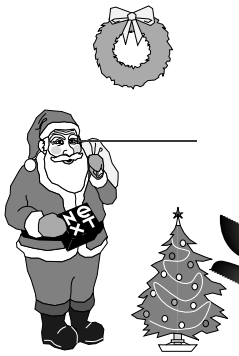

SCaNeWS

Southern California NeXT™ Users Group Newsletter

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VOLUME 1, NUMBER 7
DECEMBER 1991

NeXTWorld Expo Set For January 22nd to 24th

The headline news for the entire NeXT community this past month was the announcement of the first NeXTWorld Expo to be held in San Francisco at the Civic Auditorium January 22-24, 1992. Steve Jobs, Chairman and CEO of NeXT, Inc., will give the keynote address. Many events are planned for the Expo, including a User Conference, a Developer Conference, a User Group Conference and a well-stocked exhibitor floor. Early registrations received prior to December 30, 1991, are priced at $25 for exhibits only, $95 for the User Conference and $395 for the Developer Conference. All Expo registrations include attendance at the User Group Conference. After December 30th, registration fees are higher.

Attendance at this Expo is expected to exceed 5000, with NeXT users and developers from Moscow, Mexico, Hong Kong, Japan, Ireland, Italy, Netherlands, Canada, Korea, the United Kingdom, and the U.S. having already confirmed their attendance. An interesting sidenote is that NeXTWorld Expo is being coincidentally held at the same time that UniForum, a major Unix exposition, and Usenix, a long-running conference of Unix developers, are being held in San Francisco. There are indications that both NeXTWorld Expo and UniForum may offer reciprocal attendance rights to their exhibition floors for all participants. This would very likely increase the overall attendance at NeXTWorld Expo.

Here is the schedule of events for NeXTWorld Expo as of SCanNews' press time:

Exposition	Wednesday, Jan. 22	11:30 a.m. - 7:00 p.m.
	Thursday, Jan. 23	8:30 a.m. - 6:00 p.m.
Keynote Addresses	Wednesday, Jan. 22	10:00 a.m. - 11:30 a.m.
	Thursday, Jan. 23	9:00 a.m. - 10:30 a.m.
User Conference	Wednesday, Jan. 22	8:00 a.m. - 5:00 p.m.
	Thursday, Jan. 23	8:00 a.m. - 5:00 p.m.
Developer Conference	Wednesday, Jan. 22	11:00 a.m. - 5:00 p.m.
	Thursday, Jan. 23	11:00 a.m. - 5:00 p.m.
	Friday, Jan. 24	9:00 a.m. - 3:00 p.m.
User Group Conference	Friday, Jan. 24	8:00 a.m. - 5:15 p.m.

The User Conference is scheduled to include seminars and panels on a wide variety of interesting topics, including:

- NeXT Technology Directions
- How to Model in Improv
- Adobe Illustrator Techniques
- Mathematica for Mortals
- Power NeXTstep Tricks
- Getting Started in NeXT Programming
- System Administration
- Tricks of the Trade
- Networking NeXTs to Macs and PCs
- Connecting to the Internet
- Setting Up a Basic NeXT Network
- Putting Interpersonal Computing to Work
- NeXT in Financial Services
- NeXT in Publishing
- Database Applications on NeXT
- NeXT in Government
- NeXT on Campus
- Heterogeneous Environments
- OOP/OOSS (Object-oriented Programming and Object-oriented System Software)

NeXTWorld Expo also has exciting sessions planned for NeXT developers and potential developers. The Developer Conference schedule includes:

- Application Design/Architecture
- DBkit (database kit)
- Application Integration Overview
- New & Improved Tools of the Trade
- UI Design
- Your Partnership with NeXT

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Strange Vibrations "NeXTstyle"

by Jon Rosen
jfr@locus.com

"You're going to camp? Aren't you a bit old for that?" my brother asked? Well, he had me there. But I proceeded to tell him about my new-found fascination with the NeXT computer. I explained why I was finally giving up on Macintosh, even though I had convinced him to buy one many years back. "It's hard to explain," I said. "It's just... well, it's just *cool*." As I said the words, I realized how hooked I really was. I was starting to use the NeXT lingo, cliches of my long-past youth coming back to haunt me.

"You know, Sophie just mentioned that we know someone who works at NeXT. His name is Randy Nelson," David said. "She worked with him at the 1984 Olympic Festival in Los Angeles. Remember, the juggling version of Comedy of Errors?" I should point out here, without sounding too boastful, that my sister-in-law is a professional actress, and a damned good one at that. She may even win a Tony next year when she plays the lead in the revival of "Most Happy Fella" on Broadway. But enough digression. A juggler working at NeXT? I knew it was a strange place, but really!

"Randy dropped out of the Flying Karamozov Brothers a few years ago and Sophie thinks he is working at NeXT, writing books or answering phones or doing something like that. He was always a bit of a computer nut," my brother said. "Maybe you can look him up when you attend that, what did you call it, Developer Camp?"

Too weird, right? The NeXT day, I called NeXT training coordinator Susan Lopez. After making sure my class reservation was confirmed, I asked her about Randy. I told her that my brother knew this guy who used to juggle and he apparently was working at NeXT.

I asked if she knew him, and, if so, was there a possibility I might be able to get a hold of him while I was at Dev Camp? Susan paused and then laughed. "You won't have to look too far," she said. "He's your instructor!"

As I hung up the phone, I felt a tingle. The vibrations told me that this NeXT stuff was really going to be great. No, not great. *Insanely great. And way too cool!*

FedExpo Update

by Jonathan Kruger
kruger@socrates.umd.edu

I attended the first day of the NeXT FedExpo yesterday, and I thought I'd share the bits of info that I thought were interesting:

Keynote Address: Apparently it's the same address that he's *(Ed.: Steve Jobs)* been giving everywhere. It was very effective. Lots of "oooo"s and "aaaa"s and applause.

NeXTstep 3.0: Some of the things that were mentioned were built-in Apple Ethertalk and Novell IPX, "remote objects" and the DBkit. It's supposed to be finished in March or April. NeXT is also adding Objective C type extensions to C++ so it can be used with Interface Builder (Objective C++?).

New Machines: Not a word. Big surprise there. It was mentioned that NeXTstep is currently running on 4 processor families, one of them being Intel.

