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An Important Note to NYU's Academic Computing Community  
on the  
Availability of Computing Facilities  
During August 1988

Warren Weaver Hall, which houses the central offices of the Academic Computing Facility (ACF) and many of its computers and computing resources, will be closed for the month of August 1988 while the building undergoes extensive maintenance work.

The ACF is making plans to provide continued computing services during this period. While all the pieces are not yet in place, we would like to outline for you what we now think the situation in August will be. We plan to keep you informed of further developments.

For August only, the ACF's administrative and accounts offices will be located on the seventh floor of 719 Broadway; the central telephone number for these offices will remain 998-3035. The present plan is to keep as many of the ACF services as possible in operation. The NYU Computer System Selector (or "switch") will be in operation, as well as our access to networks and electronic mail. There will be no change in the availability of the CYBER or IBM mainframe computers. However, the ACF's cluster of VAX/VMS machines will be consolidated into one computer. Various UNIX machines will also be consolidated.

As soon as plans are more definite, we will let you know specifically which VMS and UNIX machines will be available in August, and whether you will need to move files that you plan to use during that time. We expect that there will be no diminution of computer services for summer session classes. The ACF's Education Building, Tisch Hall and 14 Washington Place sites, as well as the ACF's public terminals in Bobst Library, will be open for their usual summer hours. Access via telephone and LAN connection will also be normal.

We are sorry for any inconvenience which the August closing may impose upon our users. If you have general questions or comments please send them to Terry Moore (MOORET@ACF). Telephone inquiries can also be made to Information-About-the-ACF, at 998-3038.

— Max Goldstein, Director  
The Academic Computing Facility
Focus on the Evans & Sutherland PS 340:

Graphics Workstation Aids Research In the Physical and Social Sciences, and Training in the Use of Three-Dimensional Computer Graphics

Scientists Manipulate and Examine Three-Dimensional, High-Resolution Visualizations of their Data Using Dials, Function Keys, and Stylus

The Evans & Sutherland PS 340, or E & S, is one of the most sophisticated of the ACF’s graphics output devices. Located on the third floor of Warren Weaver Hall, and available to faculty, researchers, and graduate students, the E & S is a color graphics workstation that can be used to manipulate three-dimensional wire frame images in real time, and to generate full-color shaded images. The workstation includes both a vector screen, on which the line drawings are displayed, and a raster display (for the “solid” images). The images are three-dimensional: they can be rotated, stretched, contracted in any direction — in whole or in part. Pieces can be added to the figure or subtracted. And all of this is done — once the necessary programs are written — by turning dials on the E & S, or by using a stylus pen on an attached “bitpad”.

The E & S has its own processor and programming language, but the programming and computation are more commonly done on another computer in a language already known by the programmer — usually, a mainframe or minicomputer. There are subroutines on the ACF’s VAX/VMS and UNIX systems that are functionally equivalent to writing in the E & S language. Using these subroutines is easier than programming the E & S directly, but you still need to be a fairly good programmer. On the VMS systems, there is also a package, MOVIE.BYU, which can be used to prepare files for use on the E & S. The file, containing both the program controlling the E & S and the three-dimensional coordinates describing the initial figure, is transferred (or “downloaded”) to the E & S, where it serves as input. Once these values are read in, the E & S’ dials and stylus can be used to manipulate the figure, and (if desired) the resulting information can be fed back to the program running on the mainframe.

The E & S is not a hardcopy device: none of the illustrations accompanying this article, for example, was actually produced on the E & S. Currently, hardcopy output is usually obtained by means of a device attached to one of the ACF’s mainframes or minis. In some instances, a photograph is taken of images as they are displayed on the E & S vector and raster screen devices. Some effort is being made to explore the possibility of downloading E & S output to a film recorder.

Evans & Sutherland Users at NYU

Featured below are a few of the E & S users at NYU. These include researchers in the physical and social sciences, instructors of computer graphics and animation, and others. In the following pages, Professor Suse Broyde outlines how she uses the E & S to visualize DNA molecules as modified by environmental carcinogens. Graphics Focus continues on following page.

The Evans & Sutherland, in brief:

Still pictures (like the ones displayed in the following pages) cannot give you the flavor of the Evans & Sutherland PS 340 graphics workstation, or a sense of its flexibility and potential uses in research and theory development. For many applications, use of the E & S may first require a combination of sophistication and hard work from a programmer working with the machine. Once this programming has been done, however, the E & S offers an easy and flexible mechanism by which a researcher can manipulate and explore graphical representations of data resulting from his or her research. Using function keys, dials, and a stylus, the researcher can rotate these figures in space, rearrange them, add to or delete from them — and then, if desired, use the results of these manipulations as input to a program running on another computer, so that further analyses can be made.
Professor James B. Ramsey describes how the E & S aids his research group in analyzing economic data. We report how Peter Bardazzi employs the E & S (among other graphics devices) in his course on three-dimensional computer graphics. On page 6, in a separate but related article, David M. McQueen, Charles S. Peskin and Hadil G. Sabbagh, of NYU's Courant Institute of Mathematical Sciences, describe their use of the E & S as a tool in modeling three-dimensional patterns of blood flow in the heart.

Studying the Effects of Carcinogens on DNA

Professor Suse Broyde (Biology, GSAS) is using the E & S in her studies of the effects of environmental carcinogens on the structure of DNA. With current experimental methods, Prof. Broyde explains, it is difficult to examine DNA changes more directly. The information is prepared on a VAX/VMS computer using the software packages, Chem-X, specially designed for the display of drawings of molecules. A module of Chem-X, called ChemMovie, is then used in conjunction with the E & S, where the altered DNA structures are displayed, and can be manipulated and examined from all sides.

We asked Prof. Broyde to tell us about her work, and how her use of the E & S fits into it. “The initiation of cancer by certain environmental substances known as polycyclic aromatic hydrocarbons (PAHs) occurs when these substances attach themselves to DNA. This linkage may affect the normal double helical DNA shape, and thereby eventually cause a mutation that can lead to cancer. An understanding, on a molecular level, is thus needed of the DNA shape when it is modified by PAHs. Unfortunately, experimental difficulties have prevented the acquisition, to date, of atomic resolution views in the laboratory. Hence, theoretical methods are the only ones currently capable of producing molecular views.

“We are using minimized potential energy calculations to compute these structures, and are visualizing them on the Evans and Sutherland Interactive Computer Graphics System. This device is particularly useful because it permits real time rotation of the molecules, which are rendered in color with the program Chem-X from Chemical Design, Ltd.”

Among the carcinogens under study is the tumorigenic (+) antibenzo(a)pyrene diol epoxide (BPDE) linked to DNA. BPDE is the biochemically reactive substance formed from benzo(a)pyrene, a PAH found in automobile exhaust.

Uncovering Structure in Random-Appearing or Chaotic Economic Data

Another group of recent E & S users is led by Professor James B. Ramsey of the Economics Department (GSAS), who described their work as follows: “We are using the E & S to examine vectors of data points in three-dimensional space, where the vectors represent positions and velocities of some dynamical system, in order to try to discover smooth structure in otherwise random-appearing or chaotic paths. One goal of our work is to develop new tools of analysis in statistics and in the qualitative analysis of dynamical systems in general. We are applying these new tools and techniques particularly to economic time series data.

“Thus far, we have looked at a wide variety of data, including financial data, money supply, T-bill rates, federal fund rates, and stock market data, in addition to indices of pig iron production, of unemployment and of industrial activity. Typically, we have uploaded the data from a PC to an ACF VMS computer, from which it was then sent to the E & S.

“We are using the E & S because of its fine resolution, but more importantly because it gives us the ability to rotate the axes of orientation of the data relative to the viewer. The E & S’ ability to zoom in and out is also of particular use in finding structure buried within noise.

“As you know, the E & S allows you to stretch a figure uniformly in all directions, or independently along one or more axes. One thing which we might do in the future is to transform the coordinate system on which a data set is plotted to a curvilinear one by using the stretching capability of the E & S.”

