Using Digital Tools and Processes in the Fine Arts: From Image to Output, 5

Developing Instructional Software: Structural and Creative Conditions, 2

Experiments in Scientific Visualization: From Data to Images with Tecplot, 18

ACF Workshops, Classes, and Talks:
Index, 25
Schedule, 26-32
Calendar, 34-35
Academic Computing and Networking at NYU is edited and published by New York University's Academic Computing Facility (ACF). Its scope includes information about computing and networking activities at NYU's various schools, departments, and administrative units, and outside developments of interest to the NYU community.

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

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

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

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

Below many of the authors' bylines are electronic mail (e-mail) addresses. If you do not use e-mail but would like to, call the ACF HelpLine at 998-3333 for information about opening an appropriate account.

This issue was prepared on Apple Macintosh Quadra and Ici computers, using Aldus PageMaker, Microsoft Word, Adobe Type Manager, and Adobe Photoshop, among other programs. Fonts used in this issue are Palatino for the text and Gill Sans bold for headlines, along with Zapf Dingbats and Courier for special effects; the logo is set in Adobe Garamond bold italic. Camera-ready copy of text and screen shots was produced using a 600-dpi Hewlett-Packard 4si printer at the ACF. Echo Graphics prepared the halftones, and printed and bound the publication.

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Computing and networking resources are having increasingly broad application to many areas in higher education. The combination of the personal computer and the growth of the worldwide Internet is driving a revolution in the way information is stored, organized, and accessed. The many resources of information technology will be a more and more important part of the University environment, as they will in life outside the University.

Unfortunately, any valuable resources can be misused, and computing and networking resources are no exception. Misuse of resources often adversely affects the productivity of others using the resource; sometimes misuse goes further, and violates the privacy or legal rights of others, as well as breaking federal and state laws.

With a diverse population using the computing and networking resources of the ACF and of NYU in general, we have found it prudent to formulate a code of conduct that defines appropriate and inappropriate use of NYU facilities. ACF account holders are now being asked to read and sign this statement, “Responsibilities of All New York University Computer and Network Users,” and to abide by it as a condition of having access to ACF facilities. (Copies of the statement, shown at the right, are available at ACF labs and offices, as well as on the NYU CWIS.)

We hope to extend this statement soon, either in its present form or in revised form, so that it can cover the use of all NYU information-technology facilities. Meanwhile we expect all users of NYU computing and network facilities to be aware of this code and to abide by it in a spirit of cooperation in using these important and limited resources.

— George Sadowsky
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Responsibilities of All New York University Computer and Network Users

Access to and use of computing and networking resources at New York University (NYU) are privileges extended to members of the NYU community. Access to NYU computing and networking resources is limited to authorized users and is for approved purposes only. Such resources include computer hardware and software, computer-based files and data, NYU-NET (the campus-wide data network), and all networks reached via NYU-NET, such as the Internet. Approved purposes are those consistent with both the broad instructional and research goals of the University and the user’s relationship with the University.

The Academic Computing Facility (ACF) provides centrally-funded computer-related services for instruction and research and, through NYU-NET, data network services for all organizations within the University. Other NYU units — schools and departments — may also provide access to similar resources.

Each holder of an ACF account, or of any school or departmental account permitting network access, has the responsibility to use resources referred to above in an ethical and legal manner and agrees as follows as a condition for use of the account:

I understand that my access to NYU computing resources is for the sole purpose of facilitating my work as a University student, staff member, or faculty member.

I will respect the privacy and reasonable preferences of other users (both at NYU and elsewhere on all connected networks), including the privacy of their accounts and data.

I will respect the integrity and security of the systems and network, and will exercise care to maintain their security.

I understand that computer accounts are for sole use by the account owner, and I will not share my account with other individuals or use an account assigned to another individual.

I will take precautions to safeguard passwords and other privileged information to which I have been given access. Any passwords, verification codes or electronic signature codes assigned to me are for my individual use only. I will regard them as personal identifiers of my computer use, similar to my signature on a document.

I understand that I am responsible for all actions performed from my computer account.

I will not attempt to obtain other individuals’ computer or network use, nor will I attempt to obtain their passwords or any other private information.

I understand that, in the course of my work, I may be given, or otherwise gain, access to confidential or privileged information relating to this or other institutions, or to NYU students, employees, patients or other individuals or groups. I will respect the confidentiality of all information to which I have access, neither divulging confidential information without appropriate consent nor seeking to obtain access to confidential information to which I am not entitled.

I will not make unauthorized copies of software, or perform unauthorized installations of software or reconfigurations of systems.

I understand that my use of computing resources accessed via NYU-NET — whether provided by organizations within or outside the University — may be subject to additional norms of behavior or regulations specific to the resource, which I agree to follow.

All persons accessing New York University computing resources will be held accountable for their conduct. As a matter of routine, use of NYU computer systems and NYU-NET is monitored and recorded by authorized University staff members in order to safeguard the security and smooth operation of these resources.

Any abuse or violation of the rules outlined here (or of other rules and practices governing the use of computer networks to which NYU is attached) will lead to account suspension and immediate review, with the possibility of account revocation, further disciplinary action in accordance with New York University rules and procedures, and referral to local, state and federal law enforcement authorities.
Structural and Creative Conditions for New Instructional Software: ISEE Even More

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In the last issue of this publication, we discussed some of the dilemmas facing faculty members setting out to write computer programs to make their teaching better. The impediments and supports for such an effort are not simply individual, however. Institutional conditions, which we will consider in this installment, can facilitate or impede software development, as can the way the work is organized and conducted.

**Structural Conditions**

The relative shortage of instructional software in sociology and the sociological ambivalences toward the endeavor suggest the need for strong countervailing structural conditions to offset the problems. A variety of institutional supports helped to create the structural conditions under which the software could be developed.

First, at the university level we had a very supportive dean, Ann Burton, who gave us concrete help in a number of ways — providing equipment for us at critical junctures, supporting our application for a small grant, backing our request for administrative flexibility on the university’s overhead, and ultimately providing a small PC laboratory for graduate students to use.

The university’s backing was key for securing support from the Fund for the Improvement of Post-Secondary Education (FIPSE). The money received from FIPSE was essential for paying professional programmers and for providing some release time from teaching for Professor Maisel. FIPSE also helped by suggesting we take three years for the project rather than two, and by being flexible regarding changes during the project. Finally, we believe that outside recognition by FIPSE helped to validate and legitimate the project within the university.

Preparing to write the FIPSE proposal, we systematically reviewed existing programs. This exercise helped to clarify the basic form which the sampling experience should take and the features which the program should have. Thus, the search for outside funding helped to clarify our objectives for the software before we began the programming process.

Several institutional conditions also helped to sustain the long developmental process. First, having tenure helps to mitigate the thrust toward marginalization. It also tempers the strong pressure to produce something very fast, which is nearly impossible with instructional software.

At the departmental level, it was helpful that there were two of us. It also probably helped — with the administration, the department, and with FIPSE — that one of us was serving as department chair at the time.

Within the profession, several social conditions helped to offset the effects of marginalization and
sociological ambivalence. At professional association meetings such as the Eastern Sociological Society (ESS) and the American Sociological Association (ASA), we found others who were also developing instructional software and who encouraged what we were doing. The existence of the ASA sections on Undergraduate Education and on Microcomputing provided important professional arenas in which to present our efforts.

Probably no one of these factors (deanal support, outside funding, tenure, a departmental colleague, and professional forums) alone could have changed the informal normative climate. Cumulatively, however, all of them created a space in which we could comfortably work.

While the situation did not offer individual financial rewards, it did bring new resources into the department. It also provided some peer evaluation and feedback, something which is often lacking for efforts to improve teaching. Finally, the combination of departmental, university, and external support helped to sustain a motivation that most who enter scholarly life possess — intellectual curiosity.

Creative Conditions

While there is no one formula for success in writing educational software, our experience suggests certain ideas may prove helpful in planning such projects. In particular, our experience with ISEE has led us to view software development as an unfolding process in which the product emerges as a result of constant feedback and revision. Several creative conditions, we believe, facilitate the process.

1. A Clear Objective. The first necessary condition is to identify the instructional objective. This objective must be focused on an important educational need, specified in advance, though in general terms. Our aim for ISEE was to design a program that would enable students to be active rather than passive learners, to use large, real populations, and to provide an experiential and visual rather than a mathematical introduction to the principles of statistical sampling and inference.

At each step of the ISEE project, we thought we knew what to do, only to discover when we had done it that there was a better way to do it. We produced three major versions of ISEE. This evolution occurred partly because our first major decision involved the choice of equipment. Since PCs were not fully available to us and our students in the early stages of development, we decided to do a preliminary version of the program on the mainframe VAX computer. The next decision involved using an existing software package to do the initial programming. Both decisions changed before the final version of ISEE, programmed from the ground up for a standalone 386 PC or higher, was produced.

One continually learns as one writes and tests a computer program. If one does not specify the objective clearly in advance, there are no guidelines for the continual decision-making which is required as one advances through each stage in the project. Without a clearly specified objective, the project is like a ship without a rudder will shift course in response to the winds and currents it encounters. We could never have visualized the final form of the program when...
we began, but we were able to move continually toward it because the objective was clearly specified in advance.

If the objective is defined too narrowly or in terms of the computer program instead of the desired educational objective, we believe that learning will be stunted and the program will not reach its full potential. One should not set out to write a specific program, but a program that accomplishes an educational objective.

2. Continuous Evaluation. The development of successful educational software requires constant evaluation and feedback. In the early stages, this testing should take the form of applications in classroom settings and expert reviews. One can never foresee completely the problems students will have using the program nor what will stimulate their interest and curiosity.

We tried an early version of ISEE with undergraduate and graduate students in classes on sociology statistics and research method in the departmental lab, which had ten terminals hardwired to the mainframe computer. The first version was used in a number of class sessions. We learned several important lessons: Students need help visualizing sample selection; in the early stages, class testing was better than experimental evaluations; the mainframe server was too slow; the MINITAB program was not appropriate for developing a more advanced program; and a small population was useful for early student sampling experiments. Nonetheless, the program captured the interest of students and seemed to convert the lectures and lab sessions into a learning environment more exciting than the usual sessions of these classes.

We attempted an experimental evaluation early in the project; this was premature, even though we learned from the experiment. In the early stages, given finite resources and time, much more can be learned from actual classroom trials and expert reviews than from experimental testing.

Without constant feedback and change, a program is unlikely to develop beyond initial ideas, which are seldom optimal. With feedback and flexibility, the implementation changes, though the objective does not. The process of changing the program as a result of feedback requires understanding on the part of the sponsor (in this case FIPSE), which takes the form of flexibility in reviewing the project's progress and openness to changing the method of implementation. The FIPSE staff understood this very well and strongly supported the changes we made.

For example, as the preliminary version was being tested, we hired two professional programmers to begin programming the free-standing PC version of ISEE. One of them developed some dynamic color graphics for conveying the notion of different kinds of samples, such as simple random sampling with or without replacement, stratified sampling, and replicated sampling. This module uses graphics, color, and even music: as students draw their samples, their computers play a tune. The first time we tried this in the lab, the students smiled, giggled, and laughed out loud. They kept drawing different samples because they enjoyed seeing and hearing the results. This reaction was consistent with the instructional goal of promoting affective involvement.

The PC version of ISEE draws up to 2000 samples from different real populations with various characteristics. When we demonstrated this feature at the FIPSE project directors' meeting in Washington in November 1991, the audience audibly gasped. These reactions, plus our FIPSE project officer's encouragement, led us to develop a version with dynamic graphics.

3. A Team Effort. A wide variety of skills is needed in writing educational software. These include technical skills in defining the educational objectives, in programming, in evaluating and improving the program, and in communicating and administering the project. While it is possible that one person will have all these skills, it is unlikely. Thus, writing educational software can usually be done best with a team. One of us took primary responsibility for the technical side of developing the computer program and the other assumed primary responsibility for the application, evaluation, and administration of the project. The added advantage of a team is the multi-sided perspective which provides internal feedback that also facilitates development. Colleagues who have team-taught courses are often quite enthusiastic, for some of these same reasons.

