated, or polar color raster images.

NIH Image Processing and Analysis Software Available from the ACF

NIH Image is a public domain digital image processing and analysis program for the Macintosh that can acquire, display, edit, enhance, analyze, print, and animate grayscale and color images. Written by Wayne Rasband of the National Institutes for Health, NIH Image is focused toward the medical and scientific community and is very popular. At NYU, it is being used by researchers in the Chemistry Department (FAS) and at the Medical Center.

NIH Image reads and writes TIFF, PICT, and MacPaint files, providing compatibility with many other Macintosh applications. It features multiple windows, MacPaint-like editing and eight levels of magnification. The software requires a Macintosh with at least 2 MB of memory and an 8-bit video card, and supports Data Translation and Scion frame grabber cards.

The software is available on the ACF file servers and can be obtained from the ACF Faculty Microcomputer Lab. Contact Stephen Rittersporn at 998-3044 for more information. It is also available via Anonymous FTP from alb.nih.gov; once you have logged in, type cd pub/image and then the appropriate FTP commands.
Library Resources Near and Far at your Fingertips

You Can Get There From Here

by Rhonda Zangwill

Rhonda Zangwill is the Public Affairs Manager for Bobst Library.

Need to check a citation at a distant library — UCLA perhaps or even Oxford? Save your frequent flyer miles. Now you can consult BobCat’s far-flung cousins by traveling electronically over the Internet, a network that provides direct access to countless computer systems throughout the world.

As part of a series sponsored by the Academic Computing Facility, Bobst Instructional Services Librarian Lise Dyckman co-conducted (with Jeffrey Bary of the ACF) two workshops this past year on how to use the Internet to get to various library resources. “These workshops are for everyone,” said Dyckman. “You don’t have to be an expert to make the technology work for you. And once you know some basics, you can literally dip into library catalogs all around world — Sydney, Toronto, Edinburgh — not to mention Rutgers and Princeton.”

Other resources are also accessible. For example, you might need to know exactly how often the word “murder” appears in Shakespeare’s tragedies. Over the Internet you can search a database at Dartmouth that includes the full text of all of the Bard’s plays and sonnets — from the comfort of your own office. Also, RLIN, which contains the bibliographic records of scores of major research libraries, is accessible through the Internet and free accounts are available through the Library. To arrange for an account, call Blythe Kingston at Bobst (998-2462).

There are hundreds of catalogs and databases that are available over this network, which can be accessed from various PCs in the Library’s reference centers and, with appropriate software, from any PC or terminal with a connection to NYU-NET (see box in

A sampling of library resources on the Internet

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<th>Online Catalogs</th>
<th>Library Networks</th>
<th>Specialized Databases</th>
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<td>University of Pennsylvania</td>
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<td>University of California</td>
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<td>(oceanographic information from the University of Delaware)</td>
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<td>Columbia University</td>
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<td>Dartmouth Dante Project</td>
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Ariel Transforms Interlibrary Loan

Among his many memorable characters, Shakespeare gave the world Ariel, Prospero’s faithful servant. Little could the writer have known that his 17th-century creation would be transformed into a decidedly 20th-century computerized document delivery system.

Ariel, which was designed by the Research Libraries Group (RLG), a partnership of dozens of major research institutions, promises to alter fundamentally the ways libraries share resources and, consequently, to enhance interlibrary loan services for the user. Ariel’s hardware configuration includes a computer with a PC fax board, a scanner and a laser printer; the system also uses specially designed software to manage and transmit requested materials over the Internet.

Bobst Library has been using Ariel for several months now, and its advantages are already clear: quicker delivery, since Internet transmission is almost instantaneous; higher

continued on page 13
New Products from Apple

A Faster Macintosh LC and LaserWriter NTR, Plus a New CD-ROM Drive

by Kathy Bear
beark@accluster.nyu.edu

Kathy Bear is Manager of the Computer Department of the NYU Book Centers.

Apple Computer Inc. recently announced a new version of the Macintosh LC, their popular microcomputer at the lower end of the Macintosh line. Replacing the current LC, the Macintosh LC II has the 68030 processor currently in use in the majority of machines in the Macintosh line. The use of this newer and faster microprocessor allows the LC II to run faster than its predecessor, and gives the end user the option of employing virtual memory. Virtual memory is helpful if you occasionally want to run a larger program than your random access memory (RAM) will allow. Virtual memory allows you to allocate a section of your hard drive for your computer to use as if it were RAM. However, virtual memory is slower than actual memory and is only recommended for occasional higher memory needs.

The Macintosh LC II will support the 12" color or monochrome monitor, or the high resolution 13" RGB monitor. The model with 4MB of RAM and a 40MB hard disk comes complete with keyboard; the 80MB hard disk model comes with 512K video RAM to display more colors. The Macintosh LC II is the same price as its predecessor and offers more functionality for the individual looking for a modular solution to their computing needs.

If you are interested in upgrading your original Macintosh LC to an LC II, Apple has stated they will be announcing an upgrade in May.

Personal LaserWriter NTR

At the same time, Apple also announced an addition to its laser printer line, the new Personal LaserWriter NTR. The most significant feature of this model is that it employs the AMD 29005 RISC processor. RISC (reduced instruction set computing) technology is new to the Macintosh line and allows the LaserWriter NTR to print three to five times faster than the current Personal LaserWriter NT and gives you much faster first page output.

The other significant new feature of the LaserWriter NTR is the addition of a parallel port to the standard LocalTalk and serial interface ports. This will allow the LaserWriter NTR to be hooked up to the parallel interface microcomputers that predominate the DOS, Windows or OS/2 environment.

The Personal LaserWriter NTR comes with 35 installed fonts and uses Adobe Postscript Level 2 page description language. With the purchase of a LaserWriter NTR controller card, current owners of a Personal...
LaserWriter NT or SC can upgrade their models to the LaserWriter NTR.

**AppleCD 150**

Apple Computer’s other recent hardware announcement was the AppleCD 150. With a new lower price and a smaller footprint, the CD-ROM drive allows the individual to have economical access to the many programs that are becoming available on CD.

**Computer Department Policies**

The Computer Department of the Book Centers exists to serve the microcomputing community of New York University. In general, we try to keep the most popular microcomputer models in stock for the convenience of our customers. We can also special order hardware items which are in less demand and, subject to availability from the vendor, have them within a short period of time.

The same policy applies to software. We try to keep a variety of best selling software packages in stock, which we offer to the community at academic prices. In general, the software we keep on hand is high volume software, which is offered at an educational discount. Many more software vendors are discovering the advantages of dealing with educational customers and are, therefore, implementing educational policies and prices. However, not all software vendors are in this category. If we cannot purchase software at a competitive price, or if there is not significant demand for it, we generally will not keep these particular items on hand.