Computer Graphics Courses

The Evans & Sutherland is one of several ACF graphics devices used in three-dimensional computer graphics courses given at NYU. In courses taught by Pauline Ores (at NYU’s Tisch School of the Arts) and Peter Bardazzi (at the School of Continuing Education’s Information Technologies Institute), students use MOVIE.BYU, a three-dimensional graphics package from Brigham Young University, to prepare a file which is then downloaded to the E & S. (The file is prepared on one of the ACF’s VAX/VMS computers.)

Peter Bardazzi prefers the E & S to other graphics devices employed in his courses, for several reasons. One
The Evans & Sutherland PS 340. On the screens are depictions of an early twentieth-century British biplane. The biplane appears as a line drawing on the E & S vector display device (left), and as a continuous-tone "solid" image on the raster display.

The geometry description file needed to produce the biplane was prepared on the ACF's cluster of VAX/VMS machines, using MOVIE.BYU, a three-dimensional graphics package from Brigham Young University. The file is provided with the package as a sample tutorial program. Having been prepared on the VMS computer, it was downloaded to the E & S.

MOVIE.BYU output can be displayed on a number of graphics devices at the ACF. However, SCE instructor Peter Bardazzi finds that the E & S offers several advantages, and for that reason regularly includes a hands-on demonstration of the E & S as part of his course in three-dimensional computer graphics. (See text for details.)
Toward Computer Prediction of Blood-Flow Patterns in the Heart

Visualization of Fluid Dynamics in Three Dimensions using the Evans & Sutherland PS340 Computer Graphics System

The principal goal of our project is the computer prediction of three-dimensional flow patterns of blood through the valves and within the chambers of the heart and in the nearby great vessels. Earlier, we developed and employed a method successfully in two-dimensional problems, and were now interested in extending it to the more realistic three-dimensional situation. Before attempting to construct an elaborate model of the heart, based on earlier work and on work by other researchers, we wished to test our methods in the three-dimensional situation by computing flows in some simpler structure.

Computing blood flow in three dimensions. We have constructed a torus by means of a network of closed elastic fibers which make several turns about the torus lumen while making one circumferential turn. (If the torus were a bagel, and a cut were made in any plane perpendicular to the equatorial plane, the 'lumen' is the circular cross-section filled with bread. In our case the lumen is filled with an incompressible fluid.) We have studied the flow in this torus resulting from the relaxation of an initially bulged configuration. The torus is shown in Figure 1, which was produced by a pen plotter. The initial configuration consists of three bulges arranged symmetrically about the center. The fiber winding pattern is as follows. Consider any one of the solid lines on the torus at 3 o'clock: this fiber is on the top surface of the torus closest to you. Following this line counter-clockwise, the fiber descends into the central hole, winds onto the underside of the torus (where it is shown as a dotted line), ascends on the surface farthest from the central hole and winds onto the top surface near 11 o'clock. This pattern is repeated two more times to return the fiber to its starting location at 3 o'clock. The surface is covered by making copies of this fiber shifted circumferentially with respect to the original. There are approximately 65,000 data points (i.e., 195,000 3-D space coordinates) on these fibers. For display purposes, we show only one out of every four fibers and one out of every four points on that fiber. This reduces the object to about 4300 data points (i.e., 13,000 3-D space coordinates).

Motion of the fluid contained inside the torus is represented by the motion of a set of fluid markers. The initial pattern of markers is a 'starburst' with 8 legs, each containing 7 markers, and 1 marker at the common center. This starburst is repeated in 100 cross-sections equally spaced circumferentially, for a total of 5700 markers (i.e., 17,000 coordinates). Together with the fiber data, this produces a data set of about 10,000 points.

The fluid dynamic computations involve a finite difference method on a 64 x 64 x 64 lattice. Our problem is one of unsteady flow, and we typically require about 1000 time steps to model a reasonable amount of real time. This computation is done on a remote supercomputer, and selected results are shipped back to our local NYU computers via magnetic tape.

Using the Evans & Sutherland. We must deal with an enormous amount of data relating to the motion of an unfamiliar object. As Figure 1 makes clear, it is difficult to make sense of three-dimensional data from two-dimensional images. Certainly Figure 1 could have been improved by sophisticated computer graphics, but such graphics are often computationally demanding and time-

Figure 1. Three-dimensional torus, rendered on a pen plotter. Solid lines are fibers; for purposes of display, only some of the fibers are shown.
consuming. What one really desires is a display device which can treat a three-dimensional object in a three-dimensional way and which can handle a large amount of data. We have found the Evans & Sutherland PS 340 System to be excellent in both these regards.

The PS 340 consists of a central processing unit, a high-speed vector display monitor, a raster display monitor, a keyboard and a series of rotary knobs which can be programmed to perform various functions. The PS 340 can access any of the NYU computers by either an Ethernet connection or by a 9600 baud or 19200 baud asynchronous connection. With suitable programming, the PS 340 has been able to display in rapid succession (about 1/10 second per frame) up to 10 separate time steps from one of our computations. Its primary strength for our purposes comes from the auxiliary rotary knobs which can be programmed to produce, in real-time, translations and rotations in any spatial direction. Thus, the display shows us the results as time advances; meanwhile, by turning the knobs, we can observe these results from any position or orientation, and get a better understanding of their three-dimensional character. The vector display has a large palette of colors, and, by displaying left- and right-eye views in two different colors matched to colored lenses worn by the user, we have been able to create true three-dimensional stereo images which 'jump right out of the screen at you'. Finally, we have used the raster display to render solid-modelling images of our results which can be written directly to videotape.

While no still picture can do justice to the PS 340, we show one for the sake of completeness. Figure 2 shows the positions of the fluid markers after 768 timesteps in one of our computations. The fibers are not shown. With suitable programming, the object to be displayed can be treated as a collection of smaller pieces each having its own name. It is possible to turn on or turn off 'on the fly' any piece whose name is known. In Figure 2, a large percentage of the fluid markers have been turned off.

We have found the PS 340 to be an almost indispensable tool in making sense out of the sometimes bewildering results of three-dimensional fluid dynamics computations, and recommend it to any researcher whose application involves three-dimensional space, whether time-dependent or not.

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**Graphics Focus continues from page 4.**

advantage is that students are able to do "real-time" animation on the E & S: they can make the initial figure — described just by the one downloaded file — move before their eyes simply by manipulating the dials. By comparison, on other output devices, you would have to build a sequence of programs or input files in order to get a similar effect. The stylus can be used to accurately add detail to a figure. With the E & S' stylus and bitpad, you can pick out any point in a figure and find out what its coordinates are. You can then use that information, incorporating it in a second downloaded file, to correctly locate and orient any additions to the figure that you might want to make. You can move a part of a figure, rotate it, translate it, stretch it, and remove it, if you like. This is one way of doing animation. For example, in the course which Mr. Bardazzi teaches ("An Introduction to 3D Computer Graphics"), as an exercise in animation, students might define the propeller as a separate part and have it appear to rotate as they move the entire plane across the screen. Mr. Bardazzi notes that the E & S is also an aid in teaching the use of color: in conjunction with MOVIE.BYU, the E & S makes it possible to create — and demonstrate — colored light with multiple light sources.

— Estelle Hochberg, with Jeffrey Bary

As we go to press: An Evans & Sutherland PS 390 color graphics workstation will be available to ACF users. Please see page 21 for details.
New ACF Facility Will Open at the Third Avenue North Residence Hall

New Site Will Offer PC's, Macintoshes, Connections to NYU-NET and to ACF Mainframes and Minis

The ACF plans to open a facility in the basement of NYU's new Third Avenue North Residence Hall. As we go to press, expectations are that it will be open by early in the Fall 1988 semester.

The ACF’s new Third Avenue North Residence Hall facility will house a large cluster of personal computers for use by students and faculty. These will include PC's, Macintoshes, and perhaps some other more advanced personal computers.