New Keyboards: NeXT is working on some new keyboard options. I got a chance to mention my ideas on what keyboards/mice/trackballs/numeric keypads should be like and he *(Ed.: Jobs?)* said "I think you are going to be very pleased." Again, no specifics.

WordPerfect: Jobs said that the NeXT version of WP was the "flagship version." The WordPerfect salesperson expressed some distress that Steve had said that. He agreed that the version on the NeXT was the fastest and most flexible, but he said that he thought the Windows version was the flagship, since it makes them the most bucks. He also said that WP is committed to developing for the NeXT and it should receive more attention now that the Windows version is out. On a non-NeXT related note, I asked if they had plans to add a grammar checker to WP and he said no, but they would if enough people called them and said they wanted it.

SoftPC: They said a new version would be out about two months after NeXTstep 3.0 comes out, and that it would be twice as fast as the current version (equivalent to a 10 MHz AT) for processing, and 3 times faster than the current version (etch-a-sketch speed?) for graphics. It should also be able to run in protected-mode. Apparently NeXT is coding stuff into 3.0 specifically to speed up SoftPC.

DEC: After the keynote there was an announcement that DEC will be performing hardware maintenance on NeXTs in security sensitive areas.

IBM: When asked if NeXTstep was still alive on RS/6000s, Steve didn't want to say much about it except that he knew of no plans for IBM to use NeXTstep, but that NeXT and IBM were working together in some cases where businesses want to buy IBM RS/6000s as servers and NeXTs for the desktop.

Lighthouse Design: They have done an excellent job with Concurrence, their presentation builder. All of the speakers were using it (including Steve Jobs) and it works like a charm. Someone even mentioned that you could use it as a word processor since the layout features are so easy to use. Now how would you print a document with voice attachments? By the way, most of the people at Lighthouse are vegetarians. ***:-)***

BDS: BDS is a small Washington, D.C., area company, and their main (only?) product is Xcalibur, an image processing system used for GIS and medical imaging, among other things. Right now it only runs under Motif. They just bought a NeXT and ported it to CoXist overnight. They were very impressed with the NeXTdimension system and they are going to port Xcalibur to NeXTstep. They figured it would take them 90 days and it should be really nice when they're done.

AppSoft: They're really only just starting out. They plan on enhancing WriteNow and probably changing the name. They have been negotiating with another company who makes a grammar checker with regard to possibly adding that functionality to WriteNow. It will be a while before we see anything from them.

Stone Design: Andrew Stone was there going nuts trying to show everyone all the features of Create and DataPhile. He said that he was sick of adding new features to DataPhile and it should be ready for release in about a month. From what I saw it looked wonderful.

Food: There were no dead animal bits, no dead plant bits, no food of any kind.

Windows NT: Someone asked if the NeXT would run Windows NT when it came out. Someone from NeXT said "Ummm, no". :-)

That's all I remember for now.

"Never send a monster to do the work of an evil scientist. Now be a good little bunny and let me have your brain."

From The President

As the year comes to a close, I want to say "Thanks!" to the following people who made SCaN so wonderful in 1991:

Lorraine Rapp (CSULB) for *SCaNeWS*, being secretary and many other things. I'm really sad to lose her to her thesis and other pressing matters.

Bob Desharnais (CSULA) for being VP, writing most of the Golden Nugget app, and setting up meetings at CSULA.

Henry Chiu (CSULB) for keeping SCaN's finances together and being the number one person for technical help at CSULB meetings.

Allen Denison (UCLA) for setting up two great meetings at UCLA.

Ernie Prabhakar (Caltech) for setting up the meeting at Caltech and being a great auctioneer.

Andrew Stone (Stone Design) for the fabulous October demonstrations and donations to SCaN.

Jeanne Heston (Lotus), **Rossana Lin** (Frame), **Gerry Granucci** (Adobe), **Norman Furlong** (BossLogic) and **Bob Emmort** (VISUS) for their new product demonstrations.

Rick Jackson, **Chet Kapoor**, **Nader Nafissi** (NeXT) for great help at SCaN meetings and elsewhere.

Conrad Geiger (NeXT) for literally thousands of messages about the latest NeXT developments.

Jon Rosen (ExecSQL) for bailing me out by doing most of the work on this issue of *SCaNeWS*.

Alison Bomar (CSULB) for helping out in a pinch with mailing and other stuff.

Robert Thille for several great technical articles in *SCaNeWS* and a generous contribution to SCaN.

Tony Longson and **Gary Novak** (CSULA) for helping out with the meetings at CSULA.

Dave Bradley (CSULB) for writing some great articles in *SCaNeWS* and general helpfulness with our net.

Dennis Volper (CSULB) the man with Ethernet running throughout his body; a true UNIX Expert.

Brigette Kelly, **Jim Diamond** (NeXT) for helping out long distance from Calabasas.

And last, but certainly not least:

Louise Mahoney (wife) for being so good about those late nights and being so wonderful in general.

What Do You Call A NeXT Bigot?

by Chuck <???>

cnh5730@maraba.tamu.edu

This summer, I threw down the gauntlet with this challenge: "What do you call someone who owns/uses a NeXT and loves it (usually beyond the bounds of good taste (;-))?" I promised to collate the replies and summarize, so here they are, and thanks!! Enjoy!!

from Barry Merriman

I'd say they were NeXTatic, or in a state of NeXTasy.

from Tim Burnett

NeXTite

from Mathew Spolin

NeXThead

from Ernest Prabhakar

Cubist

CubeLover (before Slabs, of course)

NeXTophile (or NeXTophiliac :-)

NeXT-o-maniac (from Ali Ozer, too)

NeRD (NExt Registered Developer)

NeXTpert (if you're good)

from Roger Dean

NeXTtrophiliac

from Richard Kidder

NeXtian

NeXtStepper

from Scott Byer

NeXTie

from Bill Shirley

NeXToma of the frontal lobe

from Mark Adler

NeXT NuT

from Andreas Windemuth

NeXThusiast

from D McCollam

NeXTraterrestrials

and the incredible list from Hell from Jess Anderson:

NeXTian, conveys our religious fervor

NeXTaurian, ancient needs met

NeXTilian, cunning and determination

NeXTerminator, for killing uppity Amiga owners;

NeXTalteds, who think it's the best ever

NeXTollers, who think it's the best ever and tell everybody

NeXTperts, who know all about it

NeXTocrats, who know everything and tell you about it

NeXTcellence, our pursuit

NeXTcessives, anyone who's had one for a while

NeXTchequers, those who can afford peripherals

NeXTcitables, those whose await delivery from NeXT, Inc.