It is probably a good idea to have all members of the team on board when the project begins. We had all the necessary skills except the programming, which we planned to add later. Fortunately we found two skilled programmers, Jack Bleich and Eray Ekici (then a CS undergraduate, now at the ACF), who were interested enough to spend many long hours and to accept the constant frustration of rewriting the programs for relatively little remuneration. The project might well have failed if we had not found them. We

(continued on page 24)
Using Digital Tools and Processes in the Fine Arts

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Today's computers provide many possible avenues for artists to explore and define fine-art work through the use of electronic technology. The Macintosh workstations at the ACF's Arts Technology Group sites are arranged in four areas — Imaging, Multimedia, Video and Audio — each with its own configuration. Combined, they offer means to work with two-dimensional still work, or with sequences of images and sounds from input sources such as VHS tape, cassette, laserdisk, and DAT. All Arts Technology Macintosh systems have large 24-bit monitor displays that provide continuous-tone color, at least 24 megabytes of memory for greater processing capabilities, large internal and external hard drives for data storage, and drives for archiving work on removable 270 MB SyQuest disks. (For more details, see Jeff Bary's article in the September issue of this publication.)

The Imaging stations are the systems many artists have used to make the transition between traditional methods and those offered by the computer. Since the intent of these two-dimensional stations is to parallel fine-art processes, they provide a familiar and comfortable point of entry for those transforming working routines long grounded in physical mediums into digital techniques. The electronic tablet and cordless stylus of the Imaging workstations let us build on our experience with a paper or canvas and some kind of rendering medium for making marks; the software allows us to determine the behavior of the surface and the rendering tool. A stylus can become a pencil or a brush in many shapes, or a pen, a piece of chalk, pastel, charcoal stick or a dodge-and-burn tool — all depending on what we feel the work requires to successfully communicate our ideas.

Considerations of form and content that are meaningful in traditional work apply as well to the new methods of making images. My own introduction to computer imaging involved a two-dimensional system configuration (now obsolete) that enabled me to continue building on the traditional fine art foundation I came from while learning about the technology. I was happy with that low-end Macintosh system and made a large body of work using it. The greatest difficulty I experienced was due, not to constraints brought about by the technology, but rather to a tendency to use an overabundance of source material and processing techniques. Though initially excited and motivated to learn and control all possible image-making routines, which for me functioned as a process of addition, I found that making work was more thoughtfully about the process of subtraction. The computer is so accommodating that it is easy to overindulge in resources and technique, and this tendency can act as an obstacle, clouding ideas and making us lose sight of the primacy of content.

Source Images

Source materials can be brought in through several input methods. Obviously, images can be created by hand, using a mouse or stylus to add strokes as one would lay down any type of mark to build an image. Other options include the use of scanners to capture flat art, objects, and photographic film of various formats. The ACF's Arts Technology Student Studio (in the Education Building) and its bay in the
Innovation Center (in Warren Weaver Hall) offer these types of scanners for input, while the Multimedia and Video stations in the Student Studio can grab still frames from VHS tape or a video camera.

It is important to note that the input resolution, determined at the time of sampling or scanning, will be much greater by way of the flat art and film scanners (particularly the Leaf Film Scanner located in the Innovation Center), than from video. Still frames grabbed from video will be at video resolution — significantly lower than the resolution possible with the Leaf Scanner. In addition, photographic source material can be input from filmless cameras, such as still video and digital cameras. The cameras themselves use chips known as charged-coupled devices (CCDs) to capture or sample in visual information rather than film; the images registered on the CCD are electronically transferred and stored to a video floppy disk or hard disk built into the camera, or in its memory. The captured images can then be transferred to the computer system through a special still-video drive, cabling, and software.

**Manipulating the Image**

Once source material has been input, many techniques for processing are available in photographic manipulation and paint programs. Adobe Photoshop and Fractal Painter, for instance, allow for manipulation of each data point or pixel making up the entire image area, seen as a grid of pixels; they are referred to as bitmapped or raster-based programs. Any bitmapped image — scanned flat art objects, photograph, or film — acts as the foundation when opened in either application; from this point, the source image can be processed and developed according to what the artist has in mind.

Adobe Photoshop, as an example of a photographic-manipulation program, offers an assortment of tools for building imagery. One of Photoshop’s greatest features is its ability to composite resource material. Separate source images can be layered on top of each other by way of selecting an area, copying it, and pasting the copy into the foundation image below. Interesting effects can then be created by controlling the opacity of the selected area when pasting it into the foundation image. It is possible to use specific functions in Photoshop, such as the Rubber Stamp tool’s From Saved mode, to push and pull distinctive areas, selected from the various image layers, into the background or foreground. This technique allows the artist to assemble the visual
Several images by Shelly J. Smith, produced using processes she describes in the accompanying article; the originals of all are color Iris inkjet prints. Clockwise from right: "Untitled Beatbell" (40x34 inches), "Untitled Gun2" (30x22 inches), "Untitled Facerope" (27x42 inches), and "Untitled Carreck" (42x36 inches).
information within the picture space, controlling the degree of visibility of the original source imagery. My own construction routine revolves around this sequence of steps, because I use specific sections of original subject-matter to create the final piece. My intent is to follow some type of narrative issue, bringing significant areas of information forward and blending other sections into a layered background support.

Fractal Painter, another raster-based program, simulates traditional mediums for fine-art work involving drawing and painting techniques. It is possible to take an image file constructed using Adobe Photoshop and export it to Painter for additional processing. Once in Painter, an image can be modified by any of several functions that imitate familiar fine-art treatments. The image can be manipulated to appear as if it had been created on a rough textured paper or canvas ground. Tools can be chosen to simulate different brush qualities and shapes. Pastel, charcoal, and chalk of varying grades can be applied to different degrees of wet or dry, hard or soft, surfaces. Erasers, crayons, pens, and markers can interact with water color, ink, oil paint, or color deposited by airbrush; together, they can build up, smear or blend the image area depending upon the artist’s needs.

These effects, like traditional fine-art routines, are enticing and endless. It is probable that initial attempts at resolving work will result in subject-matter that is too heavily processed and consequently unclear in meaning. I believe this is a rite of passage. The issues of form and content are still our personal responsibility, and processing techniques do not usually substitute well for them. The computer is there to execute user requests, but this activity is based on the decisions we make about our work.

Drawing and Page-Layout Programs

There are even more choices for artists putting their still work together. These are applications, such as Adobe Illustrator, referred to as object-oriented or vector-based programs; they use mathematical formulas to describe the properties of graphical elements such as text, lines or shapes. Vectors (or paths), seen as anchor points with straight-line segments or with Bézier curves, create the visual information, rather than a grid of pixels. A benefit of using such an application is that the graphical elements created are resolution-independent — that is, due to the underlying mathematical description, work can be scaled to any size for output with no data loss. The visual information can be perfectly represented at any size — a great advantage to artists considering high-quality output for this type of image file.

Both program types — raster-based and object-based — commonly allow an exchange of information between. For example, Adobe Photoshop can import files created in Adobe Illustrator. Once placed in Photoshop, though, the graphical information is no longer represented by mathematical descriptions but instead is translated to a collection of pixels. All imported elements are now bound to the resolution of the Photoshop file they were placed in. This approach to visual collection can be of interest to artists wishing to use hard-edged graphics in a continuous-tone environment. The reverse situation works as well. Continuous-tone imagery can be placed for use in an object-based environment, such as Illustrator, though the application has no ability to process the imported file beyond basic reshaping techniques. This is of little consequence, however since the combination and resulting juxtaposition of the two image types is the more significant issue.

Page-layout applications offer another approach to two-dimensional imaging that can be extremely useful to both fine artists and designers. This type of program, usually seen in a desktop-publishing context, may thus be overlooked for fine-art work. However, many features of page-layout applications make them valuable to anyone composing visual work. An example is QuarkXPress; like other layout programs, it draws from a traditional graphic-design metaphor, providing an electronic pasteboard as a foundation and offering techniques that parallel established methods for assembling varying image files. Visual work from many sorts of programs — photo manipulation, paint, illustration, graphical, or 3D rendering — can be composited together on QuarkXPress’s foundation page while retaining their original attributes. This application does not create or continue to process the original files but rather provides a format and extensive array of tools for composing and arranging the visual elements. Whether it is the artist’s intention to combine continuous-tone imagery with graphical elements, or simply place a body of text, QuarkXPress provides an environment that accommodates a variety of visual attitudes and allows them to work together within the picture space.

Output

In order to complete this discussion, it is important to examine options for moving work beyond the
monitor for visual display. There are different methods of output available for two-dimensional work, some functioning more as proofing tools and others stable enough to serve as final output.

Film recorders, for instance, allow digital picture files to be imaged in several formats: Polaroid pack, 35mm, 4x5 inch, and 8x10 inch film. Once developed, the film output can be used for final display or for making photographic prints. This approach to securing work in a tangible form allows the artist direct control over the process occurring at the final stage of the work's creation.

Other methods of output involving paper or similar supports include a selection of printer types commonly chosen because they provide a familiar and tactile object for display. Here, the artist relies entirely on the printer to control the output: work constructed digitally can also be output digitally.

Ink-jet printers interpret digital image files and translate the information to an analog form by spraying ink through nozzles or guns, dispersing fine dots of color on paper, canvas, or film. This type of printer is available in a range from low-resolution proofing devices to high-end, high-resolution printers used for final output, such as the Iris series printers.

Thermal-wax transfer is another printing process, which makes use of heat to emboss or fuse colored wax from broad ribbons run over treated paper; this output tends to be lower in resolution but can create interesting image effects for final output.

Dye-sublimation or gas-diffusion printers create output by heating pigment contained on colored ribbons; the resulting gas is absorbed by specially coated paper. This process is a popular choice for final output because a raster-based image file results in a print whose continuous tone can be almost photographic in appearance. A dye-sublimation printer can interpret digital files and produce photo-like prints without darkroom techniques.

A phase-change printer melts colored wax sticks and sprays the liquid onto paper. This type of print, whose apparent resolution is lower than that of a dye-sublimation printer, allows for additional manipulation of the image due to the physicality of wax on paper.

Finally and more generally known are electrostatic or laser printers for monochromatic work (and now for color), and high-end photographic imagesetters for four color-print work and color separations.

Three of these printer types are available at the Arts Technology Group's Labs for output: a 3M Rain-bow dye-sublimation printer at the Innovation Center, a Hewlett-Packard XL300PS ink-jet printer at the Student Studio and Laser printers are available at both locations.

This entire account represents some of the tools available for digitally creating and outputting two-dimensional fine-art work, but by no means signifies all available roads to be explored. For some, the methods involved in digital image-making are more desirable than the traditional means because they can be more immediate and allow for a greater range of work made. For others, electronic input, processing,

(continued on page 36)

A Web Server for NYU Artists

As part of its support for the arts generally and the New Media Center activities at NYU, the ACF Arts Technology Group has created a set of World-Wide Web pages. The New Media Center home page (http://www.nyu.edu/nmc.html/) contains

- an overview of the NYU New Media Center
- a list of participating departments
- a summary of New Media Center facilities
- current projects and calls for collaboration
- pointers to other New Media Centers
- links to other arts resources.

An Arts Technology home page is now in preparation, and we will soon create a "virtual gallery" of works by student and faculty artists at NYU, including fine art, music (excerpts and short pieces), animation and film clips, interactive multimedia, and other works. Traditional media can be digitized and presented via the Web, so the gallery need not be limited to works by computer artists.

If you are interested in showing your work on the Internet, please contact me.

The New Media Centers program is a nonprofit organization committed to helping institutions of higher education enhance teaching and learning through the use of new media. At this point, twelve technology firms and twenty-two academic institutions are members. More information on the program is available at the New Media Center home page (http://www.csulb.edu/gc/nmc/).