Although plans are still tentative, the current expectation is that the microcomputers will be available to students in designated classes, and to other students at some nominal fee. The micros will be networked and connected to NYU-NET, NYU’s campus-wide local area network, with access to all the ACF computers, as well. As we go to press, hours of availability are still to be finalized.

NYU's Third Avenue North Residence Hall (75 Third Avenue, at 11th Street) was opened partially in January 1988. Currently, one of its three towers is open for occupancy by students, while the other two are expected to be available for housing beginning in the Summer 1988 sessions. Each tower can provide housing for 350 students.

Three More VMS and UNIX Minicomputers to be Available to ACF Users In the Fall

This coming fall, the ACF will add three new minicomputers to the VAX/VMS and UNIX computing resources offered to the academic computing community at NYU. One of the three will be a Digital Equipment Corporation VAX machine running the VMS operating system, while two more SUN minicomputers will provide UNIX computing.

Each of the two new SUN4/280S Data Center Servers has 32 megabytes of memory and two hard disks, with 575 megabytes of storage capacity apiece. The two machines will be sharing files and some peripheral devices, although each has its own tape drive, capable of handling tapes written at densities of 1600 and 6250 bpi. Their network access will be Ethernet.

The new Digital Equipment Corporation VAX 8350/2 is a dual processor machine, with 32 megabytes of memory and a 622 megabyte hard disk. It offers faster (hardware-based) floating point operations. An attached Emulex SM834-2 disk subsystem will include two one-gigabyte disks for the storage of users’ files. Like the SUN 4’s described above, it will have a 1600/6250 bpi tape drive, and network connections.

While the three new computers will be situated at the ACF’s new facility in NYU’s Third Avenue North Residence Hall, they will be connected to NYU-NET. This means that, like other ACF machines, they will be accessible to users at any ACF site, to faculty members who have had a LAN connection installed in their offices, as well as to individuals who dial in from home. (A section of this newsletter focuses on NYU-NET, the University’s new campus-wide local area network, or LAN. Please see those pages for further information on NYU-NET.)
To Your Office, via NYU-NET:
Bobcat, Special Interest Bulletin Boards, Online Databases and Services, Dial-Out Modems, and More

NYU-NET, NYU’s campus-wide local area network (LAN) is developing in extent as well as in usage. Departments and individual faculty members and administrators have begun to take advantage of exciting opportunities offered by the LAN. People are using NYU-NET to connect to Bobst Library and its services, and to avail themselves of computing resources distributed around campus — sometimes to connect to electronic mail networks within and outside the University. A wider variety of services is expected to become available via NYU-NET in the near future, and some exciting new NYU-NET connections and uses are planned. The articles on this and the following pages touch on a few of these.

Bobst and The NYU Libraries Connect to the LAN

During the Fall 1987 semester, Bobst Library’s online catalog, BobCat, was made available on the LAN, providing one of the earliest resources on NYU-NET, and a very popular one. At about the same time, "NYULibraries", a new electronic bulletin board, was established on the ACF’s INFO facility, and a new electronic mailbox, "BOBCAT", was set up to respond to NYU-NET users’ questions about the online catalog.

BobCat on NYU-NET

Bobst Library’s online catalog, BobCat, is now accessible through NYU-NET. Users with NYU-NET connections can search BobCat twenty-four hours a day, seven days a week. One can connect to BobCat from anywhere on NYU-NET simply by typing the command CONNECT BOBCAT.

Searching the catalog through NYU-NET is very similar to searching the catalog in the Library. The only exceptions are that users must press the carriage return rather than the red SEND key and type the name of each function rather than pressing specific function keys. NYU-NET users who are accessing BobCat from a PC or a printing terminal can also print the information displayed on BobCat — the library location and call number of the item of interest, for example.

BobCat currently contains information on over 600,000 items, including books, journals, archival and manuscript collections, videos, and compact discs. In addition, researchers in the social sciences can now use BobCat to locate information about data files maintained by the Academic Computing Facility’s Data Base Archive (DBA) and their corresponding print codebooks housed at Bobst. As we go to press, approximately 250 records for BobCat on NYU-NET continue on following page.

What is NYU-NET?

NYU-NET, NYU’s campus-wide network for data and video communications, is a new presence on campus. Sometimes referred to as the “broadband network” or “the LAN” (for “local area network”), NYU-NET connects buildings around the campus, offering an electronic “highway” through which data and video facilities can be shared within the University, and providing a means of accessing computing services and facilities outside of the University.

A University-wide Data Task Force has been responsible for planning and overseeing the design and implementation of NYU-NET. For reasons of economy, the laying of cable for this broadband network was coordinated with the installation of NYU’s new telephone system, beginning in the 1985-86 academic year. By spring 1987, all of the wiring originally planned for the University’s LAN was installed, and by early fall 1987 departments were starting to apply for connections to the LAN.
Bobst on NYU-NET continues from previous page.

datasets and codebooks have been entered into BobCat.

A BobCat Bulletin entitled "BobCat on NYU-NET" is available from the Library. Contact Bobst librarian Melanie Dodson at 998-2454 or DODSON@ACF1 to request the bulletin or for further information. LAN users who have questions about BobCat or need help with the online catalog can address mail to the electronic mailbox BOBCAT@ACF1, or call 998-2505.

NYULibraries: A New Electronic Bulletin Board

Another new service from the Library is an electronic bulletin board, NYULibraries, available through the ACF's INFO facility. The bulletin board is used to post announcements of library hours, new services or exhibits available in the library, and other kinds of information of interest to library users.

INFO, an ACF facility, is a collection of online bulletin boards and services accessible to the general NYU community. You do not need an account on an ACF computer to use it. As part of the INFO system, the library bulletin board can be accessed via the LAN or from any ACF public terminal.

To access the library bulletin board from the LAN, you first connect to the ACF's cluster of VAX/VMS computers, by typing CONNECT ACF*. Next, in response to the "Username:" prompt, type INFORMATION, and press the <Return> key. ("INFORMATION" is a special free guest account on the ACF cluster which has been set up to enable free public access to the INFO system.) After a brief wait, you will receive a menu of bulletin boards and other services available through INFO. Follow the directions which appear on the screen to make your selection.

The library bulletin board can also be accessed from any terminal connected to the NYU Computer System Selector, including all terminals at any of the ACF's public terminal sites. Simply walk up to a terminal that is not in use, press the <Return> key to activate the NYU Computer System Selector, and type INFO in response to the SELECTION? prompt. Follow the directions which appear on your screen to make your selection from the INFO menu of electronic bulletin boards and services.

Individuals who have an account on the ACF's cluster of VAX/VMS computers can access the library bulletin board from within a VAX/VMS session, if they prefer, by typing BBOARD NYULIBRARIES.

Bobst and Electronic Mail

Bobst librarians have recently begun using electronic mail to facilitate communication with faculty members. Electronic mail is much faster than interoffice mail — usually taking no more time than a telephone contact — and yet is much less time- and load-dependent than the telephone: the faculty member whom a librarian is trying to contact does not need to be available at his or her phone line at the very time of the contact attempt, the phone line does not need to be free, and so on.

Individuals with VAX/VMS or VAX/UNIX accounts at NYU are automatically accessible via electronic mail. The librarians at Bobst have been using accounts on the ACF's cluster of VAX/VMS computers for access to electronic mail. Faculty members who wish to use electronic mail, but do not wish to have a full VAX account, may apply to the ACF for electronic mail accounts. These are special computer accounts intended primarily for access to electronic mail and bulletin boards. There is no charge for their use. For information, please call 998-3058. — Estelle Hochberg and Melanie Dodson

For General and Special Interest Electronic Bulletin Boards, Try INFO

The Bobst Library bulletin board, described elsewhere in this section on the LAN, is just one of a small but growing collection of electronic bulletin boards and online services at NYU that are available to LAN users via the ACF's INFO System.