NeXTclave, our newsgroups

NeXTclusive, (1) the latest news; (2) the snobs among us

NeXTcommunicate, forced to sell and live in Amigaland

NeXTegesis, how it *really* works

NeXTistentialists, for whom it's a way of life

NeXTocentric, damning Amiga and Sun owners

NeXTosphere, Redwood City

NeXTpand, forever needing more disk space

NeXTpectancy, waiting for delivery from anywhere

NeXTpense, taking delivery by COD

NeXTpiation, granted to those who tell you wrong

NeXTploit, the saga of ruining your file system and recovering

NeXT post facto, discovering what you *should* have known first

NeXTpressionist, the compiler of this list

NeXTquisite, working like a NeXT

NeXTant, waiting for the 88000 upgrade

NeXTemporaneous, telling people at the bus stop about your computer

NeXTernal, the floppy drive you don't have

NeXTra, what you can expect to pay

NeXTinguisher, what Amiga owners wish they had

NeXTradition, what you face if you steal one

NeXTremist, what Amiga owners think we are (they could be right)

NeXTrovert, what you have to be if you hope to get by

NeXTWorld Expo Set For January
(continued from page 1)

- Mach Development
- Advances in Graphics and Color
- Interface Builder
- Application Integration
- Localization
- Using Objective C and C++ Together
- Networking
- Improv API
- Marketing Your Product
- Marketing Your Product Globally

To finish up the eventful week, several sessions focusing on NeXT user groups are also planned:

- Setting up NeXT Email and Modems
- Making a Living with a NeXT Computer
- Conducting a Successful NeXT User Group Meeting
- NeXT User Group Organizing Ideas
- Producing Newsletters on the NeXT
- How to Conduct Training Classes for your Members

A Week At NeXT Developer Kamp

In Which Pooh Ventures into the 100 Aker Wood and Dreams of Becoming a Real NeRD (with apologies to A. A. Milne)

by Craig A. Mattocks
mattocks@rcf.rsmas.miami.edu

Sunday, December 1

One warm sunshiny morning, Winnie-the-Pooh was preparing to go on an exciting journey indeed. "Off to the land of visionary righteous hackers!" thought Pooh, as he stashed his pot of most delicious hunny into his backpack. He had prepared diligently for NeXT Developer's Kamp, teaching himself C in two months time and reading every tutorial and NeXT programming book he could get his furry little paws on. Now the big moment had arrived.

"C'mon, you silly bear," urged Christopher Robins, "or you'll miss your first day of class!" Moments later a scared, Oh-what-am-I-doing Pooh arrived in Redwood City, a mere stone's throw (15-20 minutes southeast) from the San Francisco airport. Pooh jumped into his rental car, sped down the Freeway (US 101-S to San Jose), took the Whipple Avenue exit, and pulled into the Howard Johnson's just before sunset. He dumped his backpack in his room and looked up The Address in the Yellow Pages of the hotel lobby's telephone book (900 Chesapeake Drive).

"Hallo!" he called to the desk clerk. "How does a lost bear get to NeXT Computer Headquarters?" After fidgeting behind the Front Desk, the clerk directed Pooh to return to 101-S, take the Seaport Avenue exit, and "Chesapeake Drive should be one of those new roads on your left. You're no more than 5 minutes away," he noted.

Well, that seemed real close to Pooh and he needed to stretch his short little bear legs after being wedged into a crowded airplane seat all day long, so he decided to run there instead.

Pooh jogged southeast to the end of Veterans Boulevard, followed the sign left to Seaport Avenue, then ran along the railroad tracks, past some AMAZING mountains of salt being pushed skyward by big yellow bulldozers, until he finally reached Chesapeake Drive. Pooh entered a generic-sort-of-looking research park lined with hardwood trees in the process of losing their leaves. It could have been a Boston suburb but Pooh immediately recognized it as the 100 Aker Wood.

He began scanning the company names on the blue metal signs. Finally, there was NeXT Computer, Inc. on the right-hand side of the road, just another building (#14) in the group of pale blue, two-story office buildings. The double glass doors in the right front corner were locked, it being the late Sunday afternoon following Thanksgiving, but Pooh peered through the glass anyway.

On the wall behind the receptionist's counter hung a backlit NeXT color logo. "Gnarly sign, Dude!" exclaimed Pooh, practicing his newly acquired Californian dialect. Indeed, it seemed "chez-cool" to the little bear from the east coast. The waiting room was pretty spare though, only a black sofa and a couple of black chairs rested on the white pine hardwood floor. A plant or two stood near the door and a large, dramatic poster of a NeXTstation monitor adorned the far wall.

Pooh Bear jogged through the parking lots out front and passed an untagged black Porsche with a red "68000 workstation" bumper sticker. "Could this be the fabled NeXTmobile?" he wondered aloud, "But isn't it supposed to be a black Miata? Or am I confusing it with Guy Kawasaki's car?" (Pooh had read "Selling the Dream" the night before.)

Around back, Pooh chanced upon a boardwalk and a small marina. The view of the tidy little sailboats huddled together along the edge of the San Francisco Bay was quiet and soothing, not ostentatious at all. "What a wonderful place to sit and hum a particularly nice hum and dream of creating the ultimate Killer App for the ultimate Killer computer!" thought Pooh.

His initial impression was that NeXT is running a relatively austere operation. This was comforting to Pooh but it was not what he had expected, given the ridicule he had heard over the "net". He circled around the modest building, jogged along the loose white gravel trail and headed back to the motel to study Ann Weintz' "Writing NeXT Programs" book some more.

He was a very excited little bear but somewhat afraid that he would be buried by the avalanche of information which he suspected would fall on him the following day. Eeyore had warned him that he would be "blown away" by the intensity and pace of the course but Pooh resolved to grasp hold of the nearest tree branch he could find and hang on for at least one blustery day's worth of lectures. "We'll see tomorrow," yawned Pooh, "but now I need a little smakerel of hunny before I turn in for the night."

Monday, December 2

Pooh woke up early the next day, rubbed the sleep out of his bleary bear eyes, and drove over to Chesapeake Drive. He met a fellow classmate and they waited patiently together outside of NeXT Headquarters. They noticed that NeXT employees had to insert a black magnetic card into a slot on the column outside the glass doors before they could enter the building.