We can always special order software for individuals, provided that we have a source for the specific package. If you are interested in a particular software package that we do not carry, please bring it to our attention and we will be glad to investigate it. If there is significant interest, we will add it to the list of packages that we keep in stock. Also, if you are a faculty member who would like us to carry a particular piece of software for your classes, please let us know. We are open to your suggestions and welcome them.

*Kathy Bear*

**Interlibrary Loan, continued from page 11.**

Ariel is terrific. It’s not only faster, it also allows us to send and receive virtually anything — text, photos, graphics, without losing print quality.”

Ariel is already in a number of libraries throughout the country, including the University of Michigan, Duke, Yale and Columbia. Currently Ariel is being used for library-to-library document transmission, but in the future, Ariel will also allow document transmission directly to faculty whose computers are equipped with PC fax boards.

For more information about Ariel, contact Marlayna Gates at 998-2511.

*Rhonda Zangwill*
Desktop mapping linked to pupil information systems provides a useful new tool for school district administrators in their search for more effective use of resources.

As school-aged populations increase or decline, as families with children move from one part of a community to another, or when new residential areas are built, some schools become overcrowded and others may be underutilized. While these enrollment changes may lead to the construction or closing of schools, they often result in the need to redraw attendance area boundaries to match pupil enrollments to school capacities. Other factors enter into this "redistricting", such as maintaining a racial and ethnic mix, reducing transportation time, and assuring parents, students, and teachers that the redrawn attendance areas will remain stable for four or five years.

A recurring problem for school administrators is how to make accurate projections of pupil populations by attendance areas. Most public school districts in the U.S. have computerized financial and pupil accounting systems and use microcomputer spreadsheet programs for budget analysis, demographic projections, and long-range planning. School districts are required to keep detailed records on enrolled pupils. They maintain extensive computer databases containing pupil, parent or guardian names and addresses, school and grade attended, and similar information.

Typically, school district administrators and planners use cohort survival and grade-progression techniques to extrapolate from historical enrollment patterns so as to project future enrollments for the school district as a whole. These projections in the aggregate are relatively accurate. Grade progression is quite uniform: each grade cohort moves up one grade annually — this year's kindergartners are next year's first graders. Of course, in- and out-migration patterns must be taken into account.

Traditionally, very time-consuming dot or pin maps have been constructed to show pupils' residences by neighborhoods. Then, when an attendance boundary is shifted, the number of affected students can be determined by inspection.

GIS permits electronic "pin maps" to be created easily with the use of street...
GIS, continued from preceding page.

Maps derived from Census Bureau TIGER files containing address ranges. Pupil addresses are then matched to precise latitude and longitude locations on the street maps. (See the lower left inset in the accompanying figure.) Once addresses are matched, the number of students at each grade level located within particular bounds can be determined in seconds.

The mapped attendance area boundaries can be moved with a few keystrokes and a touch of the cursor to add or subtract several more city blocks. Not only can the number of students affected by the boundary shift be determined, but their parents' names and addresses can be listed to facilitate the mailing of information about school (re)assignments.

To project enrollments more accurately on a school-by-school basis, health department records of live births are used. By matching addresses on newborns, the future kindergarten cohort for each school can be readily identified. This assumes children born in one year will, on the average, enter kindergarten five years later. After adjusting for an historical pattern of gains and losses in the number of newly admitted pupils in proportion to the births five years earlier, the school district will now have solid information based on youngsters already residing in the community. Each dot on the sub-neighborhood map represents a child who will enter school over the next five years. The linked database will show both where and when that classroom space is needed.

Finally, easily understood, presentation-quality maps can be produced, showing boundary adjustments, enrollment patterns, classroom utilization, and the need for change. Maps showing alternative ways to redistrict can inform the policy-making debate, giving decision-makers, parents, teachers, and students an opportunity to contribute effectively to school district planning.

Data Sets Recently Acquired by the ACF Data Base Archive

by Bert Holland
holland@acfcluster.nyu.edu

Demographics, American purchasing habits, election studies, and other data for instruction and research.

The following are some of the data sets that have been acquired by the ACF’s Data Base Archive since the report in the March 1992 issue of this newsletter. (The ICPSR numbers, included below for your convenience, are reference numbers assigned by the Inter-University Consortium for Political and Social Research, the organization from which these files were obtained.)

- Current Population Survey: Annual Demographic File, 1978. Annual surveys of the population of the United States have been conducted by the U.S. Census Bureau since 1968. Surveys performed in different months each year contain different sets of variables. This file is of the type referred to as the March CPS Demographic Supplements. The file contains family and person records, and describes income, age, race, household structure, education, family relationships, occupation, employment history, etc. The Archive holds many of these files in its collection; this file is a revision of the 1978 file. (ICPSR 7836).
- Consumer Expenditure Survey, 1980-1984: Interview Survey. The Department of Labor began collecting information on the purchasing habits of Americans in 1888, and this effort has continued into the present. The Consumer Expenditure Survey (CES) represents the total civilian noninstitutionalized population of the United States and is based on a national probability sample of households. The unit of analysis is the “consumer unit,” consisting of all members of a particular housing unit. There are two components of the CES, the Interview Survey and the Diary Survey. The Interview survey is a quarterly interview panel in which each unit is interviewed every three months over a 15 month period. Data collected cover major items of expense, household characteristics, and income. The Database Archive has just acquired...
Interview Surveys covering 1980Q1 through 1984Q1; there are four files per quarter covering unit characteristics, member characteristics, detailed expenditures, and income with additional documentation files (ICPSR 8423, 8598).

- American National Election Study, 1988: Pre- and Post-Election Survey. This file is one of the most recent in a project that has been carried forward by Warren E. Miller and others since 1952. It contains survey data on respondents' opinions on major national concerns, as well as reports of election participation. The ACF Database Archive currently holds most of the data sets issued since 1952. (ICPSR 9196).

- Retirement History Longitudinal Surveys, 1969-1979. In 1969 the Office of Research and Statistics of the Social Security Administration designed a ten-year longitudinal study to investigate changes in the economic and social characteristics of men and women 58-65 years old, as they approached and entered the retirement phase of their lives. Variables include educational level, living expenses, occupation, retirement benefits, attitudes toward retirement, health, income, assets, spouse's earnings, and basic demographic information. Surviving members of the original sample have been interviewed at two-year intervals. (ICPSR 7683, 7684, 7685, 7739, 7859, 7931, 8344).