Bulletin Boards for Library and PC Users

The present set of bulletin boards in the INFO system — with the exception of NYULibraries, the Bobst bulletin board — tends to be targeted toward particular computer hardware and software interests. These include NYU's microcomputer bulletin board, MICROINFO, as well as the POST facility, which INFO users can employ to send messages to MICROINFO. Also available on INFO is a battery of extracts from nationally-read microcomputer bulletin boards. These include INFOMAC, which INFO on NYU-NET continues on following page.
INFO on NYU-NET continues from previous page.

provides information about the Apple Macintosh family; INFOPC, of interest to users of IBM PC’s; KERMIT, a medium for news about the Kermit file transfer programs; INPOPAS, a vehicle for information-exchange about the programming language Pascal; INFOHZ100, a bulletin board for users of Heathkit and Zenith computers; and INFOMOD2, which focuses on another programming language, Modula-2. (In addition to the bulletin boards on INFO, the ACF maintains a number of special-interest bulletin boards on its cluster of VAX/VMS computers; most of these are available to anyone with an account on those computers. Information about these can be obtained by calling 998-3058.)

Bulletin Boards for LAN Users, Special Academic Interests, and More

In the fall, the ACF plans to add bulletin boards catering to additional interests and needs. For example, one bulletin board will be targeted toward LAN users, and will concentrate on LAN usage tips and announcements. Another will be for users of any ACF computer; it will carry announcements of special ACF seminars, tutorials, and workshops, as well as bulletins on changes in hours or services.

The ACF will gladly meet with departments or academic interest groups at NYU to discuss the possibility of setting up bulletin boards related to their interests. This could be a bulletin board concentrating — like the library bulletin board — on announcements of hours and events, or one which focuses on the exchange of information related to an academic pursuit. If interested, please call 998-3058 for a referral to the appropriate ACF staff member.

And INFO Offers More

INFO also offers access to PRODUCTS, a database which lists all ACF-supported software, and to DATABASES, an extensive online help facility which furnishes information on social science survey data — data on elections, social welfare, health, and attitudes — maintained by the ACF’s Data Base Archive and available for use on ACF computers.

For instructions on accessing INFO, please see, NYU Libraries: A New Electronic Bulletin Board (page 10).

Dial-Out Via NYU-NET, Without a Telephone or Modem (And Coming Soon: Dial-In)

As we go to press, a modem pool is being added to the LAN. With the modem pool, an individual with a computer or terminal connected to the LAN will be able to “dial out” to computer services without needing to use a telephone line in his or her office. This will give LAN users access to off-campus services not accessible via the networks to which NYU-NET is connected. It will also save users of these services the expense of maintaining extra telephone lines in their offices solely for online computer access.

Any online service currently accessed via telephone will be accessible via the modem pool. You will also be able to use the modem pool to dial out to public “packet-switching networks” (or PSN’s) like Telenet and Tymnet. Such PSN’s make it possible to access remote computers and computing facilities not otherwise reachable by data networks. (A direct line between NYU and Telenet is currently under consideration. See the article in this section for details on Telenet.)

NYU-NET’s new modem pool, and the special LAN-to-Telenet link presently under consideration, will offer access from your office to a large number of online databases and services. You will have to have your own account with these services, however, and they do charge subscription and usage fees. Information on subscriptions to online services, help in selecting an appropriate one, and a less costly alternative to obtaining your own account, are all available from Bobst Library’s Reference Services. Please refer to Bobst Information Bulletins #6a, 6b, and 6c.

Dial-Out Via NYU-NET continues on following page.

More information on the LAN...

is available from the Academic Computing Facility (ACF). You may need help in deciding whether you should apply for a LAN connection for yourself or your department — and, if so, the kind of connection which you should request. Call 998-3058 for a packet of information and an application form, and — if you wish — a referral to an ACF staff member with whom you can discuss your individual or departmental requirements for LAN connections.
Who's On the LAN

Forty University buildings are wired with NYU-NET's "backbone" of broadband cable. Most of these buildings are around NYU's Washington Square campus, but there are links to other NYU centers around Manhattan.

Some of these links use other media. For example, a fiber optic cable links the soon-to-be-opened ACF facility in the University's new Third Avenue North Residence Hall. (Please see the article on page 8 for more on that new ACF site.) A microwave link connects the Washington Square campus with the two Wall Street area buildings belonging to the Graduate School of Business Administration (GBA); these two buildings are themselves wired by a broadband cable. Another link to NYU-NET has been established from the NYU Medical Center; at present, this is accomplished via a dedicated line leased from New York Telephone Company.

Once a building has been wired to NYU-NET, offices and floors within the building are connected at the request of departments and, sometimes, of individual faculty members. Different degrees of connectivity have been requested, ranging from individual NYU-NET connections for a few terminals or PC's, to "network-level" connections, in which a departmental network of computers, workstations and printers is connected to NYU-NET.

Thus far, quite a number of connections to NYU-NET have been established. Examples include GBA and BPA, who's on the LAN continues from previous page.

FAS Administration
Connects to NYU-NET

The Faculty of Arts and Sciences (FAS) will shortly begin to use NYU-NET to connect FAS departments, with the purpose of automating administrative tasks down to the departmental level. Within the next month or so, PC's in one or two FAS departments will be connected on a trial basis via NYU-NET to FAS' central administrative mainframe, an IBM System/38. The goal is to connect all FAS departments via the LAN to the System/38.

Currently, departmental information is delivered to FAS' administrative offices on paper. With the planned automation, and the connection of these computers via the LAN, information will be keyed in on the departmental PC's and/or terminals and routed from there to the System/38. Each piece of information will be entered only once, and it is anticipated that redundancies of effort and information will be reduced, as well as the amount of paper and time required to accomplish FAS' administrative work.

FAS' automation plans are aimed at reducing paperwork and increasing efficiency in a number of administrative areas. The initial focus will be on payroll-related information, but the automation effort will soon extend to the preparation and administration of departmental budgets, personnel information, sponsored research accounting, graduate student financial aid and student records.

Hooking up terminals and PC's to IBM mainframes and minicomputers via non-IBM networking products can present difficulties, but FAS and the ACF have just completed tests confirming that it can be done with NYU-NET.

which may have the greatest density of individual connections to NYU-NET to date: nearly every faculty office has a LAN connection. The Psychology Department (FAS) has linked its network of several minicomputers and workstations to NYU-NET. Possibly at the high end of the range of connectivity is the Courant Institute of Mathematical Sciences, from which over 200 computers and sophisticated workstations are connected to the LAN.

Among the other departments and groups with active connections to NYU-NET are Biology, Chemistry, History, Physics, Politics, and Sociology (all FAS). There are also several connections in SEHNAP.
High-Speed Telenet Link Is Under Consideration

A trial installation of a high-speed direct connection between Telenet and NYU-NET is being considered as we go to press. Telenet is a commercial network which enables access to many popular online services, both commercial and non-commercial. It offers an economical alternative to lengthy, long-distance telephone calls to distant computers and online services. NYU-NET is NYU’s new campus-wide LAN.

Telenet via telephone. Probably the most common way of accessing Telenet is via a telephone connection. Typically, a user who subscribes to Telenet makes a telephone call to the local Telenet office, and then is switched through via Telenet’s private telephone lines to the desired service or computer. Using a “packet-switching” network (or PSN) like Telenet can cost less than dialing a remote computer or service directly, since the telephone call involved is always a local one, and the charge is for the amount of information carried (the number of “packets”), rather than for the length of time one has been connected.

Telenet via direct line. LAN users who subscribe to Telenet can “dial out” from their offices to Telenet through NYU-NET’s new modem pool (see the accompanying article, "Dial-Out Via NYU-NET", for more on this). By comparison, the special Telenet connection presently under consideration will involve establishing high-speed data-only lines between NYU-NET and the local Telenet switch. This would mean that NYU LAN users could by-pass the modem pool, thus relieving it of some of the anticipated load from online database users. Moreover, since telephone lines are slower than lines designed to carry data only, connections via the NYU-NET-to-Telenet line are likely to be faster, especially at times of off-peak usage load.