— Philip Galanter

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Philip Galanter heads the Arts Technology Group at the ACF. (For more about the World-Wide Web, see articles in earlier issues of this publication, especially November 1993 and September 1994. —Ed.)
Exploring the NYU News Groups: A Tool for Learning, Sharing – and Chatting

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It's clear that people like to use the Internet to share information and state their views. Aficionados at NYU and around the world are participating in Internet-accessible electronic forums to join discussions on a multitude of topics; there are some 6,000 of these "network news groups," each devoted to a different subject.

Enter the NYU News Groups — a growing collection of electronic discussion groups created especially for the New York University community. Similar to network news in structure and style, the NYU News Groups differ in that only members of the NYU community can see and use them. With the exploding popularity of the ACF's NYU-Internet Accounts, and of network resources in general, the NYU News Groups have exciting potential for further enhancing scholarly interchange and collaboration at NYU, in all disciplines. Course groups for augmenting instruction and study, project groups for sharing research results, departmental discussion groups — these are only a few of the possibilities. And it is easy to apply electronic conferencing to your particular interest or endeavor by starting an NYU News Group (see the box on the next page).

Electronic Conferencing, News-Group Style

News groups are sometimes compared to electronic bulletin boards, but — because of the way postings can be organized — they're actually closer to being a type of electronic conference (see box at left). Within each group, entries are collected into "threads," each one devoted to a particular discussion topic and consisting of an initial item (or "article") posted by one participant, and a series of followup items containing comments and responses posted by other participants (see screen shot).

To participate in a news group, you use a software program called a "newsreader." There are many newsreaders running on different computer platforms. A popular one is Tin, which anyone with an NYU-Internet Account can activate by selecting News from the Network menu. With a newsreader like Tin, you can browse among a wide assortment of groups, and read items, post comments, or start a new thread at will. Most newsreaders, including Tin, also offer
such other features as the ability to save an item as a file, to mail it to yourself or to someone else, to keep track of which items you've read, and to search among lists of group names for those of interest.

A news group's name usually reveals something about its topic and degree of specificity. Names follow a sort of hierarchical convention that looks like the path of a file in a computer's directory. For example, the NYU News Groups all begin with nyu, followed by one or more descriptive terms, each term separated from the next by a period. As a rule, the broader the topic, the fewer the terms. Thus, the group nyu.general features announcements and discussions of general interest to the NYU community, while nyu.chat is a new place for spontaneous discussions ranging from the mundane to the spirited — of a variety of topics of more limited interest. The topics of nyu.clubs.history and nyu.students.government are evident from their names. The names of news groups set up for particular classes typically indicate the school, department, and course.

Exploring the NYU News Groups

You can use the searching capability of your newsreader to explore the NYU News Groups that have already been established and to subscribe to those of interest. If you are using Tin, begin by typing y (for yank); this will quickly bring up a long list of all the groups available to you — including the NYU groups. Next, begin your search by typing / (a slash), and then, at the prompt, type nyu and press the Return key. The very first NYU News Group in the list will now be highlighted. Press the Return key if you wish to see the list of items in the group, or search for the next NYU News Group by typing / and then pressing the Return key.

Do You Want to Start a New NYU News Group?

If you have an idea for a new NYU News Group, start by posting a new item in nyu.news.discuss, describing the topic of interest and providing any other details that you think pertinent. Or, if you'd like to propose a new group, but do not yet know how to use a newsreader, send e-mail to newsgroups@nyu.edu instead; your message will automatically be posted in nyu.news.discuss.

This is the first step in establishing a news group, and in the tradition of network news, it gives the NYU community a chance to comment on your proposal and perhaps make further suggestions. ACF staff members who manage the overall collection of news groups monitor nyu.news.discuss; when a new group is established, it is announced in nyu.news.announce.

Course-restricted news groups. There are also some special requests that the ACF can fulfill. One is a course-restricted news group. News groups in general offer many instructional possibilities, and several course-related groups are already in full swing. Normally, NYU News Groups are accessible to everyone in the NYU community. At the request of an instructor, though, the ACF will restrict access to a course-related news group, so that only the instructor and students in the class can use the group. Before that can be done, though, the instructor must obtain an ACF coursework account for the class.

News groups and list readers. As another special request, if you subscribe to a mailing list and find the daily flood of e-mail overwhelming, the ACF may be able to set up a news group where you can read all those listserv messages conveniently without cluttering up your NYU-Internet account. Just post your suggestion to nyu.news.discuss. Some such lists are already readable as NYU News Groups (their names begin with nyu.external.lists) or as network news groups (their names begin with bit.listserv). Note, though, that these list-related news groups only let you read the list entries. To post a message to the list, you still have to send e-mail directly to the list server.
EMIS Accounts to be Exchanged for the ACF’s Easy-to-Use NYU-Internet Accounts

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As the spring semester begins, the Academic Computing Facility continues its plan to move users to the new NYU-Internet system. If you hold an EMIS (E-Mail and Information Services) account on the ACFcluster, you can use the instructions here to start your move to the new system.

The ACF’s NYU-Internet service offers a user-friendly menu of options for communications within NYU and beyond to the Internet. These services include electronic mail, access to network news groups, and access to both Gopher-based campus-wide information systems (such as the NYU CWIS) and World-Wide Web resources available via the Internet. In its first nine months of operation, NYU-Internet has proven extremely popular in the NYU community, and is considered easy to learn and use.

This migration from the old-style accounts to the NYU-Internet accounts will affect all students, faculty, and staff who now hold EMIS accounts. The present ACFcluster will remain in service, but will be reconfigured to provide computing resources for those NYU users who still need to work in a VMS environment.

Transition Plans

The ACF opened its initial NYU-Internet system during the spring 1994 semester. The focus was primarily on providing Internet access to new members of the NYU community. The first NYU-Internet machine, known as is, now holds 4,000 accounts. Since is was optimized for speed and reliability, the ACF limited it to 4,000 accounts, and continues to tune the machine to suit that load.

The second NYU-Internet system, known as is2, went into service last fall; it now holds about 2,500 accounts. The ACF has been gradually moving people, on request, from the ACFcluster to is2, and now creates all new NYU-Internet accounts there. It should eventually house more than 7,000 accounts.

In the coming weeks, the ACF wishes to strongly encourage those people who still use the ACFcluster for e-mail and Internet access to move to NYU-Internet. At

Tim O’Connor, of the ACF’s Core Technology group, helps to keep the systems running, and answers many of the questions that arrive in the ACF’s comment mailboxes.
refer to the box below right for details on how to start the process.

As the NYU population moves to the NYU-Internet system, more machines may be added to the is collection. So, based upon need, the ACF may launch an is3, perhaps by mid-1995. All these systems will operate with the same easy-to-use menu system, and will offer a full selection of Internet-access software.

**Should You Move Now, or Should You Wait?**

For many people, the choice is clear: they want to move now in order to take immediate advantage of the easier-to-use NYU-Internet system. For others, it may be inconvenient to change systems at the start of a semester. Fortunately, the ACF can accommodate either choice during the spring semester. However, as the year progresses, the ACF will proceed more vigorously to move users to the new system. If you are unsure whether to move now, you can send e-mail to the address comment from your current account, or call the ACF HelpLine at 998-3333.

### How to Move to NYU-Internet

If you do not have any NYU e-mail account yet, see the box on page 30.

To move from an ACFcluster EMIS account to an NYU-Internet account, you will need to log onto your ACFcluster account. At the main menu, enter the command `leave` (this choice does not appear on the menu. Simply type `leave` when the first EMIS menu is on the screen).

You will then be asked a series of yes-no questions about moving your account. You must answer these questions correctly to have your account moved. If at any point you indicate that the stated conditions are unacceptable, the transfer process will halt.

If you make a mistake and accidentally cancel your request, try once more, by entering the `leave` command at the main EMIS menu.

If you answer the questions successfully, your request will be acknowledged by e-mail to the old EMIS account. Information on your new NYU-Internet account — including your username and your temporary password — will be sent to you by regular mail.

### Make the Internet Act Like Your Mac or Your Windows PC

Direct network connections, in which desktop computers are attached to NYU-NET, allow a desktop machine to run its own network software to talk directly to the world outside, instead of requiring that the user make a terminal-style connection to an ACF host computer.

Desktop computers wired to NYU-NET can use such software as Mosaic or Netscape (for taking graphical tours of the World-Wide Web) and Eudora (for reading and composing mail). On a Mac, the Internet resembles the familiar Macintosh environment of windows and pull-down menus. On a PC running Windows, the Internet follows the conventions for Windows software. File downloads can go directly from some remote Internet system to your desktop computer’s hard disk.

At the present time, NYU-NET connections are either permanent (for computers in buildings that have NYU-NET Ethernet available) or on-demand (for computers off campus that can make special connections via modem). Either way, they provide the desktop computer with more flexibility than has ever before been possible.

For dial-up modem users with NYU e-mail addresses, the ACF offers NYU-NET Dialup Accounts that provide access to SLIP/PPP terminal servers. If your computer — either a Mac or a PC running Windows — has a high-speed modem, you can apply for a SLIP/PPP account at the ACF Help Center on the second floor of Warren Weaver Hall. Bring a formatted floppy disk for a suite of communications software for using this account. This software corresponds to the other suites the ACF supplies for those with direct Ethernet connections to NYU-NET.

### ACF HelpLine Q&A

**Q:** Someone sent me a chain letter via e-mail. It said I must send it on to twenty of my friends. Should I do so?

**A:** Absolutely not. (But thanks for asking.)

Electronic junk mail of any sort wastes valuable computer resources, and goes against Netiquette. It is not an appropriate use of your NYU-Internet account, which, of course, is to be used for academic purposes.

If you get junk mail, including chain letters, delete it immediately and ignore it! If you continue to get junk mail, please report it to `postmaster@nyu.edu` via e-mail.

— L. Barnett

**Call the ACF HelpLine at 998-3333**
Do PUMS Data Have You in Distress?  
QuickTab Offers Fast Relief

Frank LoPresti  
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For those who need to use and analyze census data, a relatively new program called QuickTab can greatly simplify and speed up the process of compiling the data you need. The Census Bureau’s Center for Integrated Microcomputer Processing (IMPC) has released several versions of QuickTab software for use with the 1990 Public Use Microdata Samples (PUMS). It is included with each of the CDs that make up the PUMS 1990 collection CD90-PUMSA4, and it represents a well-thought-out effort by programmers who have a clear understanding of the uses the PUMS are put to and of the level of computer expertise of the researchers who will use the CDs.

Census data are gathered when individuals fill out short- and long-form census questionnaires. Some of the questions are about the household, and others are about the individuals living there. Obviously, to preserve confidentiality, raw forms can’t be distributed to researchers. Therefore the data are made available in two forms — as summary tables, and as individual forms that are complete, except for the information that would allow the respondent to be identified.

The tables give the counts for each specified variable, such as age of children. One table is created for each variable within the geographic summary levels — state, county, census tract, etc. — mandated by each state. So if you want the counts of children by age groupings in a specific census tract area, these summary files will work for you. The Census Bureau also gives us tables that are popular cross-tabulations. If you want individual incomes by sex, these summary tables are again the ticket.

But there are so many variables that the tables can’t give us every possible combination of two variables as cross tabs (much less combinations of three variables) — for instance, age by sex by occupation. And frequently researchers want a certain crosstab but for a restricted universe — counts of management versus non-management Italian-born workers in the textile industry. Again, the summary tools won’t work; clearly, in many cases the researcher needs a sample of the individual records. A further complication is the problem of wanting household information while referencing the individuals in the household — if, say, I want to know how many engineers live in single-family houses.

What Are PUMS?

The Census Bureau provides the PUMS — the Public Use Microdata Samples. The PUMS show the full range of responses made on individual census questionnaires. These files are weighted samples grouped by households. The first record in a group is the household record, which includes variables like location, type of structure (apartment or house), household income, number of toilets, etc. Then come individual records for each person in the household — with variables like age, income, industry, occupation, and education. To insure confidentiality, two things are done. Identifying information is removed, and the samples — both 1 percent and 5 percent for the U.S. and Puerto Rico, and a special 3 percent sample of the elderly — are grouped geographically in PUMSs of approximately 100,000 persons. Thus,
sparsely populated, isolated areas are not identifiable from the data.