"Hmmm, there must big pots of super-delicious hunny inside," mused Pooh. Suddenly, a hearty, dark-haired woman strode up the walkway. "That's Bambi - NeXT's Den Mother!" shrieked the classmate. She cheerfully greeted the two lost students, then directed them across the street and around back (710 Chesapeake) to the classroom. And, WOW, what a classroom it was!!!

Eight laboratory workbench tables were arranged with four "rows" per side of the room, angled so that, when Pooh walked down the central aisle, it was like walking upward through the middle of a big "V". Four monochrome NeXT cubes sat atop each table while four Cube servers plus the instructor's machine were set up at the front of the room, for a total of 36 NeXT's networked together via Ethernet. Four NeXT laser printers were thrown in for good measure. A GE projector flashed the teacher's Megapixel display onto the movie screen at the front of the classroom so that students could follow/replicate every mouse movement the instructor made. Four-by- four foot posters of the front and back of the Cube adorned the white walls.

Pooh was getting radically stoked. "Do I smell a honeysuckle bush?", wondered the hungry bear, who had rushed out of his HoJo's hotel room without a morsel of food. Much to their delight, the budding NeXT developers-in-training were provided with an elegant, catered breakfast spread in the back of the room each day. "Muffins, pecan danish, bagels with cream cheese, yogurt, juices of all kinds, coffee, OJ,... what's a confused bear to do?" pondered Pooh.

Lunch was served up in the classroom next door each noon and an afternoon cookie/brownie break was provided to keep the hackers' blood sugar levels high. A few NeXT elves would stop by to chat with the students during these

(continued on page 5)

InfoWorld Speaks...

The rumor mill is getting hotter yet. This week (December 16th), Robert X. Cringely reconfirmed his rumor leaked in Infoworld last week, saying:

"A 68040 box that will be both fast and cheap is the $3,500 monochrome ($5,000 color) downsized NeXTstation to be announced in January. With the first 33Mhz 040 and NeXTStep 3.0, this baby should offer twice the performance of the current NeXTstation for less money."

This comes after his rumor last week about Canon manufacturing the machine and it containing a 256Mb 3-1/2" optical drive. Who knows? Cringely can be very accurate at times.

Also in this week's Infoworld was an incredibly positive editorial on NeXT and Steve Jobs. Stewart Alsop writes:

"This week, we report on the next steps for Next Inc., creator of the NeXTStep environment and the brainchild of Steve Jobs. It seems that NeXT now believes it is in its best interest to offer its system software on a more standard platform, namely the Intel 486.

"We could argue that this is a mistake from Next's point of view, just as we might argue that it is a mistake for Sunsoft to make its Solaris available on the Intel platform. But we don't actually care if it is a mistake or not, because we're not in the business of worrying about the health and well-being of computer vendors. But we are in the business of worrying about improved technology and the benefits it will bring to all of us who use computers.

"We really, really do care about whether those vendors are going to make better computers. And in that respect, NeXT is one of the few companies that has even attempted to define and build a better computer system in the past five years.

"That's a fairly damning statement for the industry, because we believe there is still much to be done in computing, particularly in networking, application development, ease of use, connectivity and communiciation. But, quite frankly, we don't see many vendors taking significant risks in implementing technology advances in these areas. Worse, we see vendors that are taking such risks being criticized and second-guessed at every turn simply because they are spending more effort trying to make better computers than trying to fit into predefined notions of a standard. And NeXT is an excellent example of just such a vendor. No one knows better than Jobs and his crew that NeXT cannot survive as a company unless it can successfully define for customers a real and significant value of its difference.

"And yet, few observers have credited the company for recognizing early on the fundamental trends it made in technology - object-oriented development, large writable media, integrated display and networking, and so on.

"As the company struggles to find a winning business formula, we believe that it should be recognized more readily for what it has accomplished and that companies like it should be given more credit for at least trying to improve on the model. We believe that is an honorable and desirable objective for any vendor."

A Week At NeXT Developer Kamp
(continued from page 4)

breaks. "Nice touch, NeXT!" thought Pooh, who really enjoyed talking with the wee NeXTfolk. At these lunches he learned, among other things, that Apple Computer software engineers often clandestinely attended NeXT Developer Kamp masquerading as employees of the phony "Palo Alto Shipping Company".

POUNCE... "Hi, I'm Tigger!" shouted our instructor (actually Ms. Susan Rayl). "Tee-Eye-Double-G-RRR." And she broke into a song:

> The wonderful thing about Tiggers,
> is Tiggers are wonderful things.
> Their tops are made out of rubber,
> their bottoms are made out of springs.
> They're bouncy, trouncy, wouncy,
> they're really fun, fun, fun.
> But the most *wonderful* thing about Tiggers,
> is *I'm* the only one!

"Tiggers can be extremely Bouncy at times," recalled Pooh. Tigger served as the Kamp's shepherd through the perils and (mostly) glories of NeXTstep programming for the week. She told the students to grab their badges, sign in, and log on to any machine they wished. A thick spiral notebook entitled "Software Development Course Materials" and a NeXT tote bag, replete with a NeXT t-shirt, decals and pencils, awaited each student at his/her desk.

Pooh noticed that both the name on his badge and his login name had been misspelled. ("Duh... whatsa Pooh?") Tigger and Roo (actually teaching assistant and networking ace Gray Lee who kept the Cubes hummin') noticed the discrepancy vis-a-vis the sign-in sheet and - viola! - suddenly a new badge appeared automagically on Pooh Bear's keyboard. His user account was also instantly corrected. (Being a shy, humble bear, he had said absolutely nothing to the instructors about these problems.)

Tigger, who has been teaching NeXT Developer Kamps all over the world (Redwood City, Pittsburgh, New York, Paris, Tokyo, even someplace in Indiana!) for the last 2 years, gave us a brief synopsis of her background: EE degree at Stanford, studied artificial intelligence at Carnegie-Mellon, worked with OSF/Motif at IBM, loves graphical user interface design/creation/development. "We are in enthusiastic, capable hands," thought Pooh.

Then each student stood up in-turn and introduced themselves. "Yow! I am surrounded by bright, experienced programmers who inhale C code and speak in postscript," gasped a daunted, Oh-I'm-not-in-Pooh-Corners-anymore-Pooh. "Snort, 10 50 moveto, pop pop, fillrect, stroke," said his classmates.