- Schools and Staffing Survey, Public and Private School Questionnaires, 1987-88. Produced by the National Center for Education Statistics of the U. S. Department of Education, the Schools and Staffing Survey (SASS) is an integrated set of surveys of public and private schools, school districts, school principals, and teachers. The files contain survey responses for a national sample of 40,593 responding public school teachers and 6,764 responding private school teachers. The survey provides data about teacher demographic characteristics, teacher preparation and qualifications, current assignment fields and certification fields, career history and plans, income sources including income-in-kind and moonlighting, working conditions, and perceptions of school environment and the teaching profession. The three files on Teachers, Administrators, and School Districts can be related to each other. A fourth file on Teacher Demand and Shortage data is independent. In addition to the four data files there is documentation for each file.

These SASS data files were made available to the ACF Database Archive by Dr. Mary E. Driscoll, Professor of Educational Administration in the School of Education, The City University of New York. She obtained them while working on a research project partially funded by the Metropolitan Center for Educational Research, Development, and Training. (SASS8788).

NCSA Imaging Software, continued from page 10.

NCSA Image. Color imaging and analysis application for manipulating two- and three-dimensional image datasets. Manipulations include histogram equalizations, contrast enhancements, operations on the data using non-linear filters and convolution kernels. The program will display and animate 8-bit binary scientific data as color raster images.

NCSA Layout. Presentation tool for displaying and annotating two-dimensional data images on a Macintosh screen so that they can be photographed in order to produce presentation-quality slides.

NCSA PalEdit. Interactive palette creation tool for composing and saving palettes of any components from RGB, CMY, HSV and HSL models.

NCSA also releases other software for Apple Macintosh computers and IBM PCs, UNIX systems and workstations, and Silicon Graphics workstations, such as the IRIS and INDIGO.
Finding Innovative Uses of Computers to Enhance Children's Learning

by Karen Strauss
strauss@accluster.nyu.edu
and Estelle Hochberg
hochberg@accluster.nyu.edu

A capacity audience of NYU faculty, students, and staff attended a February 7th talk on the Apple Vivarium Program. The talk, sponsored by the Academic Computing Facility, with support from Apple Computer, Inc., was given by Lori Weiss and Kimberly Rose, both of whom work for Apple and are central to the Program's implementation.

Vivarium is an ambitious, Apple-funded research program combining the efforts of Apple researchers and elementary school teachers and administrators, as well as prominent researchers, developers and theorists in psychology, education, computer science and other disciplines.

Started and directed by noted computer theorist Alan C. Kay, the program has the broad goal of using computers to study how people learn, and of finding ways that computers can enhance human learning at all ages and levels. An immediate thrust has been to seek novel approaches to incorporating computers into curricula and classrooms.

Vivarium has been using the Los Angeles Open School as its test site since January 1986. The school, which has 375 students, is organized into large, activity-centered classrooms, each holding approximately 60 children in two grades. Each classroom provides a network of Macintosh computers — one for every two students — housed in desks specially designed for Vivarium by Apple personnel, and equipped

Seminar Series Features Image-Oriented Databases, Volume Modeling, and Visualization

A n image-oriented database access system and new methods for visualizing volume data were the subjects of two technical seminars presented this semester at NYU. The seminars were part of a special series arranged by the ACF and co-sponsored by various University departments.

Berkeley's Image Database Project
In a well-attended seminar, Steve Jacobson, of the Advanced Technology Planning Group at the University of California in Berkeley, discussed a window-based, image-oriented system for accessing and using databases containing graphics and text.

Developed at Berkeley, the system runs on networked computers and can be accessed from anywhere on campus or, via high-speed network connections, over the Internet. Its graphical user interface (GUI) is compatible with a number of commercial database systems. Scholars retrieve and manipulate visual material and textual information, using a mouse or other such input device to point and click at on-screen buttons, pull down menus, and so on. Queries and results are entered and displayed in windows on the workstation screen. One window, for example, might contain small snapshots of images associated with all the records retrieved by a particular query. In another window, the full-size image

With the Berkeley Image Database Software, scholars can access visual material via network. Areas of the image can be "zoomed in" on and annotated, if desired.
with peripherals engineered to facilitate and enrich their use by elementary-level school children.

Learning by Simulating

One of the software tools developed by Apple for Vivarium is an object-oriented programming language, called Playground, that enables children to create computer simulations of real or imaginary events, in order to better understand them. In one example, students, assisted by their teachers, used Playground to produce simulations that helped them study the breathing and migration patterns of whales.

A Look at What's Ahead

The final part of the talk concentrated on instructional technology under development or being considered for the future. Examples focused on refinements and extensions of interactive multimedia instructional software and devices. In one of these, a child uses hand gestures instead of a mouse to position the cursor and select items from menus.

A videotape of “School’s Out,” a British television program that featured Vivarium, has been obtained by the ACF and may be viewed by contacting the ACF’s Faculty Microcomputer Lab (998-3044).

Visualization of Volume Data

In another presentation in this special series, William E. Lorensen discussed and demonstrated methods developed at his lab for the visualization of volume data obtained from medical and industrial computed tomography and magnetic resonance machines.

Dr. Lorensen is a graphics engineer in the Information Systems Laboratory at General Electric’s Corporate Research and Development Center in Schenectady, NY. His current work focuses on three-dimensional medical graphics and scientific visualization, and he is a co-author of Object Oriented Modeling and Design published by Prentice-Hall.

Dr. Lorensen’s presentation was co-sponsored by NYU’s Departments of Physics (FAS) and Radiology (School of Medicine), the Institute of Reconstructive Plastic Surgery (NYU Medical Center), and the ACF.
Obtaining PostScript Fonts of Foreign Characters and Scripts

by Karen Strauss
strauss@acfcluster.nyu.edu

Those of you who are word processing in languages other than English are faced with the problem of finding fonts that will enable your printer to handle the special characters associated with that language. Fortunately the availability and quality of foreign character fonts has increased in recent years and prices have come down.

What follows is a list of some sources of foreign character fonts for PostScript printers. Professional type houses are listed first. Free or inexpensive fonts can also be retrieved via Anonymous FTP from a number of sites on the Internet, but their quality is usually not equivalent to those fonts created by professional type houses. We learned about these sites from various sources, and we will be providing additional information about font sources on the Internet in future issues of the newsletter.

A good source of information on commercially available PostScript fonts, including printed type samples, is “The PostScript Font Handbook” by Jonathan Grosvenor, et al.

Commercial Font Sources

Ecological Linguistics, P.O. Box 15156, Washington, D.C. 20003, 202-546-5862. Offers PostScript fonts and keyboard software for Macintosh computers. This company offers many alphabets of the world, including a large selection of typefaces for Asian, Middle European, European, Native American, Russian, and Middle Eastern languages. A copy of the catalog is available for examination at the ACF Documentation Office (Room 306, Warren Weaver Hall).