To reiterate, these PUMS files are not rectangular; that is, they are not similar rows of raw data. There are two kinds of records: household records and person records, each of the latter related to a specific household. For example, in a household unit with five persons, five lines of person data would follow the household record; then there would be another household record and perhaps three lines of person data, in this case representing a couple and their one child. We who use PUMS have had to rely on programs, for instance SAS, that recognize the “H” (household) record and then take “P” (person) records as part of the “H” group, all the while looking for the next “H” record to break on. Basically, we would take the person and household variables we wanted and create a rectangular file to analyze.

The new technology of CD-ROMs has nurtured a growing family of software for quick and user-friendly access to large data sets. Software to extract data from compressed CDs — one CD can hold all of New York’s census files — was developed early on by the people at the Census Bureau’s International Statistical Center. They started with the Summary Tape Files (STF) for the 1990 census and provided clunky software on the STF compact disk. Their new offering of the 1 percent and 5 percent PUMS on CDs has much improved access functionality. With the newest PUMS CDs, they are including QuickTab, software designed to extract subsets and provide tables to answer the wide range of questions researchers bring to this data. I am impressed with how well the new program allows me to answer specific queries and how quickly users have mastered it.

What Is QuickTab?

QuickTab works on modern IBM-compatible personal computers in a menued DOS environment. Using the variables in each type of record (household and personal) to build logical statements to define a universe, we then again use the “H” and “P” variables to create tables of one, two, three, or however many dimensions. Or we may extract rectangular files for further statistical analysis.

For example, the data for a relatively complex table — say one giving figures by occupation within an industry, for the universe made up immigrants from Europe’s Common Market who hold full-time jobs in New York City — could be extracted in half an hour, once the proper codes for the countries and the NYC

New Version of ArcView at NYU

In December, the latest version of ArcView for Windows was demonstrated at NYU. (For more about the program, see the article on page 9 of the January 1994 issue of this publication.) The meeting was cosponsored by two groups with an interest in spatial analysis (SA) and geographic information systems (GIS): NYU’s SA/GIS group and a special-interest group (SIG) of the New York PC users’ group (NYPC) devoted to statistics, demographics, and mapping software.

Version 2.0 of ArcView incorporates improved features for analyzing and displaying data. The enhanced features include intelligent address-matching and the ability to support a large number of dynamic links with any SQL, DBMS, ASCII, or dBASE database.

ArcView is available on Archimedes, one of the servers in the SGI Unix cluster at the ACF.

The ACF SA/GIS group hosts meetings at Warren Weaver Hall in room 313. (If you wish to be included on the mailing list, send e-mail to me at the address below.) The next meeting — at 6:15 pm on Wednesday, January 25 — will feature Tony Babinec of SPSS speaking on neural networks.

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Professor Naphtali teaches in NYU’s Metropolitan Studies Program and heads the NYPC Statistics, Demographics, and Mapping Software SIG.
US Government Information at Bobst — on CD-ROM and through the Internet

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The US government is one of the world’s largest publishers of statistical and other types of information. As an official Depository Library for many federal reports, Bobst Library provides an important public service to the people of New York by allowing free and open access to documents and reports of the federal government’s executive, legislative, and judicial branches. Here I would like to highlight two new services, the Government Information Workstation and the GPO Access System, that have been undertaken by Bobst Library to make these primary resources accessible to the community.

The Printing Act of 1895 created a system of policies and programs to make government reports available to the general public in printed format. During the early 1970s, the US Government Printing Office (GPO) began distributing government information on microfiche, which puts about 150 typed pages on a single negative. Today, government information is published on standard computer floppy diskettes (which can hold roughly 1,000 pages of information) and CD-ROMS (about 500,000 pages). Current trends indicate a move to the Internet for the dissemination of government information.

Government Information Workstation
The Social Science Documents Center, on the sixth floor of Bobst, provides on-site access to twenty-six federal CD-ROM titles on its new Government Information Workstation. The workstation includes numerical-data files, data-image files, and full-text documents and reports published by the US departments.

More Federal Databases Available at Bobst

National Trade Data Bank
In addition to the CD-ROM resources discussed in the accompanying article, the Social Science Documents Center makes the US Department of Commerce’s National Trade Data Bank CD-ROM system available on a separate workstation. The National Trade Data Bank is updated monthly and has over four hundred full-text government reports and numeric files covering foreign-trade issues (including the export-import data, the NAFTA agreement, reports on economic and trade practices in other countries, international market studies, country human rights reports, and international labor trends).

Library of Congress Online Information System
Bobst maintains more than a dozen computer terminals through which students are allowed Internet access to the Library of Congress Online Information System (locis.loc.gov). Besides allowing access to the public databases of the Library of Congress, this Internet resource allows users to search through almost twenty years of bills introduced in both houses of Congress. The bills database is kept current, and provides searching by keyword or subject, name of person who introduced the bill, the date, and Congressional session. Information on the status of legislation is also provided. Use of this service — which is also available through the NYU CWIS — has made the compilation of legislative histories much easier.

Susan Shiroma is the Librarian for Politics and Public Policy in the Business and Social Science Documents Center, Bobst Library.
Teleconference Videotapes at Bobst
Did you miss any of the teleconferences on the wired classroom, the electronic library, and networked information shown last fall at Bobst Library? Videotapes of all five are available at the Avery Fisher Media Center on the 2nd floor of Bobst. Special group viewings may be arranged in advance. For further information, call Gloria Rohmann at 998-2534.

Reengineering Distributed Learning Environments. Hardware and software integration & facility design.
International Conference on the Electronic Library.
Instructional Technology Review and Update. Demonstrations of the latest instructional technology.
Networked Information and the Scholar.

of Commerce, Labor, Health and Human Services, and State, as well as the Bureau of the Census.

Resources of direct use to general courses include 1990 Census Summary Tape File 1 and 3 data, policy statements and reports from the State Department, foreign trade statistics for the United States, and more.

Each data file on the workstation is different in content and search interface. Users have access to three searching modes: the Census Bureau search system called GO, public-use software called Extract, and the commercial database program dBase. GO is a user-friendly search software for Census Bureau products, while Extract allows limited manipulation of data. Which software you should use depends on your level of technical competence. (A newly released method is discussed in Frank LoPresti's article on page 14.)

Each program on this workstation includes online help and information facilities. To supplement them, the library has developed a series of printed informational guides that describe the contents and illustrate a simple search of each database. Students who need an introduction to dBase can use tutorial software available on computers in the Bobst Library Electronic Resources Center (B level).

The US government CD-ROM titles currently available on this workstation fall into six categories:

1. Census Databases, including the ZIP Code data, equal-employment opportunity files, censustract and block statistics. Coverage is provided for the entire United States and Puerto Rico.

2. County Information Databases, including County Business Patterns (annual) and USA Counties. Economic data for all counties in the United States dating back to 1990.


4. Foreign Trade (export-import) statistical series for the United States. Historical coverage dates back to 1989, and includes monthly data through the last month. Products can be tracked by customs district, port, country, volume and value of shipments.


6. Data Image resources include map files, such as the TIGER/Line 1992 Digital Map Database, and the TransVu Census of Transportation and Planning. TIGER/Line 1992 allows students to easily "draw" maps of New York counties (no GIS software experience needed), identifying streets, parks, railroads, and other geographic features. The student determines the scale of the projected map. The system also displays basic demographic data (percentages and total numbers by race or age, rented or owned housing stock, etc.) for the set of city blocks selected by the user. In addition, the program reads STF3 detailed census data for the selected area. Maps can be downloaded and printed in the library free of charge.

No appointments are necessary to use the workstation. It is available for use during regular Social Science Documents Center hours. Users must bring their own diskettes (either 3.5-inch or 5.25-inch) for downloading any files or data selected.

GPO Access System
In addition to making primary government information available through noncommercial CD-ROMs, Bobst Library is using the Internet to provide the public with access to official national policy documents electronically distributed by the US Government Printing Office. Under the Government Printing Office Electronic Information Access Enhancement Act of 1993, the GPO was directed to provide electronic access to a number of primary federal sources, including the Congressional Record, the Congressional Record Index, the Federal Register, and the Enrolled Bills
Experiments in Scientific Visualization: Turning Data into Images with Tecplot

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The software system Tecplot is an interactive data-visualization program for scientists and engineers from Amtec Engineering, Inc. It was introduced to the ACF Scientific Visualization Lab last year by a visiting faculty member, George Haller (then at the Department of Mathematics, FAS; now at Brown University), who had used it as a graduate student. I was immediately impressed by this software, due to its diversity, aesthetics, and ease of use.

Features

With Tecplot, one can generate diverse types of 2-D and 3-D surface plots and visualize 3-D volumetric data. Data representing different levels of energy over a 2-D field can be visualized with Tecplot by choosing, for example, the Contour Plot option, thereby dividing the energy values into a chosen number of levels. Then one can either visualize this as a two-dimensional plot by selecting a color range to represent the contour levels, or make a 3-D surface plot representing the changes in the levels. One can elaborate this plot by adding energy levels given by a fourth variable to the 3-D surface plot representing the changes in the levels. One can elaborate this plot by adding energy levels given by a fourth variable to the 3-D surface. Besides various types of contour plots, the data can be displayed as meshes (grids), shaded plots with varying light sources, vectors (arrows or streamlines), or scatter plots (symbols) color-coded at each point. Different plot types can be overlaid in a single image, some of which can be transparent.

For 3-D volumetric data, one can use regular or non-regular meshes, create isosurfaces (3-D contours) and all sorts of vector fields, and select different cutting planes through which to view the data. Irregular data can also be converted into 3-D surface visualizations in varying ways by expanding 2-D inherent surfaces into three dimensions, or working on the 3-D representation itself.
Data sets can be broken up into zones so that different parts of the data can be represented by different visual attributes. Multiple windows can be superimposed. Thus a plot can have independent visualizations, charts, and analysis data all simultaneously represented. One can also manipulate the data within Tecplot by typing in functions and applying them to the data already entered.

Just getting acquainted with the program is very pleasant. Amtec provides a beautiful demo program with the software. This provides demonstrations and tutorials grouped by plot category, style, and manipulation technique. These aids give a good feeling for the program and the extent of its capabilities, and they make learning practically immediate.

Interface, Input, and Output
The user interface is lean and swift. A line of menu items is displayed across the top of the Tecplot main window; as the cursor passes over the items, relevant submenus are shown on a second line; if a main item is selected, its submenu moves to the top line. The menus may be navigated with keyboard or mouse; a nice feature is that with a mouse, the cursor is not allowed to stray: once in the menu line, it’s restricted to horizontal motion until a selection is made, which makes for very rapid operation.

By navigating through the different menus and looking up key words in the index of the substantial printed manual provided with the system, one quickly finds solutions for various visual problems.
Professor Stephen Childress has developed a mathematical model simulating the activity of the magnetic fields on the surface of the sun. The dark zones in this Tecplot image represent regions of intense magnetic activity. Many such images were combined in his video to show the fields' chaotic motion.

Data input to the program is easy. From a file, one enters multidimensional coordinates \((x, y, z, \text{ etc.})\) plus a small header. Data for finite elements (shapes defined as coordinates plus connections between them) can also be entered.

Once the data have been entered, the appropriate type of image can be generated. The visualizations, which use sophisticated computer-graphics techniques, can be quite pleasing aesthetically.

Printed images from the PostScript files produced by Tecplot are very good. Using the ACF color printers, we can make either transparencies or opaque prints. The output files take full advantage of PostScript's geometric language, describing objects as points, vectors, and fills; this allows each printer to print at its highest possible resolution, rather than limiting it to the resolution of the screen raster (around 70 dots per inch). (Most visualization programs that create PostScript files merely embed a raster image within a PS page description.) There are other output possibilities, including various types of raster files.

