Network 21: Bringing the Campus up to Speed

by Catherine Curran, Planning, Strategy & Administration

It was just about a year-and-a-half ago that Arthur Huntley, M.D., first used his computer to explore the Internet. Since then he has added a course on how to use the Internet to the medical school curriculum. He is also using Mozilla to develop a multimedia program that can be used as an alternate method of instruction in Dermatology. Once the multimedia program is finished, Huntley hopes to use members of the Davis Community Network as a test market for a layperson's version.

"As I became acquainted with the power of Medline searches, I was convinced that it was an indispensable part of medical practice today," states Huntley, an associate professor of Dermatology and chair of the School of Medicine Committee on Educational Policy.

The medical course on how to use the Internet is given totally online with assignments and responses exchanged by electronic mail. Huntley says response to the course can be summed up by one student's comment: "I hated having to learn it. Thank you very much. I really enjoy using it."

Eventually, Huntley would like the School of Medicine to use computing and the network for most interactions with students that are currently done on paper.

"I would like to see as much resource material as possible placed on Gopher," he says.

Huntley thinks Network 21 will benefit anyone transferring large files and will "provide something better than our current modem connection for the Dermatology offices on campus."

Huntley is one of many UC Davis faculty who use networking in teaching and research. Here is a brief look at how others see the network at work.

Preparing for Network 21 through Electronic Communications Training

by Ivars Balkitis, Planning, Strategy & Administration

Training programs to prepare the campus community for full implementation of Network 21 are flourishing. Currently, networking workshops are taught by staff of Information Resources, the General Library, and Staff Development & Professional Services.

Information Resources Classes IT Information Resources (IR) continues to offer to faculty and students the popular workshop "Electronic Communications for the Novice." Demand for this course in winter 1994 required IR to open a new section practically every week during that quarter.

This free workshop, which introduces the novice to the Internet, Telnet, MELYL, Electronic Mail, Infoset, Ingres, Archie, Gopher, Veronica, and the Campuswide Information System, is offered again during spring quarter 1994.

Here is the spring schedule:
- Apr 21 (Thursday) 3:30-6:30 pm
- Apr 22 (Friday) 2:00-5:00 pm
- Apr 27 (Wednesday) 3:00-6:00 pm
- Apr 28 (Thursday) 3:30-6:30 pm
- May 4 (Wednesday) 3:30-6:30 pm
- May 12 (Thursday) 3:30-6:30 pm
- May 20 (Friday) 2:00-5:00 pm
- May 26 (Thursday) 3:30-6:30 pm

All sections of "Electronic Communications for the Novice" are held in 14 Hutchison hall (in the basement). To sign up for a workshop, call Information Resources at 752-2131 or 752-2906 or send electronic mail to learnir@ucdavis.edu. Be prepared to provide your name, daytime phone number, and the name and date of the workshop you wish to attend.

(Editor's Note: For information on advanced training in electronic communications...}

Faculty Put the Network to Work

by Catherine Curran, Planning, Strategy & Administration

Did you ever think:
- that a cellular phone could save a life?
- that you could "go" to the library on computer?
- that you could send a document over the telephone?
- that your 8th grader would be using e-mail and communicating in real time with a Russian counterpart?

Welcome to the world of Network 21, UC Davis's link to what is and what will be.

Network 21 is the term used to describe the fiber optic network that will interconnect the Davis campus and provide it with a high-speed on-ramp to the Internet. The network will grow into a superhighway (otherwise known as the Internet).

Once in place, Network 21 will enable you to send e-mail to friends or family throughout the world and send documents to your office. You will be able to make telephone calls from your computer and access a home or office computer when you are away from home.

The ability to use technology to gain information from places unseen is sending us on a journey in which the final destination has yet to be imagined. New technologies breed new applications. New applications are breeding new users. New users are breeding newer applications, and in turn, newer users...

"(Network 21) Continues on Page 4"
Online Forum for Higher Education Issues

HEPROC-L is an electronic forum for facilitated discussion of major issues in higher education. Topics include: student motivation and success; faculty tenure; research vs. teaching; staff development; institutional and classroom assessment; reengineering/ restructuring; and the use and development of campus and human resources. To subscribe, send the following command in the body of your email message to listserv@american.edu: SUB HEPROC-L yourfirstname yourlastname (Substitute your first and last names.)

The Evolution of the Network

ISDN One Potential Solution for the Davis Community Network

by Russ Hobby, Technology Resources

(Editors’ Note: Work continues on a prototype project to take advantage of ISDN technology in the development of the Davis Community Network. This effort is related to solving the intermittent difficulty people are experiencing with access to the campus menu, particularly those who wish to connect to the Internet. Here is an update on that effort from Russ Hobby, Director of Advanced Networked & Scientific Applications and acting Director of Technology Resources.)

I have been involved with the Davis City effort to create a community network form its beginning. Our main objective for the first two years was working with Pacific Bell to build the network on ISDN (Integrated Services Digital Network) technology. Things went quite well for a while, and it looked like Pac Bell was going to offer Internet services over ISDN to the home. However, when it came time for implementation, Pac Bell said that they could not offer Internet-type connections as part of their service. Since Internet connectivity was our real goal, our project was severely set back.

There were positive results from the work with Pac Bell, however. The DCC Pac Bell switch was upgraded and offered ISDN services in October 1993 — well ahead of the original schedule.

Let me explain how Internet connectivity differs from ISDN and how we hope to use the two together.

The Internet breaks a stream of information into “packets.” Each packet has an address on the “envelope,” and the network delivers the packet to the address. At the receiving end, the packets are gathered up, and the information stream is reassembled. Think of it as a series of letters that tell a story being sent through the US Mail. The advantage of the Internet is that you can use a single network connection to send to many locations at the same time, just as you can send letters to many locations with one mailbox. By the way, an information stream on the Internet can be one of many applications, such as electronic mail, remote login, video conferencing, and more.

ISDN can also be used for the same applications. However, ISDN follows the telephone model where you connect to one number at a time. If you want to exchange information with several locations, you call them up at one time. Also, ISDN can only connect to other ISDN equipment. The Internet can run over many types of transmission media. For example, on campus we can use Ethernet, AppleTalk, modem, and ISDN to connect to the Internet. And the person using the system does not have to worry what the other person is using. It all inter-operates. The main advantage of ISDN right now is that it will work over the phone wires going to everyone’s house, including the Internet hub.

So, how do we use ISDN to get Internet connections? Our plan was to use ISDN to connect a home computer to an Internet hub. ISDN cannot connect to several locations at once, but the hub can. This way you can still create all the packets, each with an address, send them over ISDN to the hub, and the hub will deliver the packets to where they are supposed to go. Using the US Mail analogy, it would be like having a pneumatic tube to the post office. The tube only goes between your house and the post office, but the post office knows how to sort and deliver.

We were asking Pacific Bell to provide this hub as a service. They said that they would only sell the ISDN part. Though a third party could buy the ISDN, build the Internet part, and sell the combined services, that method would require two connections: one from the home to Pac Bell’s central office and one from the Pac Bell office to the Internet hub. Requiring users to pay for two ISDN lines would bring the costs way up.

So what is a reasonable price? Our survey indicated that to hit the mass market, initial outlay for equipment would have to be less than $500 and the monthly charge needed to be between $20 and $30, with no usage fee. Since a modem uses a standard voice phone at a residential rate of about $12 per month and no usage fee, that approach did not seem cost-effective or marketable.

Though negotiations for an ISDN-based solution continue, the Davis Community Network has two other options under review: cable TV and wireless technologies. Efforts to bring the community online continue in these areas as well.