What’s available through Telenet. Any NYU-NET user will have access to this direct data link to Telenet. You will have to have a Telenet charge number, however, and — if the service you are accessing via Telenet is not a free one — an account for that, as well.

A number of NYU faculty members use Telenet — or some other commercial PSN, like Tymnet — to access distant computers that are not yet reachable by means of other wide-area data networks. For example, this is the means by which some of the supercomputers used by NYU researchers are accessed.

How Do You Get Connected to NYU-NET?

As with cable TV, a building can be wired with NYU-NET’s broadband cable, but individual “tenants” or departments in the building are not able to use NYU-NET until they have requested that their offices be connected to it. Right now, forty NYU buildings in the Washington Square area are wired for NYU-NET, so chances are that your building is one of them.

Establishing a connection to NYU-NET in most cases means installing a connector box (a network interface unit, or “NIU”), usually in the telephone closet on your floor and, possibly, some additional wiring. Several different kinds of connections are available; your choice will depend on your present needs. For example, if you already have a small PC network on your floor and wish to connect it to NYU-NET, you may need a somewhat more sophisticated connection. In any event, a one-time connection fee is charged to your department; beyond that there are no maintenance or service charges for your NYU-NET connection.

A packet of information about the different kinds of connections available and the fees involved can be obtained from the ACF, along with an application form: call 998-3058 to obtain one. Call the same number if you need a referral to an ACF staff member who will help you evaluate whether or not you wish to connect to NYU-NET at present and, if so, the kind of connection you might prefer.

Additional services accessible via Telenet offer access to a great many online databases. Help in selecting the online databases that are appropriate to your interests, as well as information on subscription procedures and costs, can be obtained from a Bobst Library Reference Librarian in your particular academic area. In addition, many of these databases can be accessed at Bobst Library more economically than with an individual subscription. Please refer to Bobst Information Bulletins #6a, 6b, and 6c.

For further information on the trial NYU-NET-to-Telenet connection, call 998-3058 after June 1.
What’s New in the ACF’s Faculty Microcomputer Lab

Since the last edition of this newsletter was published, the ACF’s Faculty Microcomputer Lab has acquired a few new pieces of hardware and software. As always, these acquisitions are available for inspection and trial by NYU faculty and research staff. The lab is a by-appointment facility. Please see the box on this page for lab hours, location, and telephone number.

New Hardware

Two new printers of potential interest to members of the NYU community have been obtained recently. An NEC Pinwriter 2200, the latest in NEC’s series of near-letter-quality dot-matrix printers, is suitable for use with IBM-type personal computers. More expensive — and more versatile — is Apple’s new ImageWriter LQ dot-matrix printer. This printer, designed primarily for use with Apple Macintosh computers, provides perhaps the highest print quality (in a variety of font styles) available today in a non-laser printer. Like most other Apple printers, the ImageWriter LQ can be attached to an AppleTalk network of Macintoshes for shared use.

New Software

For IBM-type personal computers. Recent software acquisitions for IBM-type personal computers include updates of these popular packages: Microsoft Optimizing C Compiler (Version 5.0), and Digital Research’s Concurrent DOS multitasking operating system.

For the Macintosh. Two small software packages have arrived: DiskFit, a popular hard-disk backup program, and Suitcase, a desk-accessory manager which allows access to an unlimited number of desk accessories.

Updates of Software Distributed by the Lab

The Lab also serves as a distribution point for a few software items, under agreement with the vendors. The following were updated in recent months. (For a complete list of software available from the ACF, see the item on page 16.) Please call 998-3044 for an appointment or for further information.

New versions of Kermit. New and improved versions of the Kermit communications software for IBM and Macintosh microcomputers have been released by Columbia University and are being distributed at the ACF Microcomputer Lab: PC Kermit Version 2.30 (incorporating graphics terminal emulation for the first time), and Macintosh Kermit Version 0.9.

New version of SPSS/PC+ available under site license. As we announced in the January edition of this newsletter, the ACF has obtained a site license for SPSS/PC+ (Statistical Package for the Social Sciences) and the SPSS/PC+ Advanced Statistics module, which run on IBM-type personal computers. An updated version of SPSS/PC+, Version 2.0, has since become available in the Micro Lab. The two SPSS/PC+ modules now come on twelve diskettes. The fees are still $100 for the base SPSS/PC+ package, and $50 for the Advanced Statistics module. Departments may pay this fee via an interdepartmental transfer of funds to the ACF; alternatively, individuals may pay by check. If you have already purchased the previous version from the Lab, please call 998-3044 to discuss acquiring the upgrade.

NYU also has a site license for distribution of the IBM PC version of the base SAS (Statistical Analysis Systems) statistics package. The software, available for no fee, comes on 17 diskettes and requires approximately seven megabytes of free disk space. To acquire either SPSS/PC+ or SAS from the Micro Lab, you must bring your own diskettes.

For Microsoft Word 3.0 owners, an update to 3.01. Users of Microsoft Word 3.0 in the NYU community can receive the upgrade Microsoft Word 3.01, which offers some significant improvements, from the Microcomputer Lab. You must bring your copy of Microsoft Word 3.0 as well as two blank diskettes.

— Gary Chapman

About the ACF’s Faculty Microcomputer Lab

The ACF’s Faculty Microcomputer Laboratory was established at the beginning of the Fall 1984 semester. It is a place where faculty and research staff can learn about different kinds of microcomputer hardware and software. The Micro Lab is located in Room 317 Warren Weaver Hall. Visits to the lab are by appointment. Please call 998-3044 to arrange a time. Hours between 12 noon and 8:00 p.m., Monday through Friday, are usually available.
Hardware and Software on Display at the ACF's Faculty Microcomputer Lab

The following lists include all hardware, software, and periodicals currently available at the ACF's Faculty Microcomputer Laboratory. (For descriptions of recent arrivals at the Lab — and for hours and other information about the Lab — please see the item on the facing page.)

Periodicals

Periodicals obtained by the Lab and available for perusal include the following.

- A+ MacUser
- Byte PC
- Dr. Dobb's Journal PC Tech Journal
- InfoWorld PC World
- MacWorld Programmer's Journal

Hardware

The following hardware is currently available for examination at the lab.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>ImageWriter LQ printer</td>
</tr>
<tr>
<td></td>
<td>LaserWriter Plus printer</td>
</tr>
<tr>
<td></td>
<td>Macintosh Plus with HD20</td>
</tr>
<tr>
<td></td>
<td>Macintosh II w/EtherTalk board</td>
</tr>
<tr>
<td></td>
<td>Appletalk network</td>
</tr>
<tr>
<td>AT&amp;T</td>
<td>Unix PC</td>
</tr>
<tr>
<td>Datapony</td>
<td>Model 730 flatbed scanner</td>
</tr>
<tr>
<td>DEC</td>
<td>Rainbow personal computer</td>
</tr>
<tr>
<td>Hayes</td>
<td>Smartmodem 1200</td>
</tr>
<tr>
<td>Hewlett-Packard</td>
<td>Laserjet II printer</td>
</tr>
<tr>
<td>Kinetics</td>
<td>Fastpath Appletalk/EtherTalk Gateway</td>
</tr>
<tr>
<td>IBM</td>
<td>PC XT</td>
</tr>
<tr>
<td></td>
<td>PC AT w/EGA graphics</td>
</tr>
<tr>
<td></td>
<td>PS/2 Model 60 w/VGA graphics</td>
</tr>
<tr>
<td></td>
<td>Model 3363 write-once optical drive</td>
</tr>
<tr>
<td></td>
<td>VGA board for PCs</td>
</tr>
<tr>
<td>Micom-Interlan</td>
<td>Ethernet board</td>
</tr>
<tr>
<td>NEC</td>
<td>Model P6 dot matrix printer</td>
</tr>
<tr>
<td></td>
<td>Model 2200 dot matrix printer</td>
</tr>
<tr>
<td>3Com</td>
<td>Ethernet board</td>
</tr>
<tr>
<td>Ungermann-Bass</td>
<td>Ethernet board</td>
</tr>
<tr>
<td>Zenith</td>
<td>Z-241 AT compatible</td>
</tr>
</tbody>
</table>