**Solar Magnetic Fields, from Theory to Video**

Professor Stephen Childress (Department of Mathematics, FAS) used Tecplot to visualize his theory of solar magnetic fields, and created a videotape of the results. First he worked with a single image to obtain an acceptable level of visualization. He chose the 2-D Contour option for his visualization and adjusted the colormap to his taste and to emphasize what he was aiming to express. Even the black-and-white representation on this page is striking.

(continued on page 22)

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### Visible Human Project: Detailed Digital Images Online, and on Tape and CD-ROM

At the conference called Visualization '94, Karl Reinig of the University of Colorado presented a video illustrating the Visible Human Project. Its objective is to obtain cross-sections of the complete human body, to be made available to all interested medical and scientific researchers through the digital medical-image archive at the National Library of Medicine (NLM).

The visible human data set is obtained by taking one-millimeter cross-sections of a frozen human cadaver. The first set, obtained last summer, is from a male human. The images are at a resolution of 516x516 pixels; thus, each *pixel* (picture element: one dot on your monitor screen) would represent an area one-third of a millimeter square. The series of color images represents 15 GB (gigabytes, or billions of bits) of digital information.

The human female data set will take 40 GB, since it will be compiled at even higher resolution; the sections will be one-third of a millimeter thick, so that it will be possible to reconstruct the body digitally from cubic voxels (3-D, or volumetric, pixels) a third of a millimeter on a side. Researchers can use these data, along with image-processing and volume-visualization techniques, to study the structure of various human organs. The video takes “tours” up and down the data slices of the body, emphasizing different parts of the structure on each pass by enhancing them with different processing techniques — for example, materials (bone, skin, muscle) are distinguished according to their density, shown by the gray level. The video is available at the ACF’s Science and visualization Lab.

This Visible Man is now available (to those who sign a license from the NIH governing the use of the data) on the Internet at [ftp://nlmpubs.nlm.nih.gov/visible](ftp://nlmpubs.nlm.nih.gov/visible). To see some low-resolution image slices on the World-Wide Web with Mosaic or Netscape, go to the subdirectory `/gifs/`.

Downloading all the data, though, would be extremely tedious, taking perhaps two weeks. Thus the data has been made available on DAT tapes and CD-ROM; if NYU researchers are interested, the ACF will obtain a set. Please contact me if you’re interested in seeing the video or obtaining the CD-ROM. — EW
f(g) Scholar: A Combination Program for Science Students

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For years, most computer programs have been designed around a particular task, such as word-processing, spreadsheets, graphics, numerical calculations, databases, or programming. The tendency today is to arrange for simplified intercommunication between several such programs and to make them "user-friendly" — that is, with extensive menus and online help facilities. A convenient combination of features in the program f(g) Scholar from Future Graphs, Inc., makes it particularly suitable for the needs of science students.

This program has three main portions: calculation, graphing, and spreadsheet. In addition it has limited drawing, word-processing, and database capabilities — and may be coupled to laboratory experiments for the storage of experimental data. Finally, it also has an easy link to a powerful, standard word-processing program so that its outputs may be embedded in larger documents. Here we will explore only those portions of the program which are directly relevant to our immediate needs. The extensive menus, the help facility, and the reference manual make it possible for the interested student to master the remainder bit by bit.

Separate windows on the screen display the Calculator, Spreadsheet, and Graph. These may be tiled, to be simultaneously visible, or stacked as desired. Buttons displayed along the top of the screen give immediate access to commands. As the cursor passes over each button, a window gives a brief identification of the button’s capabilities. In addition, a complete set of pull-down menus appears at the top of the screen. An extensive online Help facility provides further information as needed.

The printed output from f(g) Scholar can combine text, images, tables, and graphs, as in this sample lab report.

Professor Sundheim teaches in the Department of Chemistry, FAS.
The three segments of \( f(g) \) Scholar are fairly straightforward: the Spreadsheet is much like Lotus, Excel, or Quattro; the Calculator is not too different from MathCad; the Graph is like those in the spreadsheets of some common graphing programs. However, \( f(g) \) is somewhat richer than these in mathematical operations; it has over 500, ranging from curve-fitting through numerical integration, differentiation, and Fourier transformation to statistical functions and the number of matrix manipulations. (Future Graphs has announced its intention to add the capabilities of Maple — symbolic manipulations — to the Calculator.) Data of various sorts can be directly imported into the spreadsheet from the files or logging instruments.

A particular strength of this program is the built-in interaction between the segments. The calculator can write to the spreadsheet and perform calculations on quantities identified by spreadsheet addresses. Both can be used as input to the Graph module. The latter produces acceptable graphs with minimal instructions, but also possesses an unusually wide range of options as to type and appearance. Multiple plots can appear on a single graph, and several sheets can be maintained. If desired, graphs will be automatically updated when their source data is modified.

Another feature of this program that is particularly useful in the preparation of lab reports is the possibility of easily intermixing tables of data, calculations, graphs, imported or drawn figures, and text all within this single program. The point of departure is the spreadsheet, in which graphical objects can be inserted, moved, or resized. The objects can be graphs, tables, text boxes, or figures imported from the Macintosh Scrapbook or other files, as shown in the illustration.

The text boxes may be edited with built-in wordprocessor commands, including choice of font, style, and layout. A WYSIWYG option permits previewing and adjusting each page before printing. It is also possible to transfer all or any part to WordPerfect with a single keystroke.

The program is available for both the Macintosh and DOS platforms; a Windows version is in preparation. The Mac interface seems generally more convenient to work with, so the ACF has installed that version on its servers, available to users in the ACF labs. Look in the Science & Mathematics folder of the Macintosh servers for the folder labeled \( f(g) \) Scholar.

Data to Images with Tecplot (continued from page 20)

To create a video, Professor Childress first used Tecplot to create an animation on the computer console. He wrote a macro file that told the program how to create and render each image of the animation, treating each image as a separate zone, and turning on each zone one at a time. Tecplot's instructions and examples made writing this macro relatively easy. The program's movie player, called Framer, runs the animation from the created file. The windowing and viewport options in Tecplot facilitated creating a VHS-sized image for use in the video.

Next, titles were created for the video using the SGI tool Showcase. This is a multimedia presentation tool where images (either raster files or PostScript), text (different sizes, colors, fonts), video, sound, and 3-D graphics (which can be manipulated within windows) can all be combined to create individual slides or a slide show for presentations. In Showcase, Professor Childress used the text capabilities to create titles and brief explanations for each sequence of images. In particular, the program's Greek fonts were used to write formulas.

The text images and the movie sequences were then run and captured on a VHS recorder in real time, using the video equipment in the Scientific Visualization Lab. The resulting video has elicited a great deal of interest.

Using Tecplot

Tecplot's graphical user interface makes it pleasurable and easy to use; there is no computer programming involved. This is its strength, for it allows quick realization of projects; but it is also ultimately its weakness — a person who wants to do something very much out of the ordinary might be stymied by its limitations. But this is minor; the program can be recommended for its many and diverse strengths, only some of which we've mentioned here.

Researchers at NYU are now using the program in such diverse fields as in physics, applied math, biomath, neuroscience, chemistry, and biology; some of their images are shown on these pages. Because the response has been so positive, the ACF has arranged for ten licenses for use by the NYU scientific community. The program can be used in several versions, either on the ACF SGI computers, both in the labs and from the users' office workstations through the X-Windows version, or in other formats such as Sun, IBM, and DEC. For further information, please contact me at estarose@nyu.edu.

22 January 1995 Academic Computing and Networking at NYU
New at the Computer Store: Compaq Line, Site Licenses, Books, and CD-ROMs

Kathy Bear
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After the holiday break, we’re ready for a new semester at the NYU Computer Store. Here are just a few of the more notable offerings at 242 Greene Street.

From the Hardware Department

The NYU Computer Store has recently added Compaq’s consumer line to its hardware product offerings. We now stock two of their Contura notebooks, which represent excellent values for customers looking for portable computing solutions.

The Contura 400C comes standard with 4 megabytes of RAM (expandable to 20MB) and a 250MB hard disk. It is based on a 486DX2 processor running at 40Mhz. The 400C features a 9.5-inch dual scan passive-matrix color display, a full-size keyboard, and an integrated center-mounted trackball. It has an internal 3.5 inch 1.44MB floppy drive and serial, parallel, keyboard, and VGA ports. The Contura 400C also has slots for easy expansion of your communications, memory, or storage options through PCMCIA cards — either two Type II cards or one Type III. The light weight (5.9 pounds) and long battery life (3.5 to 5.5 hours) make this an excellent choice for mobile computing. The Contura 400CX has features similar to the 400C, but it features a 8.4-inch active-matrix display for more brilliant color. Both models come preloaded with MS-DOS 6, MS Windows 3.1, Lotus Organizer, Microsoft Works, TabWorks, Microsoft Entertainment Pack, and a trial membership to America Online. Documentation and tutorials are also included online.

We have the Compaq Contura 400C on display in the NYU Computer Store. Please stop by for a demonstration of its capabilities and more complete information and pricing.

From the Software Department

Last spring, the NYU Computer Store began a site-license program with Macromedia. Under this program, students, faculty, staff, and departments of the university may purchase Macromedia products, such as Director and Sound Edit Pro, at incredibly low prices.

More recently, we also began another site-license service, called the SPSS Collegiate Starter Program. Under this program, NYU students, faculty, and departments may purchase the SPSS Base System and Professional Statistics for $99, or those two plus Advanced Professional Statistics for $149. These packages are now available only for the DOS and MS Windows platforms, but according to SPSS, Inc., the Mac package may be available in the spring.

Please stop by for more specific information and pricing on these and our other site-license programs.

From the Book Department

Soon we will be seeing a tremendous flood of Mosaic titles on the computer book market. There are eight or ten Mosaic books on the market as of early December, with another twenty scheduled for release in the new year. This doesn’t necessarily have to mean total confusion for the potential user of this new Internet graphical interface. Here are a couple of good prospects:

- The Mosaic Handbook by Dale Dougherty et al.; $29.95 from O’Reilly. This book is the publisher’s
complement to its best-selling *The Whole Internet* by Ed Krol, but is sold in three versions for different platforms (MS Windows, X-Windows, and Macintosh). This comprehensive book explains how to “search the Web” as well as how to create HTML (HyperText Markup Language) documents for display on the Web. Easy to read and not too dense. Also included is a copy of the browsing program NCISA Mosaic.

- *The Mosaic Navigator* by Paul Gilster; $16.95 from Wiley & Sons. This book has a much more attractive price but comes without software (which, by the way, you can download free over the Internet). The same author’s *Internet Navigator* was extremely successful, and one can bet this book will be, too. It was written for the typical user rather than for the programmer, as it lacks a comprehensive HTML chapter. Cheap and easy to read.

Other titles will soon follow, and some will no doubt be better than others, but the Dougherty book will make a nice companion to Krol’s *Whole Internet* on your bookshelf.

Also, just a reminder that the Computer Store is now stocking many new titles on CD-ROM, ranging from games and entertainment to teaching, learning, and font packages — and all are priced at educational discounts. We recently added a number of children’s educational titles on CD-ROM.

Come by and pick up a price list and check out our selection.

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**ISEE More (continued from page 4)**

would not risk such a project again, unless we knew in advance that the required programming skill was available.

4. **A Long Time Frame.** Development requires time and constant change. We were fortunate that the FIPSE staff understood the need for time and advised us to revise the time required from two to three years. Time and change also make it difficult to do summative evaluation, since the software keeps evolving: what is intended as a summative evaluation turns into a new round of formative evaluation, in an apparently endless cycle. At this point, however, the program’s development has slowed enough so that someone (not us) could do a summative evaluation of it.

5. **Successful Dissemination.** Now that we have completed version 4.31 of ISEE, we are faced with a final dilemma: how do we, who are scholars and teachers, disseminate and market it? Our solution was to approach several publishers of college textbooks with the goal of having them distribute the software with textbooks they publish, on a non-exclusive basis. We have contracted with Pine Forge Press to publish one such book, called *How Sampling Works*, which will contain exercises using ISEE.