Tigger warned the Kampers that this would be the main "grunt" day - the students would need to listen to some lengthy lectures to acquire a foundation in the basics of programming on the NeXT computer. Yet she made every lesson entertaining (she's absolutely tireless) and she patiently answered even the dumbest of questions (many offered by Pooh himself). She moused along with the students through the Workspace Manager's rudimentary functionality, she presented an overview of what the NeXTstep classes, objects and the AppKit are, then she fired up Interface Builder and whipped up a simple interface (consisting of a working window, menu, and icons) in about two (count 'em, two!) minutes!

The class covered the essentials of creating and using objects, message syntax, inheritance... then the students played with a project which, it seemed to Pooh, would end up being an aquarium screensaver for the NeXT - happy/sad "fishie" and "jellie" objects swam through an abstract ocean class. Tigger encouraged all aspiring NeRD's to "steal" code from the numerous examples which come installed on every NeXT computer. The students also learned how to look up class/object syntax in Digital Librarian and copy/paste it into their source to avoid coding mistakes.

"I am, like, one totally exhausted Bear!" thought Pooh at the end of the day, his Valley Girl lingo cresting. But he vowed to read ahead through the notebook that night so that he would be better prepared for the next day's lectures and exercises.

To be continued...

OFF THE NET

Excerpts from postings to comp.sys.next.
Compiled by Jon Rosen (jfr@locus.com)

Editors' Note: The selection criteria for Usenet postings are based solely on their interest. SCaN makes no claim, explicit or implied, as to the accuracy of the information contained in these excerpts. We also assume that people who post on Usenet will enjoy seeing their words in print.

From: bchin@terminus.umd.edu (Bill Chin)

Subject: Re: Tidbits from day 1 of the NeXT Federal Expo *(Ed: see Page 2)*

I was there on the second day, and I just wanted to add a few things:

kruger@socrates.umd.edu(Jonathan Kruger) writes:

I attended the first day of the NeXT FedExpo yesterday, and I thought I'd share the bits of info that I thought were interesting:

WORDPERFECT: Steve said that the NeXT version of WP was the "flagship version." The WordPerfect sales person expressed some distress that he had said that. He agreed that the version on the NeXT was the fastest and most flexible, but he said that he thought the Windows version was the flagship, since it makes them the most bucks. He also said that WP is commited to developing for the NeXT and it should receive more attention no that the Windows version is out.

The next version of WP for the NeXT will bring it up to the WP 6.0 for DOS (which doesn't exist yet) according to the marketing rep I talked to. This means all the stuff in WP5.1 and WP for Windows like table & equation editors will be added. An interim release (month or two) will include the most lacking Save to RTF feature.

SOFTPC: They said a new version would be out about two months after NeXTstep 3.0 comes out, and that it would be twice as fast as the current version (10 MHz AT) for processing, and 3 times faster than the current version (etch-a-sketch speed?) for graphics. It should > also be able to run in protected-mode. Apparently NeXT is coding stuff into 3.0 specifically to speed up SoftPC.

Also, SVGA - 1024X768 & 800X600 Video7 compatible modes as well as protected mode 286 operation will be included. I wasn't clear if OS/2 1.3 will work on it, but at least the newer Windows apps will work since most of them are protected mode only.

APPSOFT: They're really only just starting out. They plan on enhancing WriteNow and probably changing the name. They have been negotiating with another company who makes a grammar checker with regard to possibly adding that functionality to WriteNow. It will be a while before we see anything from them.

It seems most of their ship dates coincide with NeXTstep 3.0. Hmmmm...

STONE DESIGN: Andrew Stone was there going nuts trying to show everyone all the features of Create and Dataphile. He said that he was sick of adding new features to Dataphile and it should be ready for release in about a month. From what I saw it looked wonderful.

Andrew Stone looked really tired by the time I saw him on the second day. He eventually let a Concurrence demo take over the booth. I hope he gets rest when he gets back so that he can put the finishing touches on Dataphile! :) Also, for those of you that didn't know, a new version of the Dataphile Demo (Dec. 2) is on nova.

It's wonderful to see a thriving, surging, innovative & energetic NeXT world in the face of sagging Apple/IBM/Compaq etc. profits. :) -- Bill Chin

---

From: jfr@locus.com (Jon Rosen)

Subject: Re: Companion products versus "utilities"

In article <1991Dec13.220118.8434@adobe.com> caro@adobe.UUCP (Perry A. Caro) writes:

[munch]

Speaking of comfort hacks, here's a wish list (I'm only an occasional NeXT user, so if something I want already exists, let me know!):

DontTop: a hack that prevents child windows of the same app, but unrelated content, from topping when the app is activated.

[munch]

ActiveList: list all active (open, iconified, or hidden) windows. A quick pop-up menu that let's me top and activate any window on the list with a quick button press.

FollowCursor: Sorry NeXT, some of us are brain-dead and insist on point-to-type.

AntiDock: Get rid of the doc. Replace it with a shelf-like window that you can hide. (Is this what LaunchPad does?)

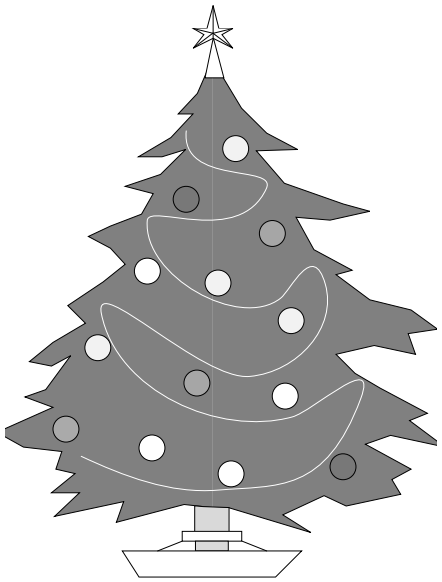
IconBox: Actually, I wouldn't mind iconifying things I'm not using if I had a box (shelf-like window) to put them away in, saving clutter on my desktop.

To which I will add:

Maximize: One of the FEW nice features of Motif (over NeXT). This control on the window makes it the FULL size of the screen. Pressing again returns it to its standard size (sort of the reverse of the iconify (iconize in Motif parlance? :-) button which makes the window disappear and then reappear at standard size.