JOG Met in Davis in May

The Division of Information Technology hosted the JOG (Joint Operations Group) meeting of May 10, 1994 on the Davis campus. This group of about 20-30 individuals meets three times per year and comprises the chief representatives of information technology and associated staff of each of the nine UC campuses.

After morning sessions in the Founder’s Room of the Alumni Center, JOG members toured the Center for Advanced Information Technology on campus and visited the Harris Halls and used the campus-wide media instruction. Information Technology staff then had the opportunity to introduce themselves, through various demonstrations and presentations, to their counterparts from the other campuses.

Look to the next IT Times for a report on the projects, plans, and ongoing operations that were shown to JOG members during this event.
Campus GIS Training: Administrative and Academic Units Collaborate

by Ivars Balkits, Planning, Strategy & Administration

Increasingly more but still relatively few people know that the Davis campus has a Geographic Information System (GIS) in place. Developed and maintained by Facilities Services (formerly the Physical Plant), the UCD GIS System provides accurate maps of campus facilities and associated infrastructure and serves as a central repository for related information supplied by multiple departments on campus.

Even fewer people know, perhaps, that for the past three years Facilities Services staff have been co-teaching a campus GIS lab. Offered to students in Geography 198/298, the lab teaches fundamental skills of the user interface, data structure, basic features, terminology, and system environment of the UCD GIS System. The primary instructor for the lab has been Sandra Duncan, GIS System & Project Manager for Facilities Services.

Working together, Mary Curthe of the Cartography Lab and Duncan of Facilities Services have offered this 4-credit, 5-hour course each year to six students, limited to that class size by the number of workstations available at Facilities Services that run the campus GIS (two students per workstation). Facilities Services also has two one-year-long GIS internships, one for Geography students and one for Civil Engineering students.

Duncan’s students have gone on to various careers that employ this training. Two students have gone to work at the UC Office of the President, Division of Agriculture & Natural Resources, in Oakland, mapping natural resources that the University owns. Another is working in Southern California for a mapping company. Yet another works for a chemical company in the Bay Area on its GIS project.

"The students are using these skills and concepts," says Duncan. "All have said that being able to put GIS-literate on their resumes helped get a foot in the door."

The campus GIS is on GDS (Geographic Data System) software and a VAX platform. It was started in 1987. In 1991, McDonnel & Douglas gave Facilities Services an educational software grant to establish the entire GIS lab.

The GDS product is a high-end system that was primarily chosen by the campus for its area management capabilities, according to Duncan. This feature allows multiple users to work simultaneously on large index drawing. This is all with using a Cartesian coordinate system. It also allows the user to open up to 900 files simultaneously and create, ad hoc, a map combining exactly the features they wish from the database.

Extremely detailed maps (within 6 accuracy) exist for chilled water lines, gas lines, the electrical system, and numerous other campus features. Using field surveying equipment that feeds data right into the database through a serial connection, Facilities Services is constantly adding new dimensions to the UCD GIS System.

Current and pending projects include:

- working with Planning & Budget to provide all of the maps for the 2005 Long Range Development Plan;
- working with the UCD and City of Davis Fire Departments to develop fire protection maps;
- mapping the sewer/storm system to help compliance with regulations about discharges;
- and so on.

For more information about the UCD GIS System, contact Sandra Duncan at 752-3957.

Mosaic Provides Myriad Access to the World Wide Web

The fastest growing distributed information service on the Internet is the World Wide Web, advancing at a phenomenal rate of 10,000 new users per week in the last six months alone. The Web is a hypertext system providing links to multiple online documents which can contain images, sounds, and animations as well as text.

Contributing to the boom of W3 (another common term for World Wide Web) is the wide availability of the new W3 browser Mosaic. Developed at the National Center for Supercomputing Applications at the University of Illinois, Urbana-Champaign, this software provides a graphical user interface to users who want to explore the many wonders of the Web from their desktops.

Campus users also are employing Mosaic to download Apple software from the enterprise-wide W3 server set up and managed by Information Technology staff. For more information, see the subheading "Cost-Free Distribution of Apple Software Near Implementation" under the Software Sittings column on page 10.

At UC Davis, Macintosh users can obtain a copy of this software from the IT Campus II Access Point, 1400 Y Street. (Bring along a blank formatted diskette.) X-Windows users can obtain NCSC Mosaic for Windows (filename: NETWORK.ZIP) via anonymous F11 from im-test.ucdavis.edu.
Getting Up to Speed on the Information Highway

Network 21...

(continued from page 1)
A story about how an emergency call made from a cellular phone saved a life can convert a whole new group of cellular users. Likewise, a child telling how he or she learned to "talk" with Russian school children may be just the "push" a parent needs to get on the Internet.

"We are in the midst of an information explosion, and Network 21 is going to make it possible for you to get information and services faster and easier," says JoAnn Gargano, director of Information Technology's Distributed Computing Analysis and Support.

Databases, slide libraries, software programs, papers and professional journals are just a few of the information resources that can be accessed by computer. And the number of people using the Internet to tap into these resources is mushrooming.

According to Mark Gibbs, co-author of the bestselling "Navigating the Internet," a new network connects to the Internet every 10 minutes.

In the April 14 edition, Investor's Business Daily quoted Gibbs as saying, "Not knowing how to use the Internet will be as grave a deficiency as not knowing how to read. The Internet will become the world's primary means of communication and will soon carry more mail than the entire postal services worldwide...The Internet now connects more people, resources and services than any other communications system except for the telephone system."

A recent report from the Internet Society supports Gibbs' claim. According to the report, the Internet traffic on the NSF「 backbone grew by 20.7 percent during the month of March accounting for the largest single jump in the history of the Internet.

At UCD, the Division of Information Technology is assigning more than 1,000 new computer accounts each month. Each new computer account gives you more fun and more freedom to travel the Internet. For many of those users, Network 21 is an opportunity to more effectively apply existing technology.

Faculty...

(continued from page 1)
School of Veterinary Medicine Network training is mandatory for new students at the School of Veterinary Medicine. Faculty have developed many multimedia programs to teach everything from radiology to zoology. Dean George Cardinet says the School's goal is to develop a distributed computing environment in which programs can be accessed from classrooms and computer centers throughout the School. Network 21 will allow the transfer of images files between buildings.

Willers Refine Research Skills

Kathy Dixon has noticed that both skills and attitudes are changing in the "electronic" composition classes she teaches as adjuncts paired with classes taught by Geoffrey Wandesforde-Smith (IST 80, IST 81, FOS 122). Dixon said that several younger students would enroll in the classes begrudgingly because of the requirement to use electronic resources; this year several student stated they are taking the classes because of the electronic component.

Dixon's students do some of their classwork through e-mail and conduct research using electronic databases and the Internet. The excitement of trying new research methods and being able to access current information has prompted students to abandon the research-in-a-box term paper approach and instead make research a quarter-long process. These students, she has given us a new twist. As one student wrote:

"I gained an immense amount of self confidence in myself, in my writing, research and most importantly in my academics. I felt professional while writing the IST 10 paper...I felt as if I finally found a place in this university."

Joy of Networking

The phones in the front office of the Computer Science department are no longer ringing as much as they used to. The department has posted its graduate brochure, computer leases, and other student information on the network. Since then, students have been calling up databases rather than administrative personnel.

Training...

(continued from page 1)
"Advanced E-Communication Course Debut in Spring 1994 on this page."

Meeting the Needs of a Growing IT Client Population

by Paula King, Information Resources

The Division of Information Technology has made a commitment to provide a base level of access to computers and networking for all UC Davis students, faculty, and staff.