We hope our experiences may be of some value to others. We found that several structural conditions and creative conditions provided important support for our project. The structural conditions, which can offset the sociological ambivalence toward both teaching and computing as well as the tendency for software development to become marginalized in the university, make the work possible. The creative conditions — a clear objective, constant feedback, a varied and skillful team, enough time, and successful dissemination — make the project a success.

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*Government Info at Bobst (continued from page 17)*

for the 103rd Congress. Other federal agencies had already been making resources available on the Internet, but this legislation guarantees that these important policy resources will be accessible to people who don’t have free or paid access to the Internet or who do not own a computer with a modem.

Bobst Library has received permission from the GPO to begin work on making the GPO Access databases available to our local community. The GPO Access system will also allow users to search the Federal Locator, a prototype electronic directory of all formats of government information, the Federal Bulletin Board, an electronic bulletin board for immediate self-service access to government information, and the Federal IDEA (Information Depository for Electronic Access), an electronic storage facility.

GPO Access uses WAIS (Wide-Area Information Server) Internet — for more information about it, see page 6 of the November 1994 issue of this publication. For the present, Users at NYU will search the system via a terminal in Bobst Library’s Electronic Resources Center (ERC, on the B level). The GPO Access server in Washington will send copies of the documents over the Internet. Documents retrieved can be printed out on a laser printer to provide facsimiles of the originals. Tell the library assistant at the ERC service desk that you need a search-only password to use GPO Access, and ask for the Information Sheet. There is no charge for this service, although the ERC reserves the right to charge for printed copies.
Index to the Schedule of ACF Instructional Sessions

ABCs of Computers 27
ACFcluster — Using the 28
Choosing Your Computer 27
Computers and Operating Systems 28
CWIS — An Introduction to the Campus-Wide Information System 29
Director — Q&A Session 29
E-Mail and Network Services 29
E-Mail — Using Your ACF E-Mail Account 29
EMIS to Unix — Q&A Session 30
Excel 31
Exploring for Scientific Resources on the Internet 31
Geographic Information Systems 28
Getting Started on Your New Computer 27
GIS Packages — Introduction to 28
Graphics and Multimedia 28
High-Performance Supercomputer Resources 30
HyperCard 28
Image Processing Using Photoshop 28
Internet Browsing Tools: A Demo of Gopher, Lynx and Mosaic 29
Kermit — Uploading and Downloading with 29
Mac — Painting and Drawing 29
Mac — Troubleshooting and Maintaining 27
Mac — Using a Macintosh at an ACF Lab 27
Mac — Uploading and Downloading Using Kermit 29
Mathematica 31
Microsoft Word 32
Network Services 29
Painting and Drawing on a Macintosh 29
PC — Troubleshooting and Maintaining 27
PC — Uploading and Downloading Using Kermit 29
PC — Using a PC at an ACF Lab 27
Photoshop — Image Processing Using 28
Photoshop — Q&A Session 29
SAS — Introduction to 31
Scientific Computing and Visualization 30
Scientific Visualization Resources at the ACF 30
SLIP/PPP — User Q&A Session 30
SPSS — On the IBM Risc-based RS/6000 32
SPSS — SPSS for Windows 31
Statistics, Spreadsheets, and Databases 31
Time Series Analysis 32
Unix — Special Topics 28
Unix — Using Unix at the ACF 28
Uploading and Downloading Using Kermit 29
Using the ACFcluster 28
WordPerfect 32
Wordprocessing 32
ACF Classes, Workshops, and Talks

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

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

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

<table>
<thead>
<tr>
<th>Category</th>
</tr>
</thead>
</table>

### Title of the Course or Software

*Platform—the machine the program runs on*

A brief description of the course, the software or machines used, and the main topics covered. Instructor's name.

**Requirements**, such as account or reservations; whether workshop, class, or talk; special arrangements, etc.

Building and room

**Days and Times**

**Dates**

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

**Classes by Arrangement:** Faculty members may sometimes arrange special classes for a specific course or research group. These do not necessarily have to be given at an ACF site. For classes in IBM WYLBUR or VM/CMS, call John Lee (998-3406); for statistics, call Frank LoPresti (998-3398); for other applications, call the ACF HelpLine (998-3333).

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

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

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**New this semester:**

**User Q & A Sessions** are unstructured opportunities for those who have already been working with a program to bring specific questions to a member of the staff — and other users.

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

**Computer accounts:** There are several kinds of ACF accounts, which give the holder access to different types of machines and services. For information on general, individual, and class accounts, see the box on page 37. For electronic mail accounts, see the box on page 30. All are available through the ACF Accounts Office (Warren Weaver Hall, room 305; 998-3035).

**Platform:** The type of computer on which the subject of an instructional session operates. (For example, our Microsoft Word class is taught on Macs, and the platform is therefore “Mac”.)
Choosing Your Computer
(Mac and PC)
This talk is intended to help you select the best personal computer for your needs. It will cover the basic components of a computer, as well as the other hardware required for various tasks. We will also discuss how you can assess your particular needs to establish your criteria for selecting computer tools. Taught by staff from the NYU Computer Store.

Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Friday 12:00-1:30
February 3

Getting Started on Your New Computer
(Mac and PC)
This introductory talk will help familiarize you with your new computing equipment. It will focus on such basic operations as setting up your computer; setting up a printer; and configuring your operating system with the fonts and tools you need.

This talk will be particularly helpful to recent or prospective purchasers of computing equipment. Taught by staff from the NYU Computer Store.

Limited seating; first come, first served; talk.

1. For Mac Owners
Warren Weaver Hall, room 313
Friday 12:00-1:30
February 24

2. For PC Owners
Warren Weaver Hall, room 313
Friday 12:00-1:30
March 3

Troubleshooting and Maintaining Your Mac
(Mac)
Discussion will include troubleshooting techniques and other strategies for dealing with problems that you might encounter while using your Macintosh. Taught by staff from the NYU Computer Store.

Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Friday March 10

Troubleshooting and Maintaining Your PC
(PC)
Discussion will include troubleshooting techniques and other strategies for dealing with problems you might encounter while using your PC.

Taught by staff from the NYU Computer Store.

Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Friday March 24

Using a PC at an ACF Lab
(PC)
A hands-on introduction to the PC — the "IBM-type" personal computer. Topics include working with the user menus on the PCs in the labs, understanding the file system, choosing printers and file servers, and launching software applications. ACF staff.

Limited seating; first come, first served; hands-on class.
Tisch Hall, room LC8
Saturdays 11:00–12:00
February 4, 11, 18
14 Washington Place, basement

Thursdays 11:00–12:00
February 2, 9, 16
3rd Ave. No. Res. Hall, level C-3
Mondays 1:00–2:00
January 30
February 6, 13
Wednesdays 11:00–12:00
February 1, 8, 15

NYU Colloquia on Computers and Communications
A popular series of colloquia on uses of computers and communications is sponsored by the ACF and the Faculty of Arts and Science, with support from Apple Computers. Many colloquia are cosponsored by other departments. The colloquia are open to all NYU faculty, staff, and students. The spring series will be announced in NYU Events and on the NYU CWIS, and flyers will be mailed to all NYU faculty. To receive an e-mail flyer or to be added to the ACF's mailing list, call 998-3333 or send e-mail to document@acfcluster.nyu.edu.

For two years, all colloquia have been videotaped. Copies may be borrowed from the ACF Documentation Office, Warren Weaver Hall, rm. 312 (998-3036).
Using the ACFcluster (DEC/VMS)
An introductory class on using the VMS operating system on DEC minicomputers that make up the ACFcluster, as accessed at ACF labs through PCs, Macs, and terminals. The basics will be covered: logging onto the cluster, organizing files, editing text, printing files, and using applications. ACF staff.
ACEcluster account required; limited seating; first come, first served; hands-on class.
Tisch Hall, room LC8
     Fridays  11:00–12:00
          February 10, 17

Using Unix at the ACF (Unix machines)
An introductory class on using the Unix operating system, variants of which run on several different classes of computer at the ACF. Most are accessed at ACF labs through PCs, Macs, and terminals, but the SGI workstations also use Unix. The basics will be covered: logging onto the host machines, organizing files, editing text, printing files, and using applications. See also Using Unix: Special Topics, under “Computers and Operating Systems”. ACF staff.
ACF Unix account required; limited seating; first come, first served; hands-on class.
Tisch Hall, room LC8
     Tuesdays  11:00–12:00
          February 7, 14, 21
     14 Washington Place, basement.
           Fridays  1:00–2:00
                   February 3, 10, 17

Using Unix: Special Topics (Ultrix)
An intermediate talk on using the Unix operating system for those who have attended Using Unix at the ACF (see under “ABCs of Computers”) or have equivalent knowledge. Topics include file permissions, path, aliases, pipes, redirect, filename completion, command substitution and a number of commonly used Unix utilities such as man, vi, and grep. David Ackerman.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
     Wednesdays  12:00–1:30
           February 22

Introduction to GIS Packages Available at the ACF (Unix)
A panel discussion describing and comparing the four Geographical Information Packages available at the ACF — ArcInfo, MapInfo, Atlas GIS and GRASS. Frank LoPresti.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
     Wednesday  2:00–3:30
           March 1

HyperCard (Mac)
HyperCard is a software package for organizing and presenting information as text, graphics, sound, and animation. Joseph Citta.
Education Building, 2nd floor.
Reservations required (call 998-3333 during week of class); hands-on class.

1. Introduction to HyperCard
Education Building, 2nd floor
     Friday  2:00–3:30
           March 3

2. Advanced Topics in HyperCard
Education Building, 2nd floor
     Friday  2:00–3:30
           March 24

Image Processing Using Photoshop (Mac)
Photoshop is a software package that is commonly used to manipulate and enhance digitized images. In this class, the use of a flatbed scanner to digitize photographs and artwork will be covered, as will the use of Photoshop to do photo-retouching and composition. Basic knowledge of the Macintosh is required.
Howard Fink
Reservations required (call 998-3333 during week of class); hands-on class.
Education Building, 2nd floor
     Thursday  2:00–3:30
            March 2
Painting and Drawing on a Macintosh Computer (Mac)
An introduction to painting and drawing on the Macintosh computer, using SuperPaint 3.0. ACF staff.
Reservations required (call 998-3333 during week of class); hands-on class.
Education Building, 2nd floor
Thursday 2:00–3:30
March 23

User Q&A Sessions: Multimedia (Mac)
Unstructured opportunities for those who have already been working with a multimedia program to bring specific questions to a member of the staff — and other users.

1. Macromedia Director
Education Building, 2nd floor
Fridays 3:00–4:00
February 17
March 31
2. Adobe Photoshop
Education Building, 2nd floor
Fridays 3:00–4:00
February 24
April 7

E-Mail and Network Services

An Introduction to the Campus-Wide Information System (NYU CWIS)
The NYU CWIS, developed by the ACF, is a growing system for disseminating and retrieving information in electronic form. This talk will focus on what is contained in the NYU CWIS and how it is organized. Other topics will include a discussion of the underlying Gopher software and a demonstration of tools for searching Gopherspace. David Ackerman.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Wednesday 2:00–3:30
February 15

Electronic Mail: Using Your ACF E-Mail Account (Ultrix)
This talk-demonstration will introduce new and prospective holders of the NYU-Internet Account to its menu interface and components. Electronic mail concepts and commands will be explained and demonstrated. The account runs on ACF's DEC minicomputers and is connected to NYU-NET and the worldwide Internet. Lisa Barnett and Vincent Doogan.