Software

The lab also has a collection of software packages, including software for word processing, communications, graphics applications, and programming. Software available for examination includes the following.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe</td>
<td>Illustrator</td>
</tr>
<tr>
<td>Aldus</td>
<td>PageMaker</td>
</tr>
<tr>
<td>Ashton-Tate</td>
<td>dBase III-Plus</td>
</tr>
<tr>
<td>Apple</td>
<td>Hypercard</td>
</tr>
<tr>
<td></td>
<td>MPW</td>
</tr>
<tr>
<td></td>
<td>MacDraw</td>
</tr>
<tr>
<td></td>
<td>MacPaint</td>
</tr>
<tr>
<td></td>
<td>MacTerminal</td>
</tr>
<tr>
<td>Borland</td>
<td>Turbo C</td>
</tr>
<tr>
<td></td>
<td>Turbo Pascal</td>
</tr>
<tr>
<td></td>
<td>Turbo Prolog</td>
</tr>
<tr>
<td>Crosstalk</td>
<td>Crosstalk Mark 4</td>
</tr>
<tr>
<td>Dragonfly</td>
<td>Nota Bene</td>
</tr>
<tr>
<td>Digital Research</td>
<td>Concurrent DOS</td>
</tr>
<tr>
<td>FreeSoft Company</td>
<td>PC Ryder 10.3</td>
</tr>
<tr>
<td>FTP Software</td>
<td>PC/FTP</td>
</tr>
<tr>
<td>IBM</td>
<td>OS/2</td>
</tr>
<tr>
<td>Lotus</td>
<td>Lotus 1-2-3</td>
</tr>
<tr>
<td></td>
<td>Symphony</td>
</tr>
<tr>
<td></td>
<td>Manuscript</td>
</tr>
<tr>
<td></td>
<td>Freelance</td>
</tr>
<tr>
<td>Mesa Graphics</td>
<td>Text-Term</td>
</tr>
<tr>
<td>Microsoft</td>
<td>Word</td>
</tr>
<tr>
<td></td>
<td>C Optimizing Compiler</td>
</tr>
<tr>
<td></td>
<td>Macro Assembler</td>
</tr>
<tr>
<td>NCSA</td>
<td>Telnet/FTP</td>
</tr>
<tr>
<td>Paul Mace</td>
<td>Mace Utilities</td>
</tr>
<tr>
<td>Peter Norton</td>
<td>Norton Utilities</td>
</tr>
<tr>
<td>Prime Solutions</td>
<td>Disk Technician</td>
</tr>
<tr>
<td>SAS</td>
<td>SAS</td>
</tr>
<tr>
<td>Silicon Beach</td>
<td>SuperPaint</td>
</tr>
<tr>
<td>SPSS</td>
<td>SPSS-PC+</td>
</tr>
<tr>
<td>Tops</td>
<td>Tops for PC and Macintosh</td>
</tr>
<tr>
<td>WordPerfect</td>
<td>WordPerfect 4.2</td>
</tr>
</tbody>
</table>

For a list of software distributed at the Micro Lab, please see the item on page 16.

For further information, contact Gary Chapman at 998-3044.

— Gary Chapman
Software Distributed at the ACF's Faculty Microcomputer Lab

Qualified members of the NYU community may obtain the following microcomputer software packages at the ACF's Faculty Microcomputer Lab.

<table>
<thead>
<tr>
<th>Software</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kermit</td>
<td>For Macintosh and IBM-PC. Please bring 1 blank diskette. There is no fee.</td>
</tr>
<tr>
<td>Macintosh Operating System</td>
<td>For distribution to owners of older versions of the Mac system. Please bring your copy of the Mac operating system and 4 blank diskettes. There is no fee.</td>
</tr>
<tr>
<td>Microsoft Word 3.01</td>
<td>For Macintosh. For distribution to owners of MS Word 3.00. Please bring your copy of MS Word 3.00 and 2 blank diskettes. There is no fee.</td>
</tr>
<tr>
<td>NCSA Telnet</td>
<td>For Macintosh and IBM-PC. Please bring 1 blank diskette. There is no fee.</td>
</tr>
<tr>
<td>ProComm</td>
<td>For IBM-PC. Please bring 1 blank diskette. There is no fee.</td>
</tr>
<tr>
<td>SAS</td>
<td>For IBM-PC. Please bring 17 blank diskettes. There is no fee.</td>
</tr>
<tr>
<td>SPSS/PC+ and Advanced Statistics module</td>
<td>Please bring 12 blank diskettes to receive both the base package and the Advanced Statistics module. The fees are $100 for the base package and $50 for the Advanced Statistics module.</td>
</tr>
</tbody>
</table>

The Microcomputer Lab is located in Room 317 Warren Weaver Hall. To obtain software from the Lab, please call 998-3044 to make an appointment. Hours between noon and 8:00 p.m., Mondays through Fridays, are usually available. 

— Gary Chapman

More on microcomputers...

Microcomputer users might also be interested in the following:

- The ACF's new site in the Third Avenue North Residence Hall, which will offer Macintoshes and PC's (page 8).
- ACF workshops on microcomputer use (page 19).
- Discounts on micros and microcomputer software available through NYU (page 22).

Errata

Our apologies for these unintended slips.

In the January 1988 issue of this Newsletter, an article on the ACF's Data Archive contained a misprint (page 4). The command to be added to an IBM WYLBUR user's logon profile — to enable online access to information about a database, by means of the command HELPME DATABASE — was incorrectly printed as X FRO HELPME USER PUB GRO PB. The correct command is X FRO #HELPME USER PUB GRO PB.

In the same issue, there was a point of confusion in a chart (page 7) accompanying an article on NYU-NET, NYU's local area network. The chart outlined some of the services available through NYU-NET, and some of the connectivity options which potential NYU-NET users might wish to consider. We inadvertently gave the impression that a connection via NYU-NET to Bobst Library's online catalog, BobCat, required the user to have an ACF account. This is not the case.

In the same issue, on page 9, a chart depicting NYU-NET's connections within the University and to outside networks erroneously showed a direct link, via BobCat, between NYU-NET and RLIN (Research Library Information Network). While such a connection is planned for the future, it is not presently in place. The RLIN database can be reached at present through RLIN terminals located in Bobst.
SPSS-X Goes Interactive
Version 3: New Features, and Other Notes

Version 3.0 of SPSS-X (Statistical Package for the Social Sciences) is now running on the ACP's cluster of VAX/VMS machines. On the ACP's IBM 4381 mainframe, it will shortly be available to users of the VM/SP-CMS system, and an edition suitable for installation under the MVS (WYLBUR) system is expected to become available by June 1988. On each of these machines, SPSS-X Version 3.0 will be replacing Version 2.2.

Users of SPSS-X Version 2.2 will find that Version 3.0 is "upward compatible" and offers a number of new features. The most important of these are:

- an interactive interface
- a macro facility
- a collection of procedures for time series analysis
- two procedures for nonlinear regression.

Interactive SPSS-X

On IBM CMS, the command to begin an interactive session is "SPSSX *". On VAX/VMS, it is just "SPSSX". In both cases, the prompt you will receive is "SPSS-X >". At this point, regular SPSS-X commands can be entered, differing from the commands used in batch mode only by the requirement that there be a period (or some other termination character) at the end of each command. Some new commands that may be useful during an interactive session are NEW FILE, CLEAR TRANSFORMATION, HOST, and INCLUDE. With the exception of HOST, these commands are also available in batch mode. Three new SET commands that affect interactive processing are ENDCMD, NULLINE, and JOURNAL.