And of course, my near-sighted favorite, MenuFonts: Allow us to easily change and resize the fonts in the menu bars. As a totally myopic person (I can't read a stop sign at 6 feet without my glasses or contacts), I usually make my edit text 24 point bold (that's right, 24-pt!) So you can imagine that the teensy type used in the menus is really a tough problem. This is another feature that can be easily used in Motif.

(continued on page 7)



Off The Net
(continued from page 6)

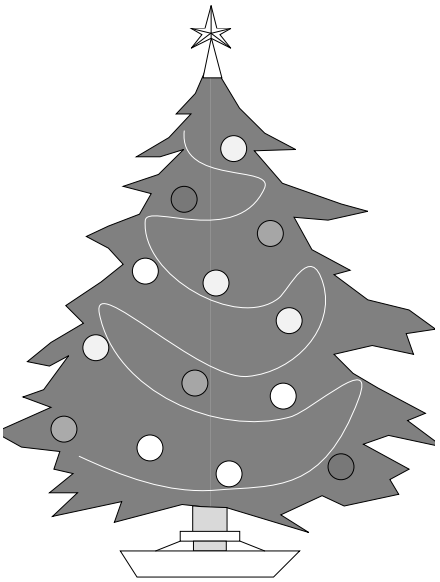
From: glenn@rightbrain.com (Glenn Reid)
Subject: Re: Companion products versus "utilities"
Date: 15 Dec 91 05:34:02 GMT
Hardy writes
Since this discussion has been going on for so long most of us senile people have forgotten what's in the package. Could Glenn Reid or someone else at Right Brain briefly list the "goodies"
I've gotten several messages asking the same thing. Sorry, I should have listed them. Here they are, copy/pasted from some marketing brochure or another
Portfolio
Portfolio is a visual palette for EPS and TIFF files that fully supports the drag-and-drop metaphor. You can drag images into the scrolling window and it will display a small-scale "thumbnail" of the image for reference. You can then drag it directly from the Portfolio window into PasteUp, Mail, Adobe Illustrator, or any application that supports EPS and TIFF files. U.S. retail price is $99.
RightBrain Rulers
RightBrain Rulers are horizontal and vertical guides that float above every application. Whether your creating a quick document or an elegant graphic design, RightBrain Rulers make it easier to align text, compare image sizes, and position graphics. RightBrain Rulers can be scaled to match any zoom level, and are capable of measuring in inches, centimeters, points or picas.U.S. retail price is $99.
LockScreen
Lets you password protect your screen instead of logging out. Keep folders and applications open when you're away from your desk, and be confident that they won't be seen or manipulated when you're not there. LockScreen also protects your screen from burn-in with a mesmerizing random word display or your own custom graphic. U.S. retail price is $99.
LaunchPad
Creates a scrolling list of active icons, including documents, folders and applications, that you can access just like icons in the Dock. LaunchPad lets you increase the workable space on your screen, while providing direct access to all your files. U.S. retail price is $99.
Glenn Reid
NeXTMail: glenn@rightbrain.com
RightBrain Software
415-326-2974 (NeXTfax 326-2977)

From: bruce@pages.com (Bruce Henderson)
Subject: In Your Face again
Date: 13 Dec 91 23:58:13 GMT
Organization: Banzai Research Institute (Pages), San Diego, CA
Look out....
Armed and dangerous.
For those of you who have said "Gee I want to have a picture of myself on the NeXT, but I don't have the gear...."
Well, wait no more!
I am now armed with an HSD 24 bit color scanner (An awesome device!!!!) I will scan your face. Here's how.
Mail to me a photograph of yourself (sorry I won't be able to return them...) along with your E-Mail address (the way it looks when you post to news). I will scan your face, send you a copy and add you into the ever expanding "In Your Face" database.
The address to send your mug shots to is
Bruce Henderson
Pages
3914 Murphy Cyn Rd. Suite A-160
San Diego, CA. 92123
Just Do It.
Bruce

From: wrb@ulnar.biostr.washington.edu (Bill Barker)
Subject: PowerStep sighting
Date: 13 Dec 91 19:06:23 GMT
Organization: University of Washington

If you're one of the lucky ones who received the glossy NeXTWORLD Expo mailing, take a close look at the app displayed on the monitor inside the brochure.
Could this be a stealthly way of saying PowerStep isn't dead? Inquiring minds want to know!

From: samurai!johnc@ms.uky.edu (John Coppinger)
Subject: Re: PowerStep sighting, AppSoft and the future of Media Logic
Date: 14 Dec 91 04:38:04 GMT
Organization: Whetstone, Inc.
Bill Barker writes
> ... NeXTWORLD Expo mailing, take a close look at the app displayed on the monitor inside the brochure. Could this be a stealthly way of saying PowerStep isn't dead?
PURE SPECULATION - (don't you just hate it...)
AppSoft is acquiring software from several sources - WriteNow and Icon/Pixelist from NeXT, TopDraw from Media Logic. A traditional spreadsheet could be next on their list. If it's true, I'd love to hear how they got Phillipe Kahn to give it up.
EVEN PURER SPECULATION - (yes, it gets worse...)
There was a time period between the cancellation of the PowerStep project and Borland's Ashton-Tate acquisition. Time enough, perhaps, to unload PowerStep in exchange for cash. In fact, given Ashton-Tate's sorry state of business last year, it may have decided to liquidate PowerStep on the acquisition market, rather than take their chances on the "level playing field". Anything to improve cash flow.
SPEAKING OF MEDIA LOGIC -
... has anyone heard from them lately? TopDraw apparently belongs to AppSoft now. As far as I know, Artisan got lost somewhere. Unless Artisan shipped and I just missed it, then they are down to 0 apps. Does anyone know the story, or fate, of Media Logic?



A Day in the Life of a NeXT Computer User

by Jack Reynolds
reynolds@dakota.portal.com

Her warm lips are pressed hard on mine as she draws her body closer. "Have a good day at work honey," she whispers in my ear as our cheeks brush against each other.

Renna knows the work day ahead is heavy on my mind. Today is an important day. I am going to be announcing a new product (a NeXT specific peripheral) at work and it is important that I get the word out and take some orders for it.

As I trot out to the garage, I hear her exclaim from the doorway, "Don't spend all night at your computer. Tonight is an early night." I wave from afar pretending not to have heard.