Individual research needs are balanced against the computing needs of the more than 16,000 active users of IT-managed systems and machines. As we add new campus users at the rate of about 1,000 per month, we want to make sure we provide access for at least electronic mail, the Campuswide Information System (CIS), newsgroups, and the instructional uses of computer that we support.

Other campuses have chosen to meet growing access needs simply by not allowing additional campus users to have accounts; they provide higher levels of access, but for a restricted portion of their campus population.

We believe we have chosen a more strategic path by continuing to provide access for all, and by helping those who do have computers to find solutions that take advantage of their departmental and personal computing resources.

It should be noted, also, that Information Technology does not make these kinds of access decisions without input from the campus community. In fact, the IT Campus Access Point is preparing for a new round of open meetings and focus groups soon to develop tactical goals for 1994-1995. If interested in participating, please check the CWS for announcements under The Campus/Using Computers on Campus/... Information Technology/IT Departments/IT Campus Access Point, or send e-mail to itelp@ucavisu, or call 752-2548.

In Spring 1994, IT Information Resources offers for the first time the workshop "Electronic Communication: Beyond Basics."

This three-hour class provides information and hands-on experience to build on your existing knowledge of e-communications systems and programs. You learn basic UNIX commands, the File Transfer Protocol (FTP), the Archie search utility, file compression and translation procedures, modern file transfer methods, and more. Here is the spring class schedule:

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Room</th>
</tr>
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<tbody>
<tr>
<td>Apr 29</td>
<td>2:00-5:00 pm</td>
<td>144</td>
</tr>
<tr>
<td>May 4</td>
<td>3:30-6:30 pm</td>
<td>46</td>
</tr>
<tr>
<td>May 20</td>
<td>2:00-5:00 pm</td>
<td>144</td>
</tr>
<tr>
<td>May 27</td>
<td>2:00-5:00 pm</td>
<td>144</td>
</tr>
<tr>
<td>Jun 3</td>
<td>2:00-5:00 pm</td>
<td>144</td>
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For information on registering for these and other workshops, see "Preparing for Network 21 through Electronic Communication Training" on this page.
ITAAC Discusses Mentoring as One Solution to Need for Faculty Info Tech Training

by Ivars Balkits, Planning, Strategy & Administration

(Editor's Note: As part of an effort to determine the breadth and scope of electronic communications training on campus, the IT Times talked to many individuals at UC Davis. This interview with Geoffrey S. Ackerman, chair of the Information Technology Advisory Committee and professor of Political Science, was conducted entirely online using electronic mail.)

IIT: I gather that some members of ITAAC have said mentoring programs be established to facilitate peer collaboration between faculty who are already well-versed in computing and electronic communications and colleagues (and graduate students) who are new to it. What are the aspects and prospects of such a program?

Yes, there has been some discussion of this, and I'm hoping there will be more before the end of the year. In fact, I intend to put it on the agenda of a future ITAAC meeting. If we were to make a recommendation that the Academic Senate and the administration help organize and support such a program, I can't predict exactly what the response would be, although I'm inclined to think it would be sympathetic.

I can tell you some things, however. First of all, there is a lot of "mentoring" happening already on an ad hoc and informal basis. Faculty colleagues are helping each other. Graduate students are helping faculty. Undergraduates supplement what they learn in the classroom by helping each other out. Staff members are learning how to ask for and find help, too. Sometimes, the exchanges are brief and the topics limited: "How do I print an e-mail message?" Sometimes, the issues are more complex: "How will students react if I start putting class materials on a news group, and require them to use this resource?" Or, "How much value do your students get from the CSJ Washington Alert databases accessible through MELYTL?

But while the campus is rife with this sort of informal mentoring — we would never have come as far as we have in building information technology into the everyday life of the campus without it — the second thing to say is that we have no formal program. We have no formal recognition, yet, that such a device would be helpful, or that it is something busy people should be encouraged to spend their time doing. So there is, to put it differently, no clear and accepted incentive for people who do have skills and experience that can be taught and disseminated to spend time doing that, rather than, say, writing a paper or teaching a course.

I should mention the work Dr. Kevin Roddy does as a liaison between the Division of Information Technology and members of the teaching staff who have problems they need to solve, installing a piece of software, for example, or getting help with a particular network application. This work is important and appreciated, but we need a way to build it on and broaden the base.

I'm hopeful we'll be able to identify some ways to do that before the end of this academic year. It would speed up even further, I think, the rate at which faculty, students, and staff are getting the help and information they need to make computers and the network work for them. The analysis of IT's training efforts, which you'll be reporting on later, is going to show just how hungry people at UC Davis are for this information, across all segments of the campus community. It's an issue we need to address, for individual faculty and students, as well as for departments and other academic units that are struggling to cope with both new challenges and diminished resources.

I find published in ISTIMES net long ago about the progress being made with technology and networks in Vegetable Crops. More of our people and units need and want to be helped to make that sort of progress, and I think mentoring is part of meeting that demand.

IIT: Some departments already have high-speed capabilities because they have both required and been able to afford them. Can a case be made that high-speed (fiber-optic) connections such as proposed by the NetworK 21 Project plan will be needed by all disciplines in the future, not only areas of engineering and the "hard" sciences?

Yes, that case can be made. It can be made in the Art Department — ask Harvey Himmelfarb, who is involved in building and managing large collections of visual image online. It can be made in my department, Political Science — ask hundreds of students who now write their term papers using database in Michigan, New Jersey, and Washington DC. It can be made across the range of environmental studies programs at Davis, a nationally recognized strength of the campus, and one that runs the gamut from biology to policy analysis to environmental technology — ask Jim Quinn in Environmental Studies, or Debbie Elliott-Fisk in Geography, or Hap Dunning in Law, all of whom are working on problems of ecosystem assessment and management that require very large and very efficient data manipulation capabilities.

Faculty and students also see that it can be made in Shields Library and, increasingly, I think, in a variety of ways we might broadly call academic services directly related to the central missions of the campus, such as the internship programs we have here and in Washington DC for our students, and the public service research programs that reaches our campuses in business and the public sector. It can be made in Music, too, and one of the most delightful aspects of my service this year on ITAAC has been learning from Wayne Slaunthon that that's true.

But does it have to be a state-of-the-art, even slightly ahead of the cutting edge, network? Again, the answer is yes. The network we have now is far superior to the one they have in Ecuador, or Guinea-Bissau, where I have former students serving in the Peace Corps who would give their eye-teeth for a good phone connection, let alone network connectivity. But on a realistic relative and comparative scale of one to nine we are all familiar with, in a nine-campus system, our existing network ranks ninth. It's expensive to maintain and gets more so with every passing day. It is neither economically nor functionally rational to keep it, or to improve it bit by bit. We keep it going, but only by performing occasional miracles. And it limits what we can imagine, as well as what we can do.

That isn't good enough, and we had better say that, and then act, before our friends in Sacramento, who are also getting themselves onto the superhighway at a very fast clip these days, start to wonder what's taking so long and why we aren't out in front of the pack. That is exactly where the University is supposed to be, all of it, the entire institution, not just the engineers and the geologists. Berkeley and San Diego and Irvine have already made the commitment to connect themselves to research and teaching in the next century, and we have to follow. In the last two years, I'm not anyone at Davis who wants it any other way.

The most important consideration, then, is to look ahead to the future of UC Davis as a first-rank national research and teaching institution and to realize that the faculty and the students, the people who are the institution, will not be able to survive or prosper without a high-speed network that is everywhere accessible on campus and that connects us to the rest of the world. We need it to teach and do research at as much to as much more than we are used to run the University more efficiently. Indeed, the latter, I think, is and should remain very much a secondary concern and be a by-product of our research and teaching innovations.