It should be noted that the new interactive mode of SPSS-X is very similar to, but not identical with, SPSSX/PC+. SPSSX/PC+ is essentially a subset of the mainframe version, and also has a few commands that are unique.

Macros of SPSS-X Instructions

The new macro facility enables the user to create blocks of SPSS-X instructions which can be executed as often as needed. All SPSS-X instructions can be included except BEGIN DATA/END DATA and DEFINE. (The latter is the instruction for creating a macro.) Arguments can be declared in positional or keyword mode. Macro functions permit considerable character string manipulation, and both conditional and looping capabilities are offered.

Time Series Analysis through "Trends"

SPSS-X Trends is an optional add-on to the base program and is designed for the analysis of time series data. In addition to several printer-plot routines, it provides programs to perform exponential smoothing, OLS, WLS and two-stage regressions, univariate ARIMA, two types of seasonal adjustment, and spectral analysis. SPSS-X Trends can produce both system files that can be read by SPSS Graphics (available on the VAX/VMS cluster) and SYLK files which can be read by Microsoft Chart on an IBM PC.

Nonlinear Regression Now Possible

Two procedures have been provided to do nonlinear regression. NLR (NonLinear Regression) uses an adaptation of subroutine LMSTRAT from the MINPACK package to compute parameter estimates for nonlinear models where no constraints or bounds are specified. CNLR (Constrained NonLinear Regression) is based on the NPSOL Fortran Package for Nonlinear Programming. It permits the specification of limits and of linear or nonlinear constraints on the parameters, as well as of the loss function to be minimized. A BOOTSTRAP subcommand is available for repeated estimates of parameters and their standard errors from subsamples of cases.

Other Features

Some other new features in SPSS-X 3.0 include: (1) a consistent format for OPTIONS and STATISTICS specifications employing words in place of numbers (although the numbers can still be used); (2) a facility for creating and — to a limited extent — manipulating system files of special matrices (e.g., correlations, covariances, and distances), the elements of which have been produced by SPSS-X procedures or read in from another file; and (3)
an INCLUDE command that permits reading into a program a separate file of instructions.

New Documentation of SPSS-X

Naturally, there are new manuals to describe SPSS-X 3.0 and SPSS-XTrends. The SPSS-X User’s Guide Third Edition has 1072 pages and is in stock at the NYU BookCenter. It has several useful appendices, including one on reading direct access and keyed files, another describing data formats that are specific to the VAX/VMS environment, another on using portable files produced by SAS, and one describing all the changes and additions for each procedure. The latter should be useful for experienced users of previous versions of SPSS-X. The BookCenter has placed an order for the Guide to SPSS-X Trends.

Which Versions Are Available Where

As of April 26, 1988 the following versions of SPSS-X were available on ACF computers:

<table>
<thead>
<tr>
<th>Machine</th>
<th>Operating System</th>
<th>Version(s) of SPSS-X</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYBER</td>
<td>NOS</td>
<td>2.1</td>
</tr>
<tr>
<td>CYBER</td>
<td>NOS/VE</td>
<td>2.2</td>
</tr>
<tr>
<td>IBM</td>
<td>MVS</td>
<td>2.2</td>
</tr>
<tr>
<td>IBM</td>
<td>VM/CMS</td>
<td>2.2 (3.0 soon)</td>
</tr>
<tr>
<td>VAX</td>
<td>VMS</td>
<td>2.2 (3.0 currently on ACF1 only)</td>
</tr>
</tbody>
</table>

SPSSX/PC+ is available under a site license from the ACF Faculty Microcomputer Lab (see the article on page 16). It is at Version 2.0.

Under NOS on the CYBER and under MVS on the IBM, SPSS is still available in Version 9.0. These versions are being retained because, in a few instances, programs that ran under SPSS can be modified to run under SPSS-X only with considerable effort. But SPSS in this earlier version is not supported by the vendor, nor are improvements or changes being made.

Because SPSS-X is such a marked improvement over the older SPSS, users are urged to write future programs to run in SPSS-X. ♦

—Bert Holland

Update on Applications Software on the ACF’s Mainframes and Minicomputers

A number of application software products on the ACF computers have been updated or newly installed since the January 1988 edition of the newsletter. The following list, organized by computer and operating system, gives most of them.

CDC Cyber (NOS/VE System). DATAPLOT (interactive graphics, fitting, data analysis, and mathematics).

IBM 4381 (CMS System). SPSS-X Version 3.0 (Statistical Package for the Social Sciences), within the coming month; a related article begins on page 17.


—Ed Friedman

A new version of TSP will soon be available for IBM WYLBUR users. Please see the item on page 21.
ACF Talks, Tutorials, and Workshops

During the summer, the ACF offers introductory level tutorials in the use of its computers. Below is a tentative schedule of ACF tutorials for the Summer 1988 sessions. A confirmed and extended schedule will be posted by the last week in May.

Each Fall and Spring semester, the ACF presents a full schedule of talks, tutorials and workshops on a wide range of topics and for users at varying levels of expertise. As we go to press, a few Spring semester talks and workshops remain (please see box, this page). The complete Fall 1988 schedule will be available at the beginning of that semester.

ACF Tutorials, Summer 1988: Tentative Schedule

The ACF offers “walk-in” tutorials, as well as tutorials by special arrangement. The ACF’s walk-in tutorials are scheduled tutorials for which students or faculty may sign up about one hour in advance. Sign up sheets are available at the Operator’s desk. Tutorials scheduled for the summer sessions include the following. (Unless otherwise noted, tutorials take place at the ACF's 14 Washington Place site.)

UNIX Introductory Tutorials
During the first two weeks of each session on the following days and times:
- Mondays at 11:00 a.m.
- Wednesdays at 1:00 p.m.
- Fridays at 4:00 p.m.

VMS Introductory Tutorials
During the first two weeks of each session on the following days and times:
- Mondays at 1:00 p.m.
- Wednesdays at 4:00 p.m.
- Fridays at 11:00 a.m.

Cyber NOS Introductory Tutorials
During the first two weeks of each session on the following days and times:
- Mondays at 4:00 p.m.
- Wednesdays at 11:00 a.m.
- Fridays at 1:00 p.m.

IBM WYLBUR Introductory Tutorials
(Room LC - 8, Tisch Hall)
First Session:
- Monday, June 13, 5:30 p.m. & 6:30 p.m.
- Thursday, June 16, 5:30 p.m. & 6:30 p.m.
- Monday, June 20, 5:30 p.m. & 6:30 p.m.
Second Session:
- Thursday, July 21, 5:30 p.m. & 6:30 p.m.
- Monday, July 25, 5:30 p.m. & 6:30 p.m.
- Thursday, July 28, 5:30 p.m. & 6:30 p.m.

IBM CMS tutorials: (by appointment; call 998-3407)
Karel tutorials: To be held during the first two weeks of each summer session at the ACF's Education Building site. Exact times to be announced. For information, call Larry Mingione at 998-3436.

As we go to press, these Spring Semester ACF Talks and Workshops remain.

Talks
Graphics at NYU (Film Showing)
   Wed., May 4 at 2:30 p.m.
Graphics at NYU (Selected Packages)
   Wed., May 11 at 2:30 p.m
   (Both in Room 101 Warren Weaver Hall.)

Microcomputer Workshops
Held at the ACF's Education Building site, 35 West 4th St., 2nd Floor. All workshops take place on Fridays, and last the entire day with a break for lunch (9 a.m. - 12 noon, 1 - 3 p.m.). To register, please contact Henry Mullish at 998-3039 during the week of the workshop.