Linotype-Hell, 1-800-842-9721. PostScript fonts for Mac, MS-DOS, NeXT, and other systems. Fonts in many languages; Linotype-Hell fonts are generally held in high regard among professional typesetters.

Linguist’s Software, Box 580, Edmonds, WA 98020, 206-775-1130. Fonts for Macintosh and MS-DOS computers. This company offers a selection of typefaces for Middle Eastern, Middle Eastern and Asian languages. They also offer a large variety of typefaces for Native American languages.

Internet Font Sources

Fonts are available from a number of sources on the Internet and may be retrieved by Anonymous FTP. (For directions on how to FTP, please see the article in the March issue of this newsletter.)

Palladam PostScript and Mac-bitmap font for Macintosh and NeXT computers. These fonts are free but are not in the public domain. Hebrew fonts also available. FTP to mac.archive.umich.edu, log in as Anonymous, then type cd /mac/system.extensions/font/type-one.fonts.

Scalable Munjo (Myunglo) Korean fonts. FTP to kum.kaist.ac.kr or crl.nmsu.edu.

PostScript Type 1 Hebrew, Cyrillic, Japanese and Vietnamese fonts for the Macintosh. FTP to sumex-aim.stanford.edu, log in as Anonymous, then type cd info-mac/font. Then type mget 00font-abstracts.abs to retrieve an index of the fonts located at this site.
A parallel computer can be thought of as a system which consists of two or more processing elements (PE) which may operate simultaneously in order to contribute to a common computational result. A processing element is the same as a central processing unit (CPU) and contains one or more functional units, registers and control units. The PE may contain the instruction fetch and decoder and an instruction counter. A computer contains one or more PE's, memory and Input/Output (I/O) subsystems.

A few definitions follow.

**Parallel Computing**: Concurrent use of multiple processors.

**Distributed Computing**: Use of a network of processors, each of which may be a computing system, to solve a problem. The processors may be homogeneous or heterogeneous.

**Concurrent Computing**: Both parallel and distributed. May be applied to situations in which a few processors cooperate.

**Supercomputing**: Using the fastest and largest machines to solve computationally intensive problems. The supercomputer of the past was a vector processor; today it is a scalar or scalar/vector processor.

Parallel computers can be pipelined vector computers, array processors or multiprocessor systems. **Pipelining** is breaking a task into steps performed by different units. Multiple inputs stream through the units, with the next input arriving at each unit when work on the previous input has been completed. The result of each unit moves on to the next unit where another step of the overall task is performed.

**Vector processing** is where an operation such as multiply is broken into several steps and is applied to a stream of operands.

A **multiprocessor system** may consist of a number of autonomous processors. The processors normally share resources such as memory, peripherals and disks and interact asynchronously.

Parallel computers are generally classified using *Flynn's Taxonomy*. This system characterizes the computers by the relationship between the instructions executed and the data operated on. An instruction stream is the sequence of instructions executed and the data stream is the sequence of data to be operated on. The four types of processors are:

- **SISD (Single Instruction, Single Data)**. The sequential computer, now called the von Neumann computer, falls into this category. A single instruction processing unit executes sequentially the operations in the instruction stream. The instructions may be overlapped and pipelined. This is the method used by the CRAY-1, and for that matter, nearly all computers ever built.

- **SIMD (Single Instruction, Multiple Data)**. The array processor belongs in this category. Each of the processors executes the same instruction, but on separate...
Suggested Reading:
Parallel Processing for Computer Graphics by Stuart Green and
Introduction to Parallel Computing by Marilynn Livingston and Quentin Stout.

Continued from preceding page.

data—a grid of PEs with a central controller. This is the method employed by Thinking Machines in the CM-2 model.

- **MISD (Multiple Instruction, Single Data).** A number of processors execute distinct instructions on the same data.

- **MIMD (Multiple Instruction Multiple Data).** The most modern multiprocessor systems and computers are of this type. Distinct processors operate asynchronously on a distinct set of data, with no central instruction decode and control. There is interaction between the processors during execution and sharing of some memory and Input/Output. The degree of interaction has given rise to two types of MIMD systems: tightly-coupled, where the interaction is large, and loosely-coupled. Tightly coupled systems use shared memory for processor interactions. Loosely-coupled systems use message passing. Intel's iPSC Hypercube and NCUBE are examples of message passing MIMDs; CRAY-2, X-MP, Y-MP and ALLIANT are examples of shared memory MIMDs.

Granularity is also used to classify parallel computers. On a coarse-grain computer, a task is broken into a few pieces each executed by powerful processors. Processors and pieces do not need to be homogeneous, and the computation/communication ratio is high. On a medium-grain computer, a task is broken into tens to a few thousand pieces. Processors typically run the same code, and the computation/communication ratio is hundreds or more. On a fine-grain computer, a task is broken into millions of small pieces and executed by very small simple processors (several per chip) or through pipelines: the computation/communication ratio is near unity. The Connection Machine is fine-grained; the iPSC/2 Hypercube is medium-grained.

Faster Network “News” Reader for VAX/VMS Users

Version 1.4.1 of VNEWS, an interface for accessing Usenet news, has been installed on the ACFcluster of VAX/VMS computers. Usenet news groups are a large collection of internationally networked forums on topics ranging from art to zoology.

VNEWS offers a faster, but less graphical, interface to these discussion groups than NEWS, another newsgroup reader available to ACFcluster users. To start up the program, simply type VNEWS at the VMS $ prompt; typing HELP from within VNEWS will bring you a list of VNEWS commands. Some of the basic commands are:

- `c` catchup, mark all articles as read.
- `d` directory of unread articles.
- `g [group]` go to group ‘group’.
- `p` post an article.
- `s` save current article.
- `n` next group
- `d/g` directory of all news groups.
- `d/g [pattern]` directory of groups matching pattern. The wildcards * for matching characters and $ for matching a single character can be used.
- `q` quit the news reader.

VNEWS creates a file called XX.NEWSRC to keep track of your preferences and which articles you have read. By editing this file, you can change the order in which VNEWS presents newsgroups. For more extensive online help on using VNEWS, type HELP VNEWS at the VMS $ prompt; for information on the reader NEWS, type HELP NEWS, instead.

Reported by Stephen Tihor

*tihor@acfcluster.nyu.edu*
The conference, expositions and other events listed in this section focus on different aspects of the use of computers in higher education. We welcome your information on similar events coming up through May 1993; please mail it to Karen Strauss at the ACF (306 Warren Weaver Hall, straus@cfcluster.nyu.edu).