And it's a great mistake to look at the network we have now, and what it can deliver, and imagine that that is what we are getting with Network 21 is just more of the same quicker. That is not the investment we are making, What the Regents have approved, very much to their credit, is the provision of a research and teaching tool many of the uses for which, in the classroom and the laboratory, five or ten years from now we cannot clearly see today. And that's true not just past we will

"Wanderfarde-Smith" Continues on Page 9)
New Dialing Procedures Coming June 1994
Dial 9+1 When Calling Out of the Area Code

by Steve Chaib, Communications Resources

Beginning June 20, 1994, new dialing procedures will go into effect for calls dialed from campus and Research Park telephones. To accommodate the new North American Numbering Plan, it will become necessary to add a "1" when calling another area code — for example, 1+1-510-555-1232. Calls within the area code, as well as international calls, will continue to be dialed with just "9." Similarly, campus callers who use "7" for authorization code dialing will need to use "7+1" when calling another area.

Operator-assisted and calling card calls will need to be dialed using the area code, even when calling within the 916 area code. For example, to dial a Sacramento number like 440-xxxx using a calling card, callers will need to dial 9+40+916+440-xxxx.

The new dialing scheme is necessary because the area codes in North America are being used up by the rapid growth of such services as paging and cellular phones. Electromechanical telephone systems of the past required that area codes contain only a zero or a one as their middle digit, which along with other factors made only about 150 area codes available. Starting in 1995, however, area codes will be able to have zero through nine as their middle digit, making available 600 more area codes.

The first of the new area codes is expected to be 334, opening in Alabama around January 1995. Since this code is also a prefix in Sacramento, callers must add a "1" if they need to reach Alabama: 9+1+334+seven digits is called to Alabama 9+334+four digits is called to Sacramento

Watch for more details from Communications Resources in the coming weeks. For now, please continue to dial only a "9" before all calls outside of the campus or Research Park. Note to Centerex users: If your telephone number is in the range 757-3000 to 757-3999, your line is part of a Central group served by Pacific Bell. For these lines, the new dialing methods are already in effect along with the current methods. After October 10, 1994, only the new dialing plan will be in effect.

by Nael Kappadagoda, Information Resources

From humble beginnings, the Computer Consultant’s Association (CCA) has grown into one of UC Davis’ largest special interest groups. What started out as a small coffee group in 1988 has evolved into an organization that boasts a mailing list over 900 strong.

According to Paul Rivette, the association’s president, the CCA provides a forum for the campus community to learn about all aspects of computers. “As a group, we’re driven by whatever the campus wants to see,” he says. “If a number of people have a problem connecting to the campus network, for example, we’ll have a meeting to explain that. We also showcase the latest hardware and software that’s coming out,” Rivette said.

By drawing on the specialties of almost all the UCD departments, the CCA brings a wide range of support and knowledge to its members. “The association tries to get specialized information from each department out to the computing public. The meetings are set up to keep up with the latest technology,” said Jennifer Koester, the manager of the Center for Information Technology, who has served as the association’s vice president in the past.

The CCA serves as the umbrella group for several smaller special interest groups (SIGs), such as the Geography Information Systems SIG and the Database SIG. Darby Rivette, the secretary of the CCA, chairs the Desktop Publishing SIG. She feels her involvement in this SIG complements her role as a computer research specialist for the Department of Chemical Engineering and Materials Science. “The SIG enables me to keep up with the ever-changing world of desktop publishing,” Rivette said. “My experience as chair of the SIG is invaluable to me as a computer professional.”

Given the obvious overlap in subject matter of the CCA and Information Technology, a casual observer might assume the CCA is part of IT. Actually the CCA and IT will independent but complementary roles on campus.

While acknowledging the important contribution IT has made to the CCA, Paul Rivette emphasized the CCA’s own distinct identity: “It has been very generous in its support of the CCA program.”

Apple Managers Group Formed

The Computer Consultant’s Association has started a new SIG called the Apple Managers Group (AMG). It has formed to bring together individuals who manage Apple products for departments to share ideas, techniques, problems, etc. A mailing list has been established to serve as a forum for discussion. The direction the group should take. To subscribe to the AMG mailing list, send an email to amg-request@ucdavis.edu with only the word “subscribe” in the body of your email message. For more information about AMG, contact Paul Rivette at privette@ucdavis.edu or 752-8867.

Computer Classroom Opens in 241 Olson

On February 23, 1994, a new Macintosh computer classroom opened in 241 Olson. As with all IT-managed computer classrooms, this facility is funded by Instructional Use of Computer (IUC) funds. Instructional receives priority. No costs are covered by student registration fees. Costs for the 241 Olson computer classroom is this room is intended for academic courses that utilize computer technology in all regularly scheduled classes. Faculty need to provide their own software. To request room assignment of 241 Olson, contact Marie Eleriinger of the Registrar’s Office at 752-2979 or at allering@ucd.marin@Zeus.ucdavis.edu.

Connections to UC Systemwide Directory

The new Systemwide Directory has a big typo on page 7. The entry for Zackary O’Donnell has incorrect information. Instead of UC Irvine, O’Donnell is with Communications Resources at UC Davis. Also, the phone number is incorrect. The entry should read like this:

DABS
Zackary O’Donnell
Communications Resources
916-752-9547

CI Installs CableCAD to Help Manage Communications Facilities Infrastructure

Communications Resources (CR) recently purchased CableCAD from Enghouse Systems Limited of Toronto, Ontario, Canada. CableCAD is a package of automated mapping and facilities management (AM/FM) programs used to design, draw, and maintain distribution networks. It maintains a network by:

• creating records that display and describe that network’s plant items
• producing reports and handling the details of the network’s administration:
• supplying input for the network’s business administration.

At Communications Resources, CableCAD resides on a network of microcomputers (486's). Facility Services (formerly Physical Plant) provided the campus base map used by CableCAD from the UCD GIS System. The communications facilities infrastructure is overlaid on this base map.

Over the next 12-18 months, CR Plant Operation will enter data about the various campus buildings and telephone networks on the CableCAD system. This unit is responsible for the campus communications maps and floor plans.

See page 3 for more information on the UCD GIS System.

SMM Stack at IT Campus Access Point

Finally, there is a useful HyperCard stack for the Macintosh: SMMStack 4.1.1. SMMs (Single Inline Memory Modules) are small, unsheathed circuit boards that add memory to Macintoshes. This HyperCard stack provides details about the different types of SMMs (52 pin, 64 pin, 72 pin, etc.), and explains memory configurations possible with Macs. You can obtain a copy of the stack directly from the IT-CAP, 1400 (752-2546), just remember to bring along a 3.5" formatted diskette.

Alternatively, you can use anonymous FTP to load the stack down from the Internet server sumex- stanford.edu. The file is titled stmm-stack-4.1.1.bin and is located at the end of the following directory path: info/mac/info/hdwr

Eudora for Electronic Position Descriptions

Electronic information Resources has worked out a potential interim solution for campuswide routing of completed electronic forms used for job position descriptions. The idea is for all parties in the workflow to have Mac Eudora or PC Eudora. This electronic mail software allows formatted documents to be coded automatically at one end, attached as part of the campus network, and decoded at the other end.

Eudora is currently the only commercial mail package designed to work with TCP/IP networks, and the University has negotiated a special price. You can pur-
Info Tech Information through Online Newsletters

After you have perused IT Times, why not take a look at these online newsletters covering nationwide information technology topics and trends? All of the following publications are free and "delivered" (after you subscribe) directly to your electronic mailbox.