Warren Weaver Hall, room 109
Unlimited seating.
Fridays 12:00–1:30
February 10, 17

Warren Weaver Hall, room 313
Limited seating; first come, first served.
Wednesdays 12:00–1:30
March 1, 29
April 12

Internet Browsing Tools: A Demo of Gopher, Lynx and Mosaic (Mac, Unix, Windows)
Gopher is the software on which the NYU Campus-Wide Information System (CWIS) is based. Lynx and Mosaic are programs that allow you to browse the Internet world of gopher and World-Wide Web servers — repositories of digital images, sounds, and text. The evolution of these easy-to-use browsing tools has made it possible for even novice computer users to locate desired information resources from across the Internet. This talk will feature a demonstration and explanations of basic concepts and commands. David Ackerman.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Tuesday 2:00–3:30
February 28
March 28

For More Information:
Call the ACF HelpLine at 998-3333.
User Q & A Sessions: Communications
Unstructured opportunities for those who have already been working with a communications application to bring specific questions to a member of the staff — and other users.

1. SLIP/PPP Accounts
Warren Weaver Hall, room 313
Fridays 2:00-3:00
February 10, 24
March 24

2. Migrating from EMIS (ACFcluster) Accounts to NYU-Internet Accounts (Unix)
Warren Weaver Hall, room 313
Fridays 2:00-3:00
February 17
March 3, 31

Scientific Computing and Visualization

High-Performance Supercomputer Resources (IBM RISC cluster; NSF supercomputers)
An introduction to supercomputer resources available to NYU faculty and students—both local resources and those accessible via the Internet.

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

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

Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Tuesday 2:00-3:30
February 14

Scientific Visualization Resources at the ACF (Silicon Graphics, Mac, and PC)
The need to understand abstract and sometimes very large data sets generated from scientific studies is making scientific visualization more and more important. After a short introduction to the field, the lecturer will present an overview and hands-on multimedia demonstration of the various resources — software and equipment — available to scientists on the Silicon Graphics (SGI) computers at the ACF.

Topics discussed will include software packages for visualizing fluid dynamics, molecular models, volumes, and abstract mathematics; modular software packages; libraries for 2-D and 3-D graphics; image processing, movie, and audio; slide presentations; visual debugging and analysis of computer programs; online hypertext documentation; image conversion between different formats including PostScript and MPEG. Additionally, the ACF's stereographics equipment will be demonstrated, in relation to both scientific visualization packages and solutions for the computer programmer. Estarose Wolfson.

Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
Tuesday 2:00-3:30
February 14

Getting an NYU-Internet Account ...
NYU-Internet accounts provide e-mail connectivity and network access from your desktop computer to information resources at NYU and around the world.

For New Accounts
These NYU-Internet accounts are available to all NYU faculty, staff, and administrators, and to all students enrolled in degree or diploma programs. Simply apply at any ACF computer lab (see inside back cover for locations and hours).

Faculty and staff members, if they prefer, may apply at the Accounts Office, or may request an application through the mail. The Accounts Office is located in Room 305, Warren Weaver Hall (251 Mercer St.). The telephone number is 998-3035.
Mathematica (Mac, PC, and Unix)
Mathematica is a general system for doing many sorts of mathematical computations by computer. It can function as a calculator, programming language, or tool for scientific visualization in two or three dimensions. Howard Fink.
Limited seating; first come, first served; talk.
Education Building, 2nd floor
  Friday  2:00-3:30
  March 10

Exploring for Scientific Resources on the Internet (X-Terminals, SGI.Irix)
A discussion and practicum on how to gain access to available national and international science resources on the Internet, showing how to locate and retrieve information from science-related information servers on the network.
Hands-on use of large-screen color X-terminals in the new ACF Innovation Center, using the latest software, will provide a state-of-the-art multimedia interface to the resources.
Some of the servers that will be visited include the National Science Foundation's Supercomputing Centers; Netlib, a repository of mathematical and statistical software and publications; and the Computational Science Education Project (CSEP). A visit to servers on SUNET, the Swedish University Network, will include stops at the Karolinska Medical Institute and the Royal Institute of Technology. Edward Friedman.
Limited seating; first come, first served; talk.
Warren Weaver Hall, room 313
  Tuesday  2:00-3:30
  March 21

Statistics, Spreadsheets, and Databases

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

1. Introduction to Excel
This will be a start-up class on creating a basic spreadsheet. Howard Fink.
Reservations required (call 998-3333 during week of class); hands-on class.
Education Building, 2nd floor
  Thursday  2:00-3:30
  February 9

2. Advanced Topics in Excel
In this advanced session, formulas and charting will be covered. Knowledge of Excel and Macintosh basics required. Howard Fink.
Reservations required (call 998-3333 during week of class); hands-on class.
Education Building, 2nd floor
  Thursday  2:00-3:30
  February 23

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

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

1. Introduction to SPSS
Data input, transformations of variables, creation of “system files,” and other manipulations of data will be discussed. Frank LoPresti.
Reservations required (call 998-3333 during week of class); hands-on class.
Tisch Hall, room LC8
  Monday  6:00-7:30
  February 6
  Thursday  6:00-7:30
  February 23
  Wednesday  6:00-7:30
  March 22

2. Advanced Topics in SPSS
Elementary statistical procedures for the analysis of data will be covered. Knowledge of SPSS and Windows basics required. Frank LoPresti.
Reservations required (call 998-3333 during week of class); hands-on class.
Tisch Hall, room LC8
  Monday  6:00-7:30
  February 13
  Thursday  6:00-7:30
  March 2
  Wednesday  6:00-7:30
  March 29

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

Academic Computing and Networking at NYU  January 1995  31
An introduction to SPSS running on a high-performance Unix resource available to NYU faculty and students. This is a Windows-like GUI (Graphics Users Interface) version of SPSS new at ACF. Data and output are displayed in windows rather than through traditional command line mode. Such an application running in a Unix X-windows workstation environment holds interest for academic researchers whose storage, speed and support needs are beyond the capabilities of a personal computing system. Frank LoPresti.

Limited seating; first come, first served; talk.

Warren Weaver Hall, room 313
Tuesday 2:00-3:30
February 21

**Theory and Programming of Time Series Analysis (SAS, SPSS)**

A series of lectures on the theory behind time-series analysis and the practice of programming such analyses using SAS and SPSS. For details on the individual lecture topics, please contact the speaker (see below).

Robert Yaffee.

**Reservations required** (call Robert Yaffee at 998-3402 before February 15).

All lectures will take place on Thursdays, 4:00-6:00, in room 313 of Warren Weaver Hall.

1. **Introduction and the Nature of the Time Series**
   March 16
2. **ARIMA Components of the Time Series**
   March 23
3. **Modeling Strategy**
   March 30
4. **Analysis of Mixed (Regular and Seasonal) Models**
   April 6
5. **Impact Assessment and Transfer Functions**
   April 13
6. **Causal Modeling**
   April 20

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**WordPerfect (PC)**

WordPerfect is the most widely used PC wordprocessing program, with many formatting features.

1. **Introduction to WordPerfect**
The basics of creating a document in WordPerfect will be covered. Julia O'Brien.

**Reservations required** (call 998-3333 during week of workshop); hands-on workshop.

Tisch Hall, room LC8
Thursday 9:00-12:00
February 9
Friday 9:00-12:00
February 10

2. **Intermediate WordPerfect**
More advanced topics in WordPerfect will be covered (footnotes, fonts, and search & replace).

**Reservations required** (call 998-3333 during week of workshop); hands-on workshop.

Tisch Hall, room LC8
Thursday 9:00-12:00
February 16
Friday 9:00-12:00
February 17

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

Users of ACF facilities should be aware of the following dates and deadlines, when schedules change, accounts expire, and files must be stored. For schedules and dates of operation of the ACF facilities, see the inside back cover; for information on general, individual, and class accounts, see page 37; for e-mail (NYU-Internet) accounts, see page 30.

### January

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 14-16</td>
<td>Martin Luther King, Jr., Day Weekend</td>
<td>holiday hours†</td>
</tr>
<tr>
<td>Jan. 16</td>
<td>Martin Luther King, Jr., Day</td>
<td>all labs closed</td>
</tr>
<tr>
<td>Jan. 23</td>
<td>Spring Semester begins</td>
<td>regular hours</td>
</tr>
</tbody>
</table>

### February

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Feb. 18-20</td>
<td>Presidents' Day Weekend</td>
<td>holiday hours†</td>
</tr>
<tr>
<td>Feb. 20</td>
<td>Presidents' Day</td>
<td>all labs closed</td>
</tr>
</tbody>
</table>

### March

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Mar. 13-18</td>
<td>Spring recess</td>
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</table>

### April

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>Apr. 7</td>
<td>Instructors apply for Class Accounts for both summer sessions.</td>
</tr>
<tr>
<td>Apr. 7</td>
<td>Instructors may begin to apply for fall semester computer Class Accounts.</td>
</tr>
<tr>
<td>Apr. 21</td>
<td>Students who expect Incompletes in spring semester courses should apply for computer account extensions. (Instructor’s signature required.)</td>
</tr>
<tr>
<td>Apr. 23</td>
<td>Founders Day</td>
</tr>
<tr>
<td>Apr. 24</td>
<td>Students with spring semester Class Accounts should store all files they wish to keep after May 17.</td>
</tr>
<tr>
<td>Apr. 24</td>
<td>Individual Account holders should apply for renewal of their accounts before leaving for the summer. (Individual Accounts expire on Aug. 31)</td>
</tr>
</tbody>
</table>

### May

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through Aug. 31</td>
<td>Individual Account holders not returning for 1995/96 should store files that they wish to keep.</td>
</tr>
<tr>
<td>May 10 - 17</td>
<td>Spring semester final examinations</td>
</tr>
<tr>
<td>May 17</td>
<td>Student Class Accounts issued for the spring semester expire.</td>
</tr>
<tr>
<td>May 18</td>
<td>Commencement</td>
</tr>
<tr>
<td>May 22</td>
<td>ACF’s Summer Hours begin</td>
</tr>
<tr>
<td>May 22</td>
<td>Summer Session I begins</td>
</tr>
<tr>
<td>May 27-29</td>
<td>Memorial Day weekend</td>
</tr>
<tr>
<td>May 29</td>
<td>Memorial Day</td>
</tr>
</tbody>
</table>

* University holiday  † Please note: Confirmed holiday schedules will be posted on the NYU CWIS and via our online news and bulletin-board facilities, or can be obtained by calling the ACF HelpLine at 998-3333.
# Spring '95 Calendar