**Computer Animation’92** will be held May 20-22 in Geneva, Switzerland. Organized by the Computer Graphics Society, The Swiss Federal Institute of Technology and the University of Geneva, Computer Animation’92 will focus on animation and simulation. There is also a computer-generated film festival. For further information, contact Evelyne Kohl, Centre Universitaire d’Informatique, Universite de Geneve, 12 rue du Lac, CH-1207 Geneva, tel. (+4122)7876580, fax (+4122)7353905.

**Computer Music Festival and Conference** will take place July 1-6 in Delphi, Greece. Papers and presentations will be given mornings and afternoons. Evenings will feature concerts given at the ancient stadium of Delphi by guest composers and their computer music centers (Columbia, IRCAM, Princeton, CCRMA-Stanford, UCSD, CCMR). For further information, contact Thanassis Rikakis, 703 Dodge, Music Department, Columbia University, New York, NY, 10027 or by E-mail at KSME@CUNYF.CC.COLUMBIA.EDU or THAN@WOOF.COOLMBA.EDU.

**Third Eurographics Workshop on Animation and Simulation** will take place September 5-6 in Cambridge, England. Topics will include hardware and software for animation, motion control, simulation of dynamic natural phenomena, animation languages and systems, character, human, and behavioral animation, and simulation. The workshop will be held just before the annual Eurographics Conference and is an activity of the Eurographics Working Group on Animation and Simulation. For more information, contact HEWITT@UK.AC.MCC.CCUU via the Internet.

**NYSERNet’92 is Coming!!!**

Interested in networks and network services? If so, then be sure to make a note of September 24 and 25! As we go to press, plans are being made for the first annual NYSERNet Conference. The conference will take place in New York City on Thursday, September 24, at a major hotel in midtown Manhattan. It will be followed on September 25 by a NYSERNet directors’ meeting and a full day of tutorials — many of them providing hands-on experience in Internet use, — which will be hosted here at NYU under the joint auspices of NYSERNet and the ACF.

NYSERNet is one of the oldest and most established regional networks in the United States. It was started by a consortium of educational, research, and corporate institutions across New York State and in the greater New York metropolitan area; New York University was a founding member, and the ACF has been an active NYSERNet participant on NYU’s behalf since its inception.

The September 24th conference sessions will be organized in four “tracks”, two focusing on networking concerns of libraries and elementary-through-high schools, and two on technical issues and networking applications. A general session and a lunch will feature a prominent figure as the speaker. A modest registration fee will be charged.

All are welcome to NYSERNet’92 and its post-Conference tutorials! For further information, please contact Pat Foster at NYSERNet (phone: 315-443-4120; FAX: 315-425-7518; E-mail: foster@nysernet.org)

**Upcoming Events**

<table>
<thead>
<tr>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 15-18. INET’92</td>
<td>International Networking Conference, Kobe, Japan. Contact: <a href="mailto:inet92@educom.edu">inet92@educom.edu</a></td>
</tr>
<tr>
<td>June 17-20. Fourth International Conference</td>
<td>Computers and Learning (ICCAL’92), Acadia University, Nova Scotia,</td>
</tr>
<tr>
<td></td>
<td>Canada. Contact: Dr. Ivan Torek, Jodrey School of Computer Science,</td>
</tr>
<tr>
<td></td>
<td>Acadia University, Phone: (902) 542-2201, extension 467, Fax: (902) 542-</td>
</tr>
<tr>
<td></td>
<td>7224, Internet: <a href="mailto:iccal@acadiau.ca">iccal@acadiau.ca</a></td>
</tr>
<tr>
<td>June 17-20. Macintosh Technical Conference’92</td>
<td>Ann Arbor, MI. Contact: <a href="mailto:waldemar@al.mit.edu">waldemar@al.mit.edu</a> or <a href="mailto:expotech@applelink.apple.com">expotech@applelink.apple.com</a></td>
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<tr>
<td>July 7-9. 3rd International Conference on</td>
<td>Computers for the Handicapped, Vienna, Austria. For further information,</td>
</tr>
<tr>
<td>Handicapped</td>
<td>contact: +43-1-5120235, (Fax) +43-1-5137735.</td>
</tr>
<tr>
<td>Aug 7-12. Seminar on Academic Computing</td>
<td>Snowmass, CO. Contact: dbird@orstate</td>
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<tr>
<td>Sept. 21-23. GIS: From Space to Territory</td>
<td>Palazzo dei Congressi, Pisa, Italy. Contact David Mark via the Internet at</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:DMARK@SUN.ACSU.BUFFALO.EDU">DMARK@SUN.ACSU.BUFFALO.EDU</a> or Dr. Andrew Frank, NCGIA, University of</td>
</tr>
<tr>
<td></td>
<td>Maine; Fax: (207) 581-2206, Internet: <a href="mailto:frank@mechanics.maine.edu">frank@mechanics.maine.edu</a></td>
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<tr>
<td>Sept. 28-Oct. 2. Second Annual International</td>
<td>Conference on Computer Graphics in Science and Arts (GraphiCon ’92),</td>
</tr>
<tr>
<td></td>
<td>Moscow. Contact: GraphiCon ’92 Conference Secretariat, Keldysh Institute</td>
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<tr>
<td></td>
<td>of Applied Mathematics, 4 Miusskaya Square, Moscow, 125047, Russia. Phone:</td>
</tr>
<tr>
<td></td>
<td>(+7 905) 972-3642, Fax: (+7 905) 972-0737, Internet: <a href="mailto:c92@keldysh.msksu">c92@keldysh.msksu</a>.</td>
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<tr>
<td></td>
<td>Contact: lsoott@uvvm.</td>
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<tr>
<td>Oct. 28-31. EDUCOM’92</td>
<td>Baltimore, MD. Contact: conf@educom</td>
</tr>
</tbody>
</table>
## Important Dates for ACF Users

### May

**Current**
- Instructors apply for Summer Session I and II computer Class Accounts as early as possible.

**Current - May 13**
- Students who expect Incompletes for Spring '92 courses should apply for computer account extensions by May 13. (Instructor’s signature required.)

**Current - August 31**
- Individual Account holders who will not be using their computer accounts in 1992/93 should store their files off-line on tape or floppy disk.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>May 13</td>
<td>(Wed.) Spring semester ends.</td>
</tr>
<tr>
<td>May 13, onward</td>
<td>(Wed.) Instructors may apply for Fall 1992 Class Accounts.</td>
</tr>
<tr>
<td>May 13 - Aug. 28</td>
<td>(Wed.) Individual Account renewal applications are being accepted for fiscal year 1992/93.</td>
</tr>
<tr>
<td>May 14</td>
<td>(Thurs.) Commencement. (ACF sites are open regular hours.)</td>
</tr>
<tr>
<td>May 14</td>
<td>(Thurs.) Summer Hours begin.†</td>
</tr>
<tr>
<td>May 25*</td>
<td>(Mon.) Memorial Day.*</td>
</tr>
<tr>
<td>May 26</td>
<td>(Mon.) Summer Session I begins.</td>
</tr>
<tr>
<td>May 26 - June 12</td>
<td>Students register for computer use for Summer Session I and/or II.</td>
</tr>
</tbody>
</table>

### June

**June 22 - July 2**
- (Mon. - Thurs.) Students who expect Incompletes in Summer Session I courses should apply for computer account extensions. (Instructor’s signature required.)