EDUPAGE

Edupage is a twice-weekly summary of news items on information technology. It is provided as an online service by EDUCOM, a consortium of leading colleges and universities seeking to transform education through the use of information technology.

To subscribe, send electronic mail to listproc@educom.edu, containing the following text in the body of your message:

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SUB EDUPAGE <firstname> <lastname>
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SUBSCRIBE NNEWS <firstname> <lastname>

Substitute your own first name and last name for "firstname lastname." Back issues of Edupage are available by WAIS, Gopher, and anonymous FTP from educom.edu.

EDUCOM UPDATE

Educum Update is a twice-a-month electronic information service covering news about Educum, its member institutions, its corporate affiliates, and other organizations that share Educum's goals for transforming education through information technology.

To subscribe, send electronic mail to listproc@educom.edu with the following text in the body of your message:

```
SUB EDUPAGE <firstname> <lastname>
```

To submit news and calendar information, send email to info@educom.edu.

IAT INFOLITS

INFOLITS is an electronic service of the Institute for Academic Technology's Information Resources Group. Each month this group monitors and selects from a number of information technology and instruction technology sources and provides brief notes for electronic dissemination to college and university educators.

To subscribe, send email to listserv@jibs.ott.unc.edu containing the following one-line command in the body of the message:

```
SUBSCRIBE INFOLITS <firstname> <lastname>
```

Substitute your own first name and last name for "firstname lastname." Once subscribed, you will receive a file telling you how to submit email to the list and how to sign off.

If you have problems subscribing or want to send suggestions for future issues, contact Carolyn Kotas at carolyn.kotas@jibs.unc.edu.

IAT BRIEFINGS

The Institute for Academic Technology publishes the quarterly newsletter IAT briefings in both paper and electronic form. The newsletter includes articles on innovative uses of technology in higher education.

To subscribe to the online version, send electronic mail to listserv@jibs.ott.unc.edu with the following line in the body of your message leaving the "Subject" line blank:

```
SUBSCRIBE PUBS-IAT <firstname> <lastname>
```

Substitute your own first name and last name for "firstname lastname." The IAT server has other IAT technical publications, as well as back issues of the newsletter, available on the archive. A message will be sent to all subscribers when new papers are put on the archive.

Send any story ideas or topics for potential standalone publication to the editor, Jonathan Pluhny.

TULIP Project Blossoms

In February 1994, the General Library, in conjunction with Information Technology, launched the TULIP project. Formally known as the University Licensing Program, TULIP provides network access to bitmap images of approximately 40 journals in the field of materials science. TULIP is designed to work with any device that supports the X windows protocol for display. You may view TULIP images from UNIX workstations, IBM compatible machines, Macintoshes, and X-servers as long as you have access to an X-server.

TULIP journals may be accessed by entering MELVLIL's INSPEC or Current Contents database. All users must have a personal TULIP password which may be obtained by contacting Carol LeRat at the Physical Sciences Library: 752-0519 or clarissa@biuisc.edu. You will receive detailed information about TULIP with your password.

"There has been an initial flurry of interest in TULIP," says Beverlee French, assistant university librarian and campus TULIP liaison. "Over 50 TULIP passwords have been assigned since February, and we expect that number to grow."

Currently in its testing phase, TULIP is a cooperative research effort between Elsevier Science Publishers and several universities. All nine University of California campuses are participating in the project which is expected to last three years.

"Because we are anxious to learn from this experiment, we welcome comments and suggestions from TULIP users," says French, who may be contacted by e-mail (bfrench@compucom.edu) or telephone (752-2100).
How to Get Where You Want To Go and How to Do What You Want To Do

How do I get to the information I need? That is the question most of us ask when we visit a campus computer network. In the Network 21 environment, virtually any computer user on campus will be able to gain network access without a modem. A campus computer account and communication software will, of course, be essential.

Listed below are some networking applications and examples of the kind of software needed to reach them. Detailed information on communication software is available at the IT-CAP. Call 752-2548 or send an e-mail to ithelp@ucdavis.edu.

To use E-mail: Desktop-based electronic mail program such as Eudora (Mac), PC Eudora (MS-Window), or ACORN (DOS). Or, start up e-mail programs on IT-managed systems, such as Pine (UNIX), mail (UNIX), or VMSMAIL (VMS).

To access Mysql: Desktop-based communications software such as Claris Telnet (DOS) or MACIP (Mac), and access to IT-managed systems or other Internet access (telnet to mysql.ucop.edu). Or, access through terminals at Library sites.

To access the Campuswide Information System: Desktop-based Gopher client addressing gopher.ucdavis.edu 70 (for port 70). Or, to start up Gopher and connect to the CWS from IT-managed UNIX systems, simply type:

```
subscribe <listserver>, <first name>, <last name>,
```

(Subscribe the listserve name and your first and last names.)

To access World Wide Web (W3): Desktop-based W3 client such as NCUSA Mozilla http://www.ucdavis.edu/70/homepage.html (to connect to the local computer).

To transfer a file: Desktop-based file transfer program such as Fetch (Mac), Claris Telnet/FTP (DOS), or Kermit (multiple platforms); or startup of ftp program on IT-managed systems addressing an FTP server. To access the local FTP server from UNIX, type:

```
ftp ftp.ucdavis.edu
```

Text files are transferred in text mode. Graphics and wordprocessed files are transferred in binary mode.

Detailed descriptions of specific networking applications appear in the "Quick Tips" disseminated through IT-CAP (1400 Surge II) and other campus outlets.

Network 21...

and information resources to teaching and research. (See the article "Faculty Put the Network to Work" on page 1.)

According to Gargano, Network 21 is designed to handle the kind of heavy traffic that could put communication on the existing campus network at a standstill.

He explains that the current campus network can accommodate the growth in computer travel is like thinking that everyone driving from here to Southern California can use Highway 99," says Gargano.

As the name implies, Network 21 is UCD's electronic bridge to the future. While it will work to prevent information gridlock by opening new avenues, Network 21's true value will be measured by where we go, what we see and what we learn once we plug in.

Insect Museum Online

Lynn S. Kimsey sees Network 21 as an opportunity for the Entomology department to present its own insect museum online. Kimsey, an associate professor, envisions that the "museum" will integrate full-color images and text. Each exhibit will be interactive and fully transportable to desktops here and abroad...once Network 21 is in place.

International Language Lab

Robert Blake says Network 21 could give the language lab a chance to expand its international flavor. Blake, an associate professor in Spanish and Classics, has applied for a grant which will fund network access for the lab. He says network access will benefit students by enabling them to correspond with people in other countries and gain access to international works.

Terminology ...

(continued from page 4)

wide connection to the campus network, enabling networked departments to exchange electronic mail without need for modems.

Ethernet: A popular protocol for LANs that transports data at speeds of 10 megabits per second over thin or thick coaxial cable, twisted-pair wiring, and fiber optic cable.

10BASE-T Cable: A LAN connection method that permits the transmission of data at speeds of 10 megabits per second over twisted-pair copper wire. This is the preferred LAN configuration option in the Network 21 design, and in most instances, will enable departments to connect existing LANs to the new network without installing new cable.

NAM (Network Access Module): A wall jack where one plugs in a computer or telephone. In the Network 21 environment, an individual will be able to gain network access by plugging their computer into a NAM. Telephones and computers use different types of NAMs.

EQUIPMENT

Here we look at the vehicles. The terms listed here are the ones you may use to navigate the information highway.

Personal Computer (PC): A desktop computer that houses software programs for personal use. The two standard PC platforms are the PC-DOS and MacOS. In the Network 21 environment, individuals will be able to gain network access by plugging their PC into a NAM.