Lotus 1-2-3: May 13 and July 1
Intro. to Wordperfect: May 6, May 20, May 27, June 24 and July 8
Advanced Wordperfect: June 10
Introduction to dBase III: June 17
### Summer Hours at the ACF

#### Regular Summer Hours

<table>
<thead>
<tr>
<th>User Work Areas:</th>
<th>Monday - Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Washington Place</td>
<td>8:30 a.m. - 5:30 p.m.</td>
<td>(closed)</td>
</tr>
<tr>
<td>Tisch Hall</td>
<td>8:30 a.m. - 11:30 p.m.</td>
<td>8:30 a.m. - 5:30 p.m.</td>
</tr>
<tr>
<td>Education Building</td>
<td>8:30 a.m. - 11:30 p.m.</td>
<td>8:30 a.m. - 5:30 p.m.</td>
</tr>
</tbody>
</table>

**Consultants:**
- 14 Washington Place 10 a.m. - 5 p.m. (closed)
- Tisch Hall 9 a.m. - 9 p.m. 10 a.m. - 5 p.m.
- Education Building 10 a.m. - 9 p.m. 10 a.m. - 5 p.m.

#### Holiday Hours

<table>
<thead>
<tr>
<th>Monday - Friday</th>
<th>Saturday</th>
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</thead>
<tbody>
<tr>
<td>(closed)</td>
<td>(closed)</td>
</tr>
<tr>
<td>9 a.m. - 5 p.m.</td>
<td>9 a.m. - 5 p.m.</td>
</tr>
<tr>
<td>9 a.m. - 5 p.m.</td>
<td>9 a.m. - 5 p.m.</td>
</tr>
</tbody>
</table>

Notes:
1. On holidays, doors open at 9 a.m.; otherwise, doors open at 8 a.m., and sites are ready for use by 8:30 a.m. Shut-down begins one half-hour before closing. To confirm summer holiday hours, please call 998-3058 prior to date.
2. All ACF sites are normally closed on Sundays.
3. The ACF's public terminals on the B-Level of Bobst Library are available during library and study hall hours.
4. The Computer Science Department's advisers' hours are posted at the Education Building site.
5. The ACF offices in Warren Weaver Hall are closed during holidays.

Please also see the announcement on page 2 about the availability of computing resources during August 1988.

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### Locations of ACF User Work Areas

- Education Building, 35 West Fourth Street, 2nd floor
- Elmer Holmes Bobst Library, 70 Washington Square South, B-Level
- 14 Washington Place, one flight below street level
- Tisch Hall, 40 West Fourth Street, LC-8
- Warren Weaver Hall, 251 Mercer Street, 3rd floor
(Warren Weaver Hall facilities are for faculty and research personnel only)

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### Student Registration for Computer Use

Students whose courses are associated with Class Accounts on the CYBER, VAX/VMS, and VAX/UNIX systems must register for computer use. (Class Accounts on the IBM computer are obtained for students by their instructor.)

Computer registration for the summer sessions will take place from June 1 through June 18 and July 13 through August 6. To register, students must bring their class cards and a valid NYU I.D. to the following sites during the hours listed:

14 Washington Place site operator's desk:
- Monday - Friday 9 a.m. - 5:30 p.m.

Tisch Hall, Room LC-8 operator's desk:
- Monday - Friday 5:30 p.m. - 11:30 p.m.
- Saturday 9 a.m. - 4:30 p.m.

**Students in courses using the ACF's Macintosh and IBM personal computers must obtain a Microcomputer Use Validation Card.** To do so, please bring your class card and your valid NYU I.D. card to the operator's desk at the Education Building site.
As we go to press:

An Evans & Sutherland PS 390

The ACF has arranged with Evans & Sutherland to install a PS 390 color graphics workstation for an evaluation period of three months starting May 1.

This device is capable of depicting 3-dimensional color wireframe models, manipulating them dynamically, and displaying shaded color images on a single raster display. It is similar to the E&S PS 340 currently in use at the ACF, but is a more recent model offering new features and some advantages. (See related articles on pages 3 - 7.) Current and prospective E & S users are welcome to come and explore using the E&S equipment as a research tool.

John MacNeill, an analyst with Evans & Sutherland, will be available to confer with users and assist them in investigating the possibilities of using PS workstations with their research projects. Contact Ed Friedman at 998-3051 for more information.

— Ed Friedman

New Version of TSP
To Be Available Soon

Version 4.1 of TSP (Time Series Processor) will be installed on the IBM mainframe within the coming months to run under MVS (WYLBUR).

Among the major additions in this version are several new procedures to handle qualitative dependent variables (Probit, Tobit and several types of Logit models), as well as procedures for general and limited-information maximum likelihood estimation.

Other changes include dynamic estimation of models with lagged dependent variables, several new numerical functions, and more flexible handling of missing data.

— Bert Holland

ACF User Services Group member Larry Mingione at the ACF's Education Building site. (Photo by Manuel Laqui.)
**Important ACF Telephone Numbers**

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone Number</th>
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</thead>
<tbody>
<tr>
<td>General Information about the ACF</td>
<td>998-3058</td>
</tr>
<tr>
<td>Account Information</td>
<td>998-3050</td>
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<tr>
<td>Computer Documentation</td>
<td>998-3036</td>
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<td>Tape Librarian</td>
<td>998-3452</td>
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<tr>
<td>Systems' Status Recording</td>
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<td>Applications Consultants:</td>
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<tr>
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<td>Systems Status Recording</td>
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<td>Computer Operators:</td>
<td></td>
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<td>14 Washington Place</td>
<td>998-3457</td>
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<tr>
<td>Tisch Hall</td>
<td>998-3409</td>
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<td>Education Building</td>
<td>998-3421</td>
</tr>
<tr>
<td>Warren Weaver Hall</td>
<td>998-3456</td>
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</tbody>
</table>

Dial-in access to ACF computers. New numbers have replaced the dial-in numbers on the old 460 and 598 exchanges.

If calling from Dial For (bps)
- NYU: ext. 53626
- Off campus: 777-7600, 777-8178
- 777-8178: 110-2400
- 777-8178: 110-2400

Dial-in access to the NYU Computer System Selector (the MICOM Port Selector, or "switch") is normally through 777-7600. If you dial that number and get no answer, please try 777-6030 or 777-8730, instead.

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**Discounts on Personal Computers and Personal Computer Software Through NYU**

New York University has arranged discounts on personal computers and related products for NYU students, faculty and staff.

The Purchasing Services Division produces a flyer which explains personal computer discounts in full detail. The flyer and special order forms are distributed at two locations: The Purchasing Services Division, 269 Mercer Street, fifth floor, and the Office of Student Life, Loeb, Room 208.

Discounts currently available apply to Apple, Zenith, IBM, Compaq, Hewlett Packard, and KAYPRO products.

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**About the photos on the opposite page...**

Faces at the ACF (clockwise, from top left): ACF day-shift Operations Supervisor David Beard; ACF Operations Group member Carlo Cernivani, at his desk; ACF Systems Group members Libby Netland and Jeffrey Bary. (Photos by Manuel Laqui.)

Special contributions to this issue of the Newsletter were made by the following members of the ACF staff and associates (in alphabetical order):

Jeffrey Bary, Gary Chapman, Melanie Dodson (Bobst Library), Ed Friedman, Bert Holland, Manuel Laqui, David McQueen (CIMS), Stephen Rittersporn, Bill Russell.

This issue was prepared on Apple Macintosh and Macintosh SE microcomputers, and produced on an Apple LaserWriter Plus using Aldus' PageMaker 2.0. Photographs by Manuel Laqui. Drawing by Stephen Rittersporn.

Newsletter Editor: Estelle Hochberg
Editorial and production assistance: Martin Cozza
Additional production assistance: Angelica Cascone, Lori Corra, Maria Gonzalez, Kenneth Padron.

Except where otherwise indicated, articles were written by Estelle Hochberg.
Featuring in this issue:

**Graphics at the ACF, page 3.**

**Coming Soon to the ACF and its Users, page 8.**

**NYU-NET, NYU's Campus-Wide Network, page 9.**

And other special notes and announcements.

(A complete table of contents appears on the front cover.)