**June 22 - July 2**
- (Mon. - Thurs.) Students with Summer Session I Class Accounts should archive all files they wish to keep.

### July

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>July 3</td>
<td>(Fri.) Summer Session I ends.</td>
</tr>
<tr>
<td>July 3</td>
<td>(Fri.) Independence Day holiday for University employees.</td>
</tr>
<tr>
<td>July 4*</td>
<td>(Sat.) Independence Day*</td>
</tr>
<tr>
<td>July 6</td>
<td>(Mon.) Summer Session II begins.</td>
</tr>
<tr>
<td>July 6 - 23</td>
<td>(Mon. - Fri.) Students register for computer use for Summer Session II, if they have not already done so.</td>
</tr>
<tr>
<td>July 27 - August 14</td>
<td>(Mon. - Thurs.) Students with Summer Session II Class Accounts should archive all files they wish to keep after Aug. 14.</td>
</tr>
<tr>
<td>July 27- August 14</td>
<td>(Mon.-Fri.) Students who expect Incompletes in Summer Session II courses should apply for computer account extensions. (Instructor’s signature required.)</td>
</tr>
</tbody>
</table>

### August

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>August 14</td>
<td>(Fri.) Summer Session II ends.</td>
</tr>
<tr>
<td>August 14</td>
<td>(Fri.) Student Class Accounts issued for the Summer Sessions expire.</td>
</tr>
<tr>
<td>August 31</td>
<td>(Mon.) Date by which Individual Account holders who will not be using their computer accounts in 1992/93 must store their files off-line on tape or floppy disk.</td>
</tr>
<tr>
<td>August 31</td>
<td>(Mon.) Individual Accounts expire for the 1991/92 academic year at 11:59 p.m.</td>
</tr>
</tbody>
</table>

### September

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Sept. 5, 6, 7</td>
<td>(Sat., Sun., Mon.*) Labor Day Weekend all sites closed</td>
</tr>
<tr>
<td>Sept. 10</td>
<td>(Thurs.) Fall semester begins.</td>
</tr>
</tbody>
</table>

* University holiday
† See inside back cover for hours.
New computer users at NYU are welcome to take part in the ACF’s introductory-level “walk-in” tutorials. Reservations are not required. Simply arrive a few minutes early at the site where the tutorial is being given. There is no charge, but participants should have a current, valid NYU I.D. In addition, some VMS, UNIX and IBM mainframe tutorials require a computer account. Faculty may also arrange tutorials specially for their classes or research groups. In some instances, it may be possible to arrange for training to take place at a location selected by the requesting instructor or department. For IBM WYLBUR or VM/CMS, call Ivor Smith (998-3434); for StatView, Karel, call Howard Fink (998-3422); for all other systems, Frank LoPresti (998-3398). All tutorials are about one hour long.

**MS-DOS (IBM PC)**

**Introduction**

<table>
<thead>
<tr>
<th>Thursdays</th>
<th>2:30 pm</th>
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<tbody>
<tr>
<td>June 4</td>
<td>July 16</td>
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</table>

**Intermediate**

<table>
<thead>
<tr>
<th>Thursdays</th>
<th>2:30 pm</th>
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</thead>
<tbody>
<tr>
<td>June 11</td>
<td>July 23</td>
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</tbody>
</table>

**Advanced**

(Norton Utilities and MS-DOS 5.0)

<table>
<thead>
<tr>
<th>Thursdays</th>
<th>2:30 pm</th>
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</thead>
<tbody>
<tr>
<td>June 18</td>
<td>July 30</td>
</tr>
</tbody>
</table>

For dealing with disk problems like injured segments and fragments and for unerasing (recovering) files on non-Windows systems, Norton Utilities is a great addition to DOS. It also provides a file management system and an editor.

**WordPerfect (IBM PC)**

Third Ave. No. Res. Hall, Basement

<table>
<thead>
<tr>
<th>Mondays</th>
<th>2:00 pm</th>
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<tbody>
<tr>
<td>June 1 through August 10</td>
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<table>
<thead>
<tr>
<th>Wednesdays</th>
<th>5:30 pm</th>
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<tbody>
<tr>
<td>May 27 through August 12</td>
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</tbody>
</table>

**SPSS/PC+ (IBM PC)**

Education Building, second floor

<table>
<thead>
<tr>
<th>Wednesdays</th>
<th>5:00 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 3</td>
<td>July 15</td>
</tr>
<tr>
<td>June 10</td>
<td>July 22</td>
</tr>
</tbody>
</table>

**Systat (Mac)**

Education Building, second floor

<table>
<thead>
<tr>
<th>Tuesdays</th>
<th>5:00 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2</td>
<td>July 14</td>
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</tbody>
</table>

**Uploading and Downloading**

(formerly micros to mainframes)

A useful tutorial for electronic mail users who want to combine E-mail with word processing on micros and for VMS and UNIX users who want to work on the micro and then upload. Telnet, FTP and LISTSERV access will be discussed. Recommended as a first tutorial for new users of E-mail or of the UNIX and VMS (ACFcluster) computers at NYU.

Education Building, second floor

**Electronic Mail†**

Using electronic mail at NYU. Two types of tutorials are given, reflecting two types of microcomputers from which E-mail might be accessed at NYU.

Education Building, second floor

<table>
<thead>
<tr>
<th>From an IBM/PC</th>
<th>From a Macintosh</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 26 through August 11</td>
<td>May 27 through August 12</td>
</tr>
<tr>
<td>Tuesdays noon</td>
<td>Wednesdays noon</td>
</tr>
</tbody>
</table>

**LATEX (IBM PC)**

Education Building, second floor

**Part I**

<table>
<thead>
<tr>
<th>Thursdays, noon</th>
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<tbody>
<tr>
<td>June 4, 18</td>
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<tr>
<td>July 2, 16, 30</td>
</tr>
<tr>
<td>August 13</td>
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</tbody>
</table>

**Part II**

<table>
<thead>
<tr>
<th>Thursdays, noon</th>
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</thead>
<tbody>
<tr>
<td>May 28</td>
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<tr>
<td>June 11, 25</td>
</tr>
<tr>
<td>July 9, 23</td>
</tr>
</tbody>
</table>

For additional information call:

IBM WYLBUR | StatView, Karel
VM/CMS | Howard Fink
Ivor Smith | 998-3422
998-3434 | All Other Systems
Frank LoPresti | 998-3398

Academic Computing and Networking at NYU
WYLBUR
(IBM mainframe)†
Tisch Hall, Room LC-8
Participants should have Academic WYLBUR accounts.