Workstation: A powerful desktop computer that often acts as a server in a LAN. Workstations can be used in standalone situations for high-speed and high-volume processing for applications such as statistical number-crunching and scientific visualization.

Terminal: A machine without processing capability but one that usually includes a screen display, a keyboard, and an interface to look at a host computer or network.

10BASE-T Card: Also called a Network Adapter Card. A computer must have a network adapter card to connect to Network 21.

Client: A computer system or program that requests a service of another computer, program, or distributed information system. In a LAN, for example, a workstation that requests a file from a file server is considered a client of the file server.

Server: A computer system, program, or distributed system that provides services or access to resources. In a LAN, the server is a central computer that stores files and applications shared by workstations connected to that LAN.

APPLICATIONS:

Here we look at ways to travel and destinations to explore. The terms listed here point to things you do and places you can see once you get on the information highway.

E-mail (Electronic Mail): As the name implies, this application is used to send and receive mail messages over a network. On the Internet, e-mail is one of the most popular applications.

Gopher: A distributed information service on the Internet that gives you access to the text resources that are available. To use gopher, send a request to a gopher server.

Mosaic: A client program that provides a graphical interface for accessing and browsing the World Wide Web.

UseNet: A compilation of thousands of news and discussion forums distributed as newsgroups on the World Wide Web. Not all host computers on the Internet subscribe to USENET (though it is available through the hosts do).

World Wide Web: A distributed information service on the Internet that provides hypertext links to multiple online documents containing images, sounds, animations and text as well.

Mosiac: A client program that provides a graphical interface for accessing and browsing the World Wide Web.

CIVIS (Campuswide Information System): Accessible through Gopher to virtually anyone with an e-mail account. The UCD CIVIS is a place to look for information on just about anything—computing classes, job announcements, directory listings, Network II tips, and campus events to name a few.

LISTSERV: An electronic mailing list that groups people at UC Davis using the listprocessor on the IT-managed UNIX systems to conduct online (asynchronous) discussions. Using one e-mail address, listserver participants can send and receive messages sent to the entire group.

Assistance: Here we look at roadside assistance. The terms listed here point to places you can turn to if your journey gets rocky.

NOC (Network Operations Center): Staffed by Information Technology personnel, the Network Operations Center accepts trouble reports for WCNET, Deptnet, modem, and LANagal, and provides hours 7:00 a.m. to midnight, Monday - Thursday; 7:00 a.m. to 4:00 p.m., Friday; and 8:00 a.m. to 5:00 p.m. on Saturdays. To contact the Network Operations Center, call 752-7500 or send e-mail to itnelp@ucdavis.edu.

IT-CAP (Campus Access Points): Located in 1400 Surge II, Bldg. 9, and 1400 Surge I, the IT-CAP offers computer and accounts and questions about communication software. Call 752-2545, or send e-mail to ithelp@ucdavis.edu.

CAIT (Center for Advanced Information Technology): A lab in the CAIT where you can go to do computer accounts and questions about communication software. Call 752-2545, or send e-mail to ithelp@ucdavis.edu.

References


First Year Use of Financial Aid System Shows Positive Results

by Ivars Balciks, Planning, Strategy & Administration

Two years ago, the Financial Aid Office started training staff and bought the equipment they would need to use the BANNER Student Information System. They began setting up the databases for the Financial Aid Module in early 1991 for implementation in 1992. Deciding to develop the system one more year, they began officially in January 1993.

With 45 staff, the Financial Aid Office in North Hall handles all financial aid for UC Davis students but those in the UCD Medical Center and the School of Law.


The tape load programs have been modified to fit UCD needs, however, and other modifications have been made to accommodate California-based financial aid funding and University and other scholarships.

Students start filing financial aid applications with the federal government each year in January and continue through to the beginning of March. The Financial Aid Office then receives and loads multiple tapes every two weeks (25-26 tapes/year) of information about persons who have applied at UC Davis.

Using this information, the Financial Aid systems staff calculate the student's need for aid, based on the current budget, costs of going to school locally, and potential family contributions. They then begin the packaging to deal with this need and how to redistribute the money from Cal Grant, Pell Grant, University Grant, Work-Study, scholarships, federal loan packages (such as Perkins Loans), bank loans (such as SLS Loans, Stafford Loan, Plus Loan, etc.).

The checks are issued by Student Aid Accounting after a student has signed an offer letter and any supporting documents for his package of aid.

The advantages of the new BANNER system over the old FAMS system are myriad, according to Cummiskey. The old system involved the manual setting of the Un/Ada mainframe, used a nifty batch process to update separate master files. The BANNER relational database, on the Sequent Zeus, allows interactive querying and updating of multiple linked database files ("tables").

For instance, students used to have to verify how many units they were taking when they picked up checks for the Pell Grant. Now staff at Student Aid Accounting can see Admissions/Registration data instantly online. Also, with implementation of the Accounts Receivable Module, students now receive an intake bill of all they owe and all credits they have. Changes to the bill (housing payments, library fines, Financial Aid, etc.) are recorded instantly and verifiable that day on the new system.

Cummiskey predicts that "students, faculty, and staff are going to be happier with the new system, for its online features, instant access, and the report capabilities that are to come." For more information contact the Financial Aid Office at 752-2390.

Banner Days for Banner

by Sandra M. Stewart, Information Resources

Want the good news early?!

That's right! Now UC Davis students can call RSV* and hear their grades right over the phone! During the past six months, the information resources have concluded the installation of the Banner Student Information System (SIS) and, one of its newest features has given it the ability to read student grades and grade point averages over the telephone using RSV*.

But that's not all. Information Resources (IR) has also made it possible for the Registrar's Office to use SCANTRON to scan student grades directly into the SIS Banner database instead of the old way of keying in grades for 22,000 students. According to Associate Registrar Bob Streb, the introduction of scanning into grades processing has been a great success, "I recommend electronic scanning of data to anyone with a similar need. This kind of processing has worked well for us."

Over 100 new processes and screens ("forms") have been installed during the last six months as part of Phase II of the installation of the Student Information System. Many of these processes help the Planning and Budget Office provide student enrollment statistics to the UC Office of the President. Forms also exist for tasks in Accounts Receivable, Admissions, Financial Aid, Graduate Studies, Deans' Offices, Veterinary Medicine, and the Registrar's Office.

Among Registrar offerings are five query forms that can people to use to display course information, section information, and student information.

Key individuals who worked on the Banner installation project and continue to give consulting and programming support include Debbie Lauriano, Sandra Stewart, Cindy Aubrey, Elizabeth Bullock, Kenneth Johnson, Steve Osterday, Jamila Sabbakian, Virginia Shocum, David Squires, Brian Sher, and Randi Thompsen.

* RSV* (Registrar Students Via Phone) is managed by the Office of the Registrar. For more information about RSV*, see "Touch-Tone Registration in Effect" in the Spring 1993 IT Times (Vol. 1, No. 5, p. 6).

Wandesforde-Smith...

(continued from page 5) have a different and better network but also because the people and devices at the ends of the network will also be different and better.

Until last week I thought I would probably retire before I saw the day when my students and I would be able to travel the world together in the classroom, and without ever leaving the classroom. Now I think it may be as little as five years before we make that trip together, picking up as we go along, and arrive in a different country to make an intellectual journey through some province of political science, whatever test, data, images, or stories we think we need to make sense of what we encounter. Network 21 is about fulfilling that vision, for ourselves as teachers and for our students as learners. It is not about bringing the Gopher and the newsgroups and the ftp transfers some of those things that people who will never need them.
Training Tapes and Computer Tutorials at UCD Bookstore

The UCD Bookstore now carries audio-based and video-based tutorials at reduced prices. Interactive audio-based training tutorials from Personal Training Systems are available for $25 apiece. Each tutorial contains a 90-minute audio cassette tape, a practice disk with examples, a Quick Reference Card, and an Extra Practice Card.