I have already slipped on my helmet as the sharp lines of my FZR-1000 come into view. It is a fine machine. Fast, powerful, and narrowly focussed. Its purpose clearly defined by the slippery body work and the radical riding position.

I perform the pre-ride check ritual carefully. I take my riding very seriously. I'd never let stress from work cause short cuts in safety. The engine coughs to life as I stab the starter. I back off the choke as the whirling sound of the engine begins to warm the cool morning air.

My mind starts to drift back to the office as I gradually slip the clutch and decisively feed the eager steed some throttle. I mentally review my strategy for the day as I bank steeply down the freeway on ramp. My foot instinctively nudges the gearbox into third as the tachometer passes seven grand and the Michelin chirps a protest.

I want to reach the European distributors first. Before they go home for the evening. Then the domestic dealers, vars and developers. The NeXT sales organization will help in reaching the major accounts. I signal into the car pool lane and the stagnating traffic gets left behind.

The most important thing will be to generate end user interest. If the resellers don't get some calls, they'll think the product is a yawn.

Twenty minutes later I arrive at the office parking lot. I'm anxious now. I've been eagerly supporting the acquisition of this new product for several months. Now, it is time to see if it was worth it.

As I enter the office, the receptionist notices the far away look in my eyes. I'm already psyching up for the journey ahead. The kind of a trip few people have taken. An excursion that will beam me to every corner of the planet to tell my story. A voyage where time and distance restrictions are broken. Where insight replaces confusion. Influence replaces helplessness, and integration replaces chaos.

As I remove my riding jacket, I notice my fingers trembling. It's just a bit of stage fright. Nothing I haven't experienced before when I get ready to communicate my views to thousands of people. Some friendly. Some not so friendly.

I enter my office and feel my heart quicken as I approach my computer. It is a very capable machine. It never sleeps. Always collecting and distributing faxes, news, and electronic mail.

I'm very proud of it. I bought it as a fixer upper about a year ago. Since then, I've upgraded to an 040 muscle chip and pumped the memory to 16 megabytes. I shoe horned in over a gigabyte in the drive bay and I've got an external CD-ROM drive on tap. The black cube breaths through ethernet, a high speed data modem, a scanner, and a send receive fax/modem. On a good day, going downhill with a back wind, I can get almost 20 MIPS out of it and still have the DSP in reserve.

As I settle in my seat for the ride, LockScreen spits a few words at me. Adrenal, delectate, cuttlebone, coadjutor. What does "badinage" mean? I'm rewarded with a tune from Midnight Oil as I enter my secret password. The WREN VIII starts to thrash in its chassis as I tap NeXTMail, NewsGrazer, WriteNow, PaperSight and PrintManager.

I've rehearsed and re-rehearsed. One quick stab on the "Send" panel and NeXTMail returns a blank mail message beckoning for a destination. With three quick sweeps, I specify a collection of over 200 addresses representing the sales and support staff at NeXT which is spread over three continents. Two clicks and the message is loaded with my product announcement. My palms dampen and my breath shortens as I contemplate the last "Click" which will launch a flurry of information all over the planet. Is my message clear? Have I included all necessary information? Are there any spelling mistakes? I read the announcement over again several times and click "Deliver."

The drive shudders with approval as the mailer mashes several hundred messages down the coax to a hungry mail spool on the server. The wanting bits are held spinning at 3,600 RPM on the platter until 10 minutes after the hour when they explode on the Internet though a Telebit TrailBlazer modem.

As the messages are seeking their targets, I turn my attention to announcing the new product to the dealers, vars, and international distributors. I capture the appropriate text and graphics with WriteNow. Gliding over to the "Print" panel, I select a remote fax/modem for broadcast in order to keep my local fax line open for the anticipated incoming traffic. Click, click, click.

The processor silently strains as it images enough pages to occupy the FaxMaster modem for over 12 hours. A review of the fax queue verifies the over 200 destinations where the announcement will print out.

I lean back in my chair and shake my head from side to side to relieve the stiffness in my neck. I've used NewsGrazer many times before. Its awesome ability to sway others is matched only by its ability to influence all that use it. I navigate through the browser like interface and arrive at comp.sys.next.misc. I peruse a few of the over 150 NeXT specific "articles" which are posted daily to this news group from all over the world. My glance turns to an article which expounds on the need for the type of product I am announcing. Using the "Followup" panel and "Cut" and "Paste," I surgically insert a short two line product teaser. As I choose "Post," the rush of adrenaline makes me fully aware that my remarks are being broadcast to over 40,000 readers world wide.

The rush from the last 30 minutes of work (200 email messages, 200 faxes, and a broadcast to 40,000 readers) begins to wear off and I feel the need for a little caffeine to help me make it through the morning. Rising from my chair, I am comforted knowing my computer is relentlessly spreading the word about the new product offering. Even as I leave my office, I can hear the shrill of the incoming responses on the fax/modem and see email inquiries stacking up in my "Active Mailbox."

The phones start to ring as I pass by the receptionist in the lobby. "Just take messages and tell them the new product will ship tomorrow," I bellow. "I'll be back in

(continued on page 9)

"Default" Madness

by Jon Rosen
jfr@locus.com

A curious comp.sys.next reader writes:

"There has been a recent discussion about the 'undocumented' Workspace default LaunchPaths used to autolaunch applications without taking up space on the dock. What other things does the Workspace have as options that we've never discovered?"

Another reader responds:

"Last time I did some 'dwrite' snooping of the Workspace defaults, I came up with the following:

[Ed: a nauseatingly long list of Workspace defaults have been deleted to save "valuable" SCaNeWS bandwidth :-)]

"Note that LaunchPaths **is** on the list, although one has to guess what it is for. I haven't a clue about many of these. Curiously, the default ApplicationPaths is documented (e.g., see NextAnswers workspace.658), but not listed. Anybody see anything else of interest here?"

Not one to resist temptation, I dove in and here, from the David Letterman home office, are some guesses as to the meanings behind some of these "unknown" default values (with a smiley :-) and a drum roll please:

MachLaunch
What a stand-up comic would say about the various Launch products.

Uid
A misspelled birth control device.

PBSName
Public Broadcasting System.

NPDName
Newark Police Department.

ProfileString
A photographic side view of Twiggy (anyone remember her?)