Mondays 5:30, 6:30 pm
June 1, 8, 15, 22

Thursdays 5:30, 6:30 pm
June 4, 11, 18, 25

Introductory Lectures
Warren Weaver Hall, Room 102
Fridays 6:00 pm
June 5, 12, 19

UNIX
(VAX and SUN)†
Third Ave. No. Res. Hall, basement

Mondays 5:30 pm
June 1 through August 10

Wednesdays 2:00 pm
May 27 through August 12

VMS (VAX)†
Third Ave. No. Res. Hall, basement

Tuesdays 5:30 pm
May 26 through August 11

VM/CMS
(IBM mainframe)†
Upon request, by appointment; call Ivor Smith at 998-3434.

Karel * (Mac)
Offered at the request of the Computer Science Department (FAS) for students in A22.002. (Students must bring a double-sided, double-density 3 1/2 inch diskette.)
Education Building, second floor
10:00 am
Tuesday, July 7
Thursday, July 9
Monday, July 13
Wednesday, July 15
Friday, July 17
2:00 pm
Monday, July 6
Wednesday, July 8
Friday, July 10
Tuesday, July 14
Thursday, July 16

Each Karel tutorial is limited to ten students. For more information, please call Howard Fink at 998-3422.

MS Word/Excel* (Mac)
Offered at the request of the Computer Science Department (FAS) for students in A22.002.
Education Building, second floor
Tuesday, May 26 2:00 pm
Wednesday, May 27 10:00 am
Friday, May 29 10:00 am
Monday, June 1 2:00 pm
Tuesday, June 2 10:00 am
Wednesday, June 3 2:00 pm
Friday, June 5 2:00 pm

StatView* (Mac)
For students in the Masters of Social Work program, given at the department’s request. Times to be announced. Please call Howard Fink at 998-3422 for further information.

Analyzer* (Mac)
Given upon request, by appointment. Please call Frank LoPresti at 998-3398 for further information.

Minitab*
Given upon request, by appointment. Please call Frank LoPresti at 998-3398 for further information.

* Tutorials marked with an asterisk (*) are offered at the request of departments and instructors for students in particular courses or programs. Instructors who would like to arrange tutorials tailored specifically to their classes’ needs are invited to contact ACF staff members Ivor Smith (998-3434) for the IBM mainframe, Howard Fink (998-3422) for Karel and StatView, or Frank LoPresti (998-3398) for all other systems.

† Participants in UNIX, VMS, Electronic Mail, WYLBUR and VM/CMS tutorials should have an account on the appropriate ACF computer.
The ACF's non-credit, hands-on, half-day workshops in personal computing are open to NYU faculty, staff, and students. Registration is required, but there is no fee for the workshops. To register during the week of the workshop, please call Henry Mullish (998-3039) for IBM PC workshops, or Howard Fink (998-3422) for Macintosh workshops. So that as many registrants as possible can be accommodated, attendees may be asked to share computers.

For IBM PC Users
At the ACF's Education Building lab, 35 West Fourth Street, second floor. Morning workshops run from 9 a.m. to 12 noon, afternoon workshops, from 1 p.m. to 4 p.m.

WordPerfect 5.1
Introductory
9 am May 8, 15, 22
June 5, 12, 19, 26
1 pm May 29

Intermediate
1 pm May 15, 22
June 19, 26

Introduction to dBASE IV
9 am May 1
1 pm June 12

WordPerfect Graphics
Introductory
9 am May 29
1 pm May 1

Introduction to Lotus 1-2-3
Version 2.03
1 pm June 5

Microsoft Windows 3.0
1 pm May 8

For Macintosh Users
At the ACF's Education Building lab, 35 West Fourth Street, second floor. Morning workshops run from 9 a.m. to 11:30 a.m., afternoon workshops from 1 p.m. to 3:30 p.m.

Microsoft Word
Introductory
9 am May 28
June 4

Intermediate
1 pm May 28
June 18

HyperCard
Part I
1 pm June 4

Part II
1 pm June 11

MacPaint
9 am June 11

Student Registration for ACF "Class Accounts"
Students whose instructors have requested course-related "Class Accounts" on ACF computers (PC's, Macintoshes, VAX/VMS and UNIX) must register for computer use. You may register, beginning May 26, at any of the following ACF computer labs during their hours of operation (see back cover for hours). Please remember to bring your printed SIS-generated list of confirmed scheduled classes and a valid NYU I.D.

- Education Building (35 West Fourth Street, second floor)
- Tisch Hall (40 West Fourth Street, Room LC-8)
- 14 Washington Place, basement
- Third Avenue North Residence Hall (at 11th Street, basement)

(Note: Students with Class Accounts on the IBM mainframe's WYLBUR system do not register in this fashion; they obtain their accounts from their instructors.)
<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
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<tbody>
<tr>
<td><strong>May</strong></td>
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<tr>
<td>Tutorials:</td>
<td>Tutorials:</td>
<td>Seminar:</td>
<td>Tutorials:</td>
<td>Workshops:</td>
</tr>
<tr>
<td>WordPerfect, 12:30, 5:30; UNIX, 4; VMS, 6:30</td>
<td>VMS, 11:30; MS Works, 5:30</td>
<td>Tables in WP</td>
<td>UNIX, 6:30</td>
<td>WP Intro; WP Intern.</td>
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<td><strong>27</strong></td>
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<tr>
<td>Tutorials: E-mail (PC), 12; MS Word/Excel, 2; VMS, 5:30</td>
<td>Tutorials: WP Tables</td>
<td>Seminar: Special Topics in WP</td>
<td>Tutorials:</td>
<td>Tutorials:</td>
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<tr>
<td><strong>June</strong></td>
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<td><strong>8</strong></td>
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<tr>
<td>Tutorials: WordPerfect (PC), 2; MS Word/Excel, 2; UNIX, 5:30; WYLBUR, 5:30, 6:30</td>
<td>Tutorials: E-mail (PC), 12; MS Word/Excel, 10; E-mail (PC), 12; VMS, 5:30; Systat, 5</td>
<td>Seminar: WP Tables</td>
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<td>Tutorials: E-mail (PC), 12; VMS, 5:30</td>
<td>Seminar:</td>
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<td>Tutorials: E-mail (PC), 12; VMS, 5:30</td>
<td>Seminar: Special Topics in WP</td>
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<td>Workshops:</td>
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<td>Tutorials: E-mail (PC), 12; VMS, 5:30</td>
<td>Seminar:</td>
<td>Tutorials:</td>
<td>Workshops:</td>
</tr>
</tbody>
</table>