Topics for Macintosh and Windows include:

- Microsoft Excel
- Microsoft Word
- Microsoft Works
- MS PowerPoint
- Adobe Photoshop
- Adobe Illustrator
- Macintosh System 7
- Fonts
- Claris HyperCard
- ClarisWorks
- QuarkXPress
- Lotus Notes
- Claris FileMaker Pro

You may also obtain Mac Academy and Windows Academy videotapes for a Bookstore price of $45 apiece. These tapes offer instruction not only on software such as 4th Dimension, MacProject Pro, SuperPaint, etc., but on general computing topics such as Financial Aid, Legal Aid, Accounting, Networking, and so on.

For stock availability or for further information, contact UCD Bookstore Computer Shop at 752-1945. For a free sampler cassette from Personal Training Systems, call 1-800-832-2999.

Ask the UCD Bookstore about special pricing if you think you would like to take a course.

E-mail Listservs Provide Up-to-Date Vendor Information

by Jennifer Koester, Information Resources

Information Technology Resources has established the following electronic mail forums locally to keep you informed of vendor developments. Messages posted to these listservs can include, but are not limited to, monthly meetings, new product announcements or launches, training events, demonstrations and evaluations, site-licensing programs, and product information. In addition, subscribers to these listservs can exchange ideas regarding specific products and departmental solutions.

E-mail address and instructions for subscribing, unsubscribing, and obtaining help on using UC Davis Listservs.

Jury Decision Affects MS DOS 6.0 Users

A Los Angeles jury recently decided that Microsoft Corporation’s DoubleSpace disk compression technology violated two patents held by Ibac. MS DOS users should be aware of the following conditions of that decision:

- Microsoft is not required to recall installed copies of MS-DOS 6 that contain DoubleSpace.
- The DoubleSpace feature has been pulled from future versions.
- Microsoft continues to support existing users of DoubleSpace.
- The UCD Bookstore has stopped selling MS-DOS that contains the DoubleSpace feature.
- Microsoft is sending out a revised version of MS-DOS 6.0 to est users.

The new version number will be 6.21.

To subscribe, send electronic mail to listproc@ucdavis.edu with this request in the body of your message:

subscribe <listserv> <first name> <last name>

For example:

subscribe ucd-apple@ucdavis.edu John Hancock

To unsubscribe, send e-mail to listproc@ucdavis.edu with the following request in the body of your message:

unsubscribe <listserv>

For example:

unsubscribe ucd-apple@ucdavis.edu

To receive an extensive help file, send e-mail to listproc@ucdavis.edu with the following request in the body of your message:

help
Computers Create New Opportunities for Physically Disabled

by Catherine Curran, Planning, Strategy & Administration

The same technology that pushed the phone booth out of the office is opening doors of opportunities for people with physical disabilities.

Thanks to a number of adaptive computing features, individuals with visual impairments and limited use of their hands can exchange electronic mail, explore the Internet, edit publications, input data, and design databases.

Putting technology — and information — within reach of UCD’s disabled population is the Disabled Student Resource Room, an adaptive computing lab located next door to the Center for Advanced Information Technology (CAIT) on the first floor of Shields Library. The Disability Resource Center manages the lab, which is funded by a grant from the Department of Rehabilitation, instructional equipment funds, student registration fees, and donations from Delta Gamma women’s fraternity.

The lab houses both Macintosh and DOS desktop computers equipped with adaptive features and “mainstream” programs (e.g., WordPerfect, Microsoft Word, and Excel). And, of course, there is network access. Students with use of only one hand can enter data on standard keyboards using special system software. Students with cerebral palsy and other conditions which limit control of their hands can enter data by using a voice input program which translates speech into text. Visually-impaired students can use screen enlarging to read text and data. And blind students can “read” the screen with a voice output program in which a computerized voice serves as translator (Remember Hal?)

“A steady stream of students uses the lab throughout the school year, and it is not unusual to see all equipment in use during midterms and finals,” says Bill Cooper, who coordinates lab operations for the Disability Resource Center.

“These students are bright and motivated, and we are seeing that computers can really make a difference in their lives,” says Lorraine Berman, a counselor for the Disability Resource Center.

“Even just two years ago most disabled students had rely on others to do reading, dictation, and sometimes data input tasks to a human. Now, technology is giving them independence.”

And that independence is giving them new opportunities. Historically, employment opportunities for the disabled were very limited, Berman notes. Now, almost any job can be made accessible.

“Thirty years ago, people who were totally blind usually worked as medical transcriptionists, photo processors, or chair carriers,” says Berman. "Now, blind individuals are working as lawyers, professors, and research scientists."

Here is a brief look at just some of the adaptive computing equipment and software programs on the market today. The list is not exhaustive and there are many other programs available.

- **CloseView** is a screen enlargement program that comes with every Macintosh sold. You can find it on the utilities disk. A commercial version with many important enhancements is called InLarge by Berkeley Systems. For the DOS-based PC, there are several screen enlargement programs available including MAGIC and LPDOS.
- **Flipper and Vocalize** are software packages that enable the user to read the screen orally. They mimic sight reading by allowing the user to scan the screen and read selectively. Outspoken is a similar program for the Macintosh.
- **IBM VoiceType** allows users to dictate 20 to 30 words a minute, while translating spoken words into text. It keeps a model of the user’s voice, so this tool can be used effectively even by individuals with speech impairments. Other systems sharing the same technology are published by Dragon Systems for the PC and Articulate Systems for the Macintosh.
- **TDDs** (Telecommunication Devices for the Deaf). These mechanical devices are used by the hearing impaired to communicate over telephone lines. The devices work only if the person on the other end of the line is using a TDD. Although TDDs are still used, e-mail is giving the hearing impaired a communication channel that makes their disability transparent to others.

Students Put Computer Skills to Work

**EDITOR’S NOTE.** The Disabled Student Resource Room in Shields Library is an adaptive lab serving UCD’s disabled student population. Below are profiles of Paul Carver and LaWanda Hawkins — just two of the many students with disabilities who have benefited from advances in computer technology.

**Paul Carver**

As an intern at PG&E, Paul Carver performed the traditional tasks of a computer engineering consultant. His design data bases, installed new hardware and software and provided network support.

“Sounds pretty routine, until you stop to consider that Paul Carver is blind.”

“Computers are becoming the standard in the workplace, and this is making it easier for the disabled person to perform,” says Carver.

In addition to standard computer equipment, Carver relies on a handful of adaptive technologies. A Braille printer, speech synthesizer program and an audio screen-reading program allow him to input, output and interpret computer data.

These technologies enabled Carver to complete his degree in computer engineering at UC Davis last quarter, and he is confident these same technologies can help other blind individuals secure a spot in the workplace.

This month Carver began working as director of training at the Lawrence Marcolino computer center in Sacramento. Operated by the National Federation for the Blind, the newly established center will provide computer skills training for the blind high school students and adults.

One of Carver’s goals is to give his students skills demanded by employers.

“I think a real important aspect of the program will be working with employers to develop a program that will meet their needs,” says Carver. “We need to find out what kind of skills are needed, and what kind of jobs are out there.”

**LaWanda Hawkins**

Before she was introduced to computing, LaWanda Hawkins relied on friends and roommates to help with writing and editing assignments. Now, despite having vision severely blurred by congenital cataracts, Hawkins is using a computer to edit and design a newsletter for CalTrans.