**January 23 – March 5**

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Sat./Sun.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>January 23</strong></td>
<td>24</td>
<td>25</td>
<td>26 <strong>Instructors apply for Spring 1995 computer Class Accounts as early as possible.</strong></td>
<td>27</td>
<td>28/29</td>
</tr>
<tr>
<td><strong>30</strong> Using a Mac at an ACF lab, 11:00</td>
<td><strong>31</strong> Using a Mac at an ACF lab, 11:00</td>
<td><strong>February 1</strong> Using a Mac at an ACF lab, 11:00</td>
<td><strong>2</strong> Using a PC at an ACF lab, 11:00 Microsoft Word Intro, 10:00</td>
<td><strong>3</strong> Choosing Your Computer, 12:00 Using Unix at the ACF, 1:00</td>
<td><strong>4/5</strong> Using a Mac at an ACF lab, 11:00 Using a PC at an ACF lab, 11:00</td>
</tr>
<tr>
<td><strong>6</strong> Using a Mac at an ACF lab, 11:00</td>
<td><strong>7</strong> Using a Mac at an ACF lab, 11:00 Using Unix at the ACF, 11:00</td>
<td><strong>8</strong> Using a Mac at an ACF lab, 11:00 Using a PC at an ACF lab, 11:00</td>
<td><strong>9</strong> Using a PC at an ACF lab, 11:00 Excel Intro, 2:00 WordPerfect Intro, 9:00</td>
<td><strong>10</strong> Using the ACFcluster, 11:00 Using Unix at the ACF, 1:00 Using Your E-Mail Account, 12:00 SAS Intro, 10:00 WordPerfect Intro, 9:00 Communications Q&amp;A, 2:00</td>
<td><strong>11/12</strong> Using a Mac at an ACF lab, 11:00 Using a PC at an ACF lab, 11:00</td>
</tr>
<tr>
<td><strong>13</strong> Using a Mac at an ACF lab, 11:00 Using a PC at an ACF lab, 1:00 Advanced SPSS, 6:00</td>
<td><strong>14</strong> Using a Mac at an ACF lab, 11:00 Using Unix at the ACF, 11:00</td>
<td><strong>15</strong> Using a Mac at an ACF lab, 11:00 Using a PC at an ACF lab, 11:00 Scientific Visualization at the ACF, 2:00</td>
<td><strong>16</strong> Using a PC at an ACF lab, 11:00 Advanced Microsoft Word, 10:00 Intermediate WordPerfect, 9:00</td>
<td><strong>17</strong> Using the ACFcluster, 11:00 Using Unix at the ACF, 1:00 Using Your E-Mail Account, 12:00 Intermediate WordPerfect, 9:00 Communications Q&amp;A, 2:00 Multimedia Q&amp;A, 3:00</td>
<td><strong>18/19</strong> Using a Mac at an ACF lab, 11:00 Using a PC at an ACF lab, 11:00</td>
</tr>
<tr>
<td><strong>20</strong> Presidents' Day, all labs closed.</td>
<td><strong>21</strong> Using Unix at the ACF, 11:00 SPSS on RS/6000 at ACF, 2:00</td>
<td><strong>22</strong> Using Unix (Special Topics), 12:00 Uploading and Downloading Using Kermit (PC), 2:00</td>
<td><strong>23</strong> Advanced Excel, 2:00 SPSS Intro, 6:00</td>
<td><strong>24</strong> Getting Started on Your New Mac, 12:00 Communications Q&amp;A, 2:00 Multimedia Q&amp;A, 3:00</td>
<td><strong>25/26</strong></td>
</tr>
<tr>
<td><strong>27</strong> Internet Browsing Tools, 2:00</td>
<td><strong>28</strong> March 1 GIS Packages Intro, 2:00 Using Your E-Mail Account, 12:00</td>
<td><strong>2</strong> Photoshop, 2:00 Advanced SPSS, 6:00</td>
<td><strong>3</strong> Getting Started on Your New PC, 12:00 HyperCard Intro, 2:00 Communications Q&amp;A, 2:00</td>
<td><strong>4/5</strong></td>
<td></td>
</tr>
</tbody>
</table>

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34 January 1995  Academic Computing and Networking at NYU
## Spring '95 Calendar

### March 6 – May 21

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
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<th>Sat./Sun.</th>
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<tbody>
<tr>
<td><strong>March 6</strong></td>
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<td>8</td>
<td>9</td>
<td>10</td>
<td>11/12</td>
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<tr>
<td></td>
<td>High-Performance Supercomputer Resources, 2:00</td>
<td>Uploading and Downloading Using Kermit (Mac), 2:00</td>
<td>-</td>
<td>Troubleshooting Your Mac 12:00 Mathematica, 2:00</td>
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<tr>
<td><strong>13</strong></td>
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<td>18/19</td>
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<td>Time Series Analysis (Part I), 4:00</td>
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<td>24</td>
<td>25/26</td>
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<tr>
<td></td>
<td>Exploring for Scientific Resources on the Internet, 2:00</td>
<td>SPSS Intro, 6:00</td>
<td>Painting and Drawing on a Mac, 2:00</td>
<td>Troubleshooting Your PC 12:00 Advanced HyperCard, 2:00</td>
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<td><strong>27</strong></td>
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<td>29</td>
<td>30</td>
<td>31</td>
<td>April 1/2</td>
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<tr>
<td></td>
<td>Internet Browsing Tools, 2:00</td>
<td>Using Your E-Mail Account, 12:00 Advanced SPSS, 6:00</td>
<td>Time Series Analysis (Part II), 4:00</td>
<td>Communications Q&amp;A, 2:00</td>
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<td>Time Series Analysis (Part IV), 4:00</td>
<td>Multimedia Q&amp;A, 3:00</td>
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<tr>
<td></td>
<td>Using Your E-Mail Account, 12:00</td>
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<td>Time Series Analysis (Part V), 4:00</td>
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<tr>
<td>Instructors apply for Summer 1995 computer Class Accounts as early as possible. Students expecting incompletes should apply for account extensions as early as possible. Students with spring semester Class Accounts should store all files they wish to keep after May 17. Instructors may begin to apply for Fall 1995 computer Class Accounts.</td>
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<td><strong>May 1</strong></td>
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<td>11</td>
<td>12</td>
<td>13/14</td>
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<tr>
<td></td>
<td>-</td>
<td>Spring semester final examinations (through May 17).</td>
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<td><strong>15</strong></td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20/21</td>
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<tr>
<td></td>
<td>-</td>
<td>Student Class Accounts issued for the spring semester expire.</td>
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</tbody>
</table>

**Academic Computing and Networking at NYU January 1995**
Q: Why can't I find addresses online for any NYU students? I tried to look up my friend's address online, but couldn't find it. I know she has an NYU-Internet account.

A: At this point, we don't list students' addresses online. State and federal laws that are designed to protect citizens' privacy are even more stringent regarding students. We don't want to break the law; nor do we want to cause annoyance to NYU students, or the invasion of their privacy. Until we are able to determine the proper limits, we feel that students' e-mail addresses should not be available for general distribution.

Meanwhile, the best way for you to find out your friend's e-mail address is to ask her directly for it.

— L. Barnett

Call the ACF HelpLine at 998-3333

Digital Tools in the Fine Arts (continued from page 9)

or resulting digital output may be seen as a minor ingredient in the work's evolution to final form. Some do not require the technology at all, and all responses are valid.

Revamping News Groups (continued from page 11)

You may subscribe to a group if you wish it to be included in the list of groups that appears each time you start up your newsreading program. (You won't ordinarily want to see the whole list you get with y.) For example, with Tin, you subscribe to a news group by typing s while the group is highlighted. Your newsreader will now keep track of the name of the group and of the items you've read; if you wish, it will show you only the newly arrived and unread items each time you start it up.

In addition to nyu.general, mentioned above, the well-informed participant in the NYU News Group space should follow a couple of other groups. Look for announcements of newly established NYU News Groups in nyu.news.announce. In nyu.news.discuss, you can suggest that a news group be started, ask questions about news groups, or exchange ideas about the NYU News Group collection.

Know Your Group before You Post!

There's a kind of etiquette for using both the Internet and the NYU News Groups. For one thing, it's bad form to post an item whose content is unrelated to the normal discussion topics of a group. If you are a newcomer to a group, try to get a sense of its scope before you begin to post to it. To do so, read the items that have already been posted. For help that's particularly targeted at orienting newcomers to the group, look for an item whose title includes the phrase About this group or the acronym FAQ (pronounced as three letters, not as a word). An FAQ is a list of frequently asked questions — and their answers.

Learning More about News Groups

Interested in learning more? The first place to look is nyu.news.discuss, where you'll find the latest version of the NYU News Groups FAQ. Here you will also find information on Internet etiquette and the rights and responsibilities of news-group participants.

There are a number of good books on the Internet, all of which provide information on network news. One is Ed Krol's The Whole Internet User's Guide and Catalog (O'Reilly and Associates). In there, you will also find some introductory-level information on using Tin. Or pick up a copy of the ACF's pamphlet Quick Reference Guide to Tin at any ACF lab.

PUMS Data (continued from page 15)

the menu item Tabulate passes information on which file to use as input. Finally, we enter a name for the output file.

Availability

Documentation has gotten better with each release of the PUMS software. Bobst Library's sixth-floor Business and Social Science Documents Center has an early version of these CDs for fifty states. Last year, in the old days, the complexity of accessing these data from tapes using mainframe computers severely limited their availability. Now it is possible for the nonprogrammer to make tables from these files, as in the example cited earlier.

QuickTab makes accessing this important data very easy. Dr. Zvia Naphtali of the Wagner Graduate School of Public Service plans to offer a course this semester on using PUMS and QuickTab; for information, call her at 877-1475. Queries and comments about QuickTab may be addressed to System Software Group, ISPC, Bureau of the Census, Washington, DC 20233 or (301) 763-4210. Quick Tab is available at the ACF from the Statistics and Social Science group; for more information, call me at 998-3398 or send e-mail to the address above.
Important ACF Telephone Numbers

ACF HelpLine 998-3333
Account Information 998-3035
Computer Documentation 998-3036
Innovation Center 998-3044
Statistical Consultants 998-3434
Computer Labs:
14 Washington Place 998-3457
Tisch Hall 998-3409
Education Building 998-3421
Warren Weaver Hall 998-3456
Third Ave. North Res. Hall 998-3504

Dial-in Access to ACF Computers

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

<table>
<thead>
<tr>
<th>Modem Speed (bps)</th>
<th>Dial</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-2400</td>
<td>995-3600</td>
</tr>
<tr>
<td>9600, 14,400</td>
<td>995-4343</td>
</tr>
<tr>
<td>300-1200</td>
<td>995-4335*</td>
</tr>
<tr>
<td>SLIP/PPP only</td>
<td>995-4242</td>
</tr>
</tbody>
</table>

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

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

Access to the ACF's Instructional Computer Labs

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

Obtaining an ACF Account

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

The ACF recommends that instructors obtain an ACF Class Account whenever a course requires that students have access to computers. These accounts give students priority access to ACF computers, and the application procedure helps the ACF to ensure that the appropriate software and training sessions are available.

There are ACF facilities at the following locations:

1. The HelpCenter, 251 Mercer St., 2nd floor
2. The Innovation Center, 251 Mercer St., 2nd floor
3. Tisch Hall computer lab, 40 W. 4th St., lower concourse (Rooms LC-7 and LC-8)
4. 14 Washington Place computer lab, basement
5. Education Building computer lab, 35 W. 4th St., second floor
6. Third Ave. North Res. Hall computer lab, 75 Third Ave., level C3

The NYU Shuttle routes include (6): Mon.–Fri., every hour (8:00 am–3:00 am), and Sun., every hour (6:00 pm–3:00 am) during the spring semester.

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

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

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

From the Director
Responsibilities of Computer and Network Users at NYU

Instructional Computing
Structural and Creative Conditions for New Instructional Software: ISEE Even More

The Digital Arts
Using Digital Tools and Processes in the Fine Arts
A Web Server for NYU Artists

Networks
Exploring the NYU News Groups — a Tool for Learning, Sharing, and Chatting
Lists, Bulletin Boards, and News Groups — Which Is Which?
Do You Want to Start a New NYU News Group?
EMIS Accounts to be Exchanged for ACF's Easy-to-Use NYU-Internet Accounts
Are You Ready for NYU-Internet?
Make the Internet Act Like Your Mac or Your Windows PC
How to Move to NYU-Internet

ACF HelpLine Q&As
Should I Send On an E-Mail Chain Letter? Why No Student Addresses Online?

Statistics and Social Sciences
Do PUMS Data Have You in Distress?
QuickTab Offers Fast Relief
New Version of ArcView at NYU

From Bobst Library
US Government Information at Bobst — on CD-ROM and over the Internet
More Federal Databases Available
Teleconference Videotapes at Bobst

Science and Visualization
Experiments in Scientific Visualization: Turning Data into Images with Tecplot
Visible Human Project: Digital Images Online, and on Tape and CD-ROM
(f)g Scholar: A Combination Program for Science Students

At the NYU Computer Store
Compaq Line, Site Licenses, Books, and CD-ROMs

Spring '95 at the ACF
Index to the Schedule of ACF Instructional Sessions
ACF Classes, Workshops, and Talks
ABCs of Computers: 27
Computers and Operating Systems: 28
Geographic Information Systems: 28
Graphics and Multimedia: 28
E-Mail and Network Services: 29
Scientific Computing and Visualization: 30
Statistics, Spreadsheets, and Databases: 31
Wordprocessing: 32
NYU Colloquia on Computers and Communications
Getting an NYU-Internet Account
Important Dates for ACF Users
Calendar
Hours at ACF Micro Labs
Access to ACF Computer Labs

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of New York University
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