General Information:
- Tutorials and Workshops are held on weekdays.
- Workshops are held on Friday.
- Workshops are held during the Summer Session.
- Workshops are held during the Summer Session.
- Academic Computing and Networking at NYU — May 1992 — 27
### July

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
</table>
| Tutorials:  
WordPerfect (PC), Karel, UNIX, 5:30 | Tutorials:  
Karel, E-mail (Mac), UNIX, VMS, WdPerfect (PC), 5:30 | Tutorials:  
E-mail (Mac), UNIX, VMS, WdPerfect (PC), 5:30 | Tutorials:  
Uploading, Karel, E-mail (Mac), UNIX, WdPerfect (PC), 5:30 | Tutorials:  
Karel |  
Summer Session I ends |

*And Some Reminders*

Ongoing: Instructors apply for Fall 1992 computer Class Accounts  
Aug. 31 Individual Accounts expire for the 1992/1993 academic year at 11:59 p.m.  
Deadline for storing files off-line on tape or floppy disk by Individual Account holders who will not be using their computer accounts in 1992/1993  
Sept. 1 New and renewed Individual accounts for the 1992/1993 academic year begin.  
Sept. 5 Labor Day Weekend (through Sept. 7)  
Sept. 10 Fall Semester begins.

### August

<table>
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<tr>
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</table>
| Tutorials:  
WordPerfect (PC), Karel, UNIX, 5:30 | Tutorials:  
E-mail (Mac), UNIX, VMS, WdPerfect (PC), 5:30 | Tutorials:  
E-mail (Mac), UNIX, VMS, WdPerfect (PC), 5:30 | Tutorials:  
Uploading, E-mail (Mac), UNIX, WdPerfect (PC), 5:30 | Tutorials:  
Karel |  
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**Important ACF Telephone Numbers**

**General Information (ACF)** 998-3333
**Account Information** 998-3035
**Computer Status (recording)** 998-3433
**Computer Documentation** 998-3036
**Faculty Microcomputer Lab** 998-3044
**Tape Librarian** 998-3452

**Applications Consultants:**
- **14 Washington Place** 998-3396
- **Tisch Hall** 998-3434
- **Education Building** 998-3435
- **Warren Weaver Hall** 998-3037
- **Third Ave. North Res. Hall** 998-3500

**Computer Operators:**
- **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

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**Dial-in Access to ACF Computers**

(Via NYU-NET, NYU’s campus-wide network)

<table>
<thead>
<tr>
<th>If calling from</th>
<th>Dial</th>
<th>For (bps)</th>
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<tbody>
<tr>
<td>NYU</td>
<td>53600</td>
<td>300 - 2400</td>
</tr>
<tr>
<td>Off Campus</td>
<td>995-3600</td>
<td>300 - 2400</td>
</tr>
<tr>
<td></td>
<td>995-4335*</td>
<td>300 - 1200</td>
</tr>
<tr>
<td></td>
<td>995-4343</td>
<td>4800, 9600,</td>
</tr>
<tr>
<td></td>
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<td>or 14400</td>
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</tbody>
</table>

*This number is recommended if you are using an old-style modem without error-correcting.

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**Hours at ACF Sites†**

<table>
<thead>
<tr>
<th>User Work Areas:</th>
<th>Regular Hours</th>
<th>Holiday Hours*</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Washington Place</td>
<td>8:30 a - 11:30</td>
<td>8:30 a - 5:30</td>
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<tr>
<td>Tisch Hall</td>
<td>8:30 a - 11:30</td>
<td>8:30 a - 5:30</td>
</tr>
<tr>
<td>Education Building</td>
<td>8:30 a - 11:30</td>
<td>8:30 a - 5:30</td>
</tr>
<tr>
<td>Third Ave. North</td>
<td>10:30 a - 1:30</td>
<td>10:30 a - 5:30</td>
</tr>
<tr>
<td><strong>Consultants:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Washington Place</td>
<td>9:00 a - 9:00</td>
<td>10:00 a - 5:00</td>
</tr>
<tr>
<td>Tisch Hall</td>
<td>9:00 a - 9:00</td>
<td>9:00 a - 5:00</td>
</tr>
<tr>
<td>Education Building</td>
<td>8:30 a - 9:00</td>
<td>9:00 a - 5:00</td>
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<tr>
<td>Third Ave. North</td>
<td>10:30 a - 10:00</td>
<td>10:30 a - 5:30</td>
</tr>
</tbody>
</table>

*Holiday hours are tentative. Confirmed holiday schedules will be posted via our online news and bulletin board facilities. Note: The ACF offices in Warren Weaver Hall are closed on University holidays.

†As we go to press, summer hours at the ACF computer labs are still tentative. A confirmed schedule will be available after May 8.
Networks and Network Services
Archie: Locating FTP-Accessible Information on Distant Computers
Scholarly Conferences via Network E-Mail Between Internet and Other Systems
Dial-up to NYU from Afar With a Local Call
E-Mail Accounts from the ACF

Microcomputers
Eudora, A Macintosh Interface for Electronic Mail
Xferlt FTP Software and Macintosh Anti-Viral Programs Available from the ACF
A New Version of Kermit for IBM PCs
At the ACF's Micro Labs

From the Medical Center
Computing and Molecular Biology

Visualization, Graphics, Printing
HIPS, An NYU-Developed Image Processing System
Berkeley Image Database Software Available at NYU Under ACF Site-License
NCSA's Imaging System, Via the Internet
NIH Visualization Package, from the ACF

Library Computing
Distant Library Resources Via the Internet
Ariel Transforms Interlibrary Loan

From the NYU Book Centers
A Faster Macintosh LC and LaserWriter, and a New CD-ROM Drive
Ordering Computer Products
Social Science Computing
Planning School Districts Using GIS
Data Sets Recently Acquired by the ACF Data Base Archive

Instructional Computing
Innovative Uses of Computers to Enhance Children's Learning
NYU Seminars Feature Image-Oriented Databases and Visualization

Computing in the Humanities
Fonts for Foreign Characters and Scripts
Supercomputers, Mainframes, Minis
Brief Notes on Parallel Computing
Summer Institute on Supercomputing
A Network "News" Reader for VMS Users

Upcoming Events
Summer '92 at the ACF
Important Dates for ACF Users
ACF Tutorials
ACF Microcomputer Workshops
Summer Calendar