“The computer is a lot more convenient,” says Hawkins who was introduced to computing her second year at UCD. A double major in English and African American Studies, Hawkins now edits with the assistance of a program that projects test 16 times its actual size.

Hawkins’ computer skills enabled her to land a journalism internship at CalTrans where she composes a newsletter for the construction division. She uses WordPerfect for writing and editing and PageMaker to do the newsletter layout. Macintosh CloseViewer (a screen enhancer program) is the adaptive feature that enables her to read the screen. CalTrans has provided a 14-inch monitor to facilitate projection of the magnified text.

The computer also has helped Hawkins in the classroom. She has used the Student Disability Research Lab to participate in “e-mail assignments” and “network research.” These types of computing projects are becoming popular with UCD instructors who are using technology as a teaching tool.

Next year, Hawkins will be studying abroad in Ghana. After graduation, she plans to attend law school.

Discussion List Serves Disabled

(Off the Internet: ABLEJOB is an open discussion list dedicated to the advancement of people with disabilities. Subjects pertaining to research, development, and assistance with online job opportunities for individuals with disabilities will be discussed. Suggested topics might include work that can be done at home, companies employing interest in employing people with disabilities, job development, sources for adaptive technology, etc.)

To subscribe, send e-mail to listserv@uvvm.stjohns.edu, and in the body of the message type this one-line command:

```
SUB ABLEJOB <firstname> <lastname>
```

(Subtitle your own first and last names.)

If you have any problems or questions, contact the list moderator:
Dick Banks
rbanks@uvvm.stjohns.edu
Robert Ambrose
ambrose@ltd.stjohns.edu
IT Responds to the Spiraling Increase in E-mail Communication

by Brian Hill and Johnson Lai, Information Resources

The Division of Information Technology has effectively responded to the recent increase in electronic mail communication. Factors contributing to the dramatic growth have included:

- an effort by the campus, responding to Phase III cuts, to encourage electronic communication to save money and enhance faculty-student interactions;
- a recent surge of interest in the "In-
formation Highway" nationwide;
- a substantial increase in subscriptions to electronic mailing lists/discussion forums.

In November 1992, the number of email messages processed on a weekday averaged less than 2,500. During the same month in 1993, nearly 17,000 messages were handled per weekday average. And in the last 6 months, email use rocketed — with nearly 39,000 messages processed daily in February on weekdays!

IT expects e-mail usage to continue to expand at an exponential rate.

IT has begun to examine the technology necessary to handle increasing demands in the future. Implementation of much of this technology will begin this summer and continue as demands on the email system increase. Electronic mail has become an increasingly mission-critical tool for the University of California. It will continue to provide and ensure reliable, secure, and timely email delivery.

In November 1992, the Bullwinkle mail server processed an average less than 2,500 electronic mail messages on a weekday. In November 1993, it handled nearly 17,000 messages per weekday average.

Electronic Mail Crisis Has Passed

by Dan Dorough, Distributed Computing Analysis & Support, and Dana Drennan, Information Resources

Around second week of January 1994, electronic mail on IT-managed machines Ucavis and Bullwinkle bogged down. Load on network monitoring and other software contributed to the slowdown, but the problem was essentially that email traffic, both incoming and outgoing, had reached a phenomenal rate of almost 40,000 messages per day.

IT staff dealt with the problem in several stages over the next weeks. On February 21, the most significant change occurred when we installed new email routing software and completely changed the routing structure. After a few problems with the software were worked out, email began transmitting normally again. On February 27, we put new processing boards on Bullwinkle, which further increased the capacity of that system. No problems with email delivery have been reported since then.

Now IT is looking to get ahead of the wave — by adding a Sun SparcServer 1000 to handle email routing. This machine will add four times the capacity of the current Bullwinkle (retaining the name Bullwinkle, however). IT expects that the new machine will handle email traffic without problems for another year. At the end of one year, IT will increase system capacity again as needed.

User Expectations for Email High

During the crisis, IT found out just exactly what its clients expected in delivery of electronic mail to locations off campus and across. Expectations had outstripped the capacity of the system. The system was originally designed for a 2-day turnaround. Thus, for two days, undeliverable mail is returned to the sender. However, for many years, email users have received and expected much faster delivery. It was rare for a local message to reach an on-campus destination in more than an hour. During the recent crisis, people were upset that it was taking 4-6 hours for email transmission. In some instances, it took a day.

Some situations come up that are completely out of local control. For example, a number of departmental systems on campus have frequent periods when they do not accept electronic mail delivery. When mail is sent to a user on such a system, delays in email delivery may occur. IT does not control those systems.

Another example: Outgoing messages addressed to the same system may take different paths over the Internet. Sometimes, an earlier message can arrive after a later message sent to the same person. IT has no control over electronic mail once it has left campus.

IT remains committed to meeting expectations and strives to provide a service that delivers 95% of messages in one hour. With the recent and pending changes to the system, client satisfaction should be on the rise again.

Email Surge Related to Surge in New Computing Accounts

More than 7,000 new computing accounts have been assigned to campus users since the beginning of the 1993-94 school year, reports Joan Gargano, director of Distributed Computing Analysis and Support (in a report generated March 21, 1994).

There are 24,500 e-mail accounts assigned on campus, and 7,343 of those accounts have been created in the last six months. Gargano estimates that about 16,000 accounts are really active.

The database identifies about 4,500 of total account holders as follows:

- Faculty: 1610
- Staff: 10385
- Students: 7788
- Visiting Faculty: 34
- Visiting Staff: 63
- Visiting Students: 48

IT has been able to keep up with the demand for accounts and do it online, without paper, through a new account registration program that uses Oracle and preloads much of the information from other University databases.

In one 15-day period in March 1994, for example, 200 new computing accounts were added to the accounts database. For 126 of these accounts, representation from the major schools and colleges was as follows:
Ag and Environmental Sciences: 28
Engineering: 10
Graduate Studies: 20
Letters and Science: 64
Business Administration: 1
Veterinary Medicine: 1
Law: 2
Faculty, staff and students interested in opening a new account should contact the IT Campus Access Point at 752-2548.

User Information

Are You Connected Yet?

IT Times

The IT Times is published quarterly by Information Technology, University of California, Davis, to inform the campus community and others of information technology services, facilities, and activities at UC Davis. It is distributed free of charge to members of the user community and to other universities.

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The following persons contributed to the release of IT Times Vol. 2, No. 3 (May 1994):

Bran Blakke
Carole Barone
Brian Beale
Lori Bennett
Jim Hymes
Paul Chinn
Catherine Curran
Dan Dorough
Juliette Lai
Dana Drennan
Hannah Fisher
Denise Gage
Joan Gargano
Paul Gratz
Dave Hartline
Ken Harrington
Brian Hill
Rose Hobbs
Larry Johnson
Matt Kapapadis
Kevin Kawaguchi
Paula King
Jennifer Kreiser
Jolene Lai
Zackary O'Donnell
Calistho Oliver
Robert Raitson
Kevin Ross
Phil Trupp
Dave Vazquez

Quick Tips Now at Reserve Desk and Class Notes

Distribution of the "Quick Tips" series produced by the IT-Campus Access Point (IT-CAP) has been enhanced.

You can now obtain these 2-page documents on information technology topics from the Library Reserve Desk for checkout/photocopying, as well as from Classical Notes in 165 Memorial Union.

Classical Notes, which charges a minimal fee, distributes the "Quick Tips" in the form of complete packets. One packet contains all the "Quick Tips" that pertain to use of Macintoshes. Another contains all the PC-related "Quick Tips."

For more information about the "Quick Tips," contact the IT-CAP (1400 Surge II) at 752-2548 or thehelpluteavis.Us