BoldSystemFont
A character set that wants to go where no one has gone before.

BrowserSpeed
NOT!

PrinterResolution
"I solemnly swear to not let the toner run dry in the middle of printing an important document for my users."

ScrollerButtonDelay
Sometimes, on the order of minutes :-)

ScrollerKnobDelay
See above.

FaxOrigins
Where encyclopedia researchers go to verify their work.

LibraryPath
Something not used very often any more by young people, because they are watching television. See **MTVPath**.

FaxWantsCover
What Mrs. Fax says to her husband on a cold night.

FaxWantsNotify
What Mrs. Fax says to her husband when she is cooking dinner and doesn't want him to be late from work.

FaxWantsHires
What Mrs. Fax says to her husband when she is sick and tired of cooking dinner and decides she needs a maid. [Ed: That's Hi Res, not Hires!]

FaxResolution
"Damn it, if he doesn't come home tonight, it will be all over!"

NXAllWindowsRetained
When you don't want to any windows.

NXCaseSensitiveBrowser
When you want an insensitive detective.

NXHost
When you want to kill your host.

NXShowAllWindows
What Steve Jobs, as well as Apple and IBM, would like to do to Bill Gates.

NXFont
When you are sick of a particular font.

NXOptimizeDrawing
What Windows usually does.

CoreLimit
The number of apples you are allowed to dispose of. (Steve Jobs would probably set this at infinity :-)

AppDockHysteresis
When the AppDock just can't stand it.

ConsolePath
What you should do when the path starts to get nasty and irritable.

ShellPath
What the U.S. Army did in Iraq.

CacheLaundryInterval
How long the Mafia waits before sending its money to Mexico.

ShowNeighbors
Watch it. This can get you arrested in states like Florida.

IgnoreSignals
Typical behavior of people like William Kennedy Smith.

A Day In The Life Of A NeXT User
(continued from Page 8)

a few minutes. I'm going across the street to get a Diet Coke."

As I dodge traffic in the cross walk on Shoreline Boulevard, I ponder the hectic pace in Silicon Valley. Issues of personal productivity come to mind. Can these people who are rushing to work accomplish in a week what I just did in 30 minutes? I don't think so.

I return to the office with soda in hand, ready for another 30 minute trip around the globe. The receptionist looks harried. She stuffs a fist full of phone messages in my hand and motions towards my office. "The French and the German distributors just got your message. They want to know if we have localized versions of the new product. You better call them right away."

I arrive at my desk to find my computer savagely pounding away at the incoming flood of inquiries and orders. A quick review of the screen indicates I'm in trouble. I've received 5 incoming faxes and 25 email messages in the last 15 minutes. I won't be able to keep up.

Quickly, I prioritize the faxes. Using PaperSight, I attach hypertext priority codes to indicate the urgency of a a response. AAA means before I go home. BBB means in the next few days. CCC means when I get around to it. If the fax only requires a short reply, I type a note on a screen overlay and return the original fax with overlay to the author.

Riffling through the email, I foreword messages to others in the office who can respond to certain issues. What's left, I answer myself.

The influx of email and faxes as well as a steady flow of phone calls keep me very busy all day and into the evening. Finally, the intercom announces, "Its your wife on line 4." I struggle to remember if I have a wife as I reach for the phone.

"Hi sweet heart," I stammer as my head begins to clear. "I was just on my way out the door when you called."

The hour is late and the traffic is light during the ride home. I reflect on the events of the day and recall earlier times when I exercised Macs and DOS machines. Things are different now. Applications like Improv give me far greater insight into my work. Electronic messaging and integrated fax give me far greater reach and influence than I ever had in the past. Now, it's just a matter of learning to

Outlet Initializer Methods

A Tech Tip By Jon Rosen

Several postings in comp.sys.next.programmer raised the question, "How can you send messages to an outlet object from a controller object at initialization? When I do this, nothing happens or an error occurs. Why?"

If you are using outlets in Interface Builder, the order of object initialization is arbitrary and totally controlled by the **loadNibSection** method when the nib file is loaded. Therefore, it's possible that objects referenced by outlets in your controller object may not exist when your controller object's **init** method is executed. Sending a message to an outlet in your init method is at best luck of the draw, and at worst, quite hazardous.

If you are only having this problem at application initialization time (i.e., when the "main" nib file is loaded), you can make your controller object the delegate object for your Application object and provide it with an **appDidInit** method.

The appDidInit method will be executed after the application is initialized and all objects are loaded. Since your controller object is guaranteed at this point to be properly loaded and initialized (i.e., its outlet ids are valid and pointing to their respective objects), you can have your appDidInit method send messages to outlets at that time.

The problem becomes harder to solve if you are loading additional nib files later during the execution of your application. In this case, there currently is no special method that is executed after the nib file has been completely loaded. However, you have several choices.

If you write the code which loads the various nib files, you can add an additional method to your controller object and then message it using this method after you perform the loadNibSection. We'll call this method **nibAwake** since it should get executed after the entire nib section is loaded, i.e., "awake". Thus, you can assure yourself that the entire nib file and its objects and outlets have been properly loaded before sending the nibAwake message. The nibAwake message can safely message its outlet objects for any required initialization purposes.

This approach works when you have only a few situations that are causing problems and when you are in control of all of the source code. However, sometimes it is useful to encapsulate this behavior into your controller object itself. Outlet initializer methods provide a relatively simple mechanism to solve this problem.

Outlets are set to their appropriate values through outlet initializer methods. These methods are of the form:

```
- setOutletName:anObject
{
   outletName = anObject;
   return self;
}
```

The form of an outlet initializer method is very explicit. Your outlet id name must start with a lowercase letter and the outlet initializer method must start with the word set followed by the outlet id name beginning with an uppercase letter. The **anObject** id passed in to the outlet initializer method is the id of the referenced object as you created it in Interface Builder and you are required to assign anObject to your outlet id. There are no other restrictions on what code can be placed in an outlet initializer method.

In NeXTstep 1.0, you were required to create an outlet initializer method for each outlet in an object. This requirement was eliminated in NeXTstep 2.0, since it was tedious, repetitive and generally unnecessary. However, the function has been retained and you may use outlet initializer methods in NeXTstep 2.0 if you have special requirements. The nib file loader takes care of initializing outlets "magically" for outlets that do not have an outlet initializer method, but if you create one, it will be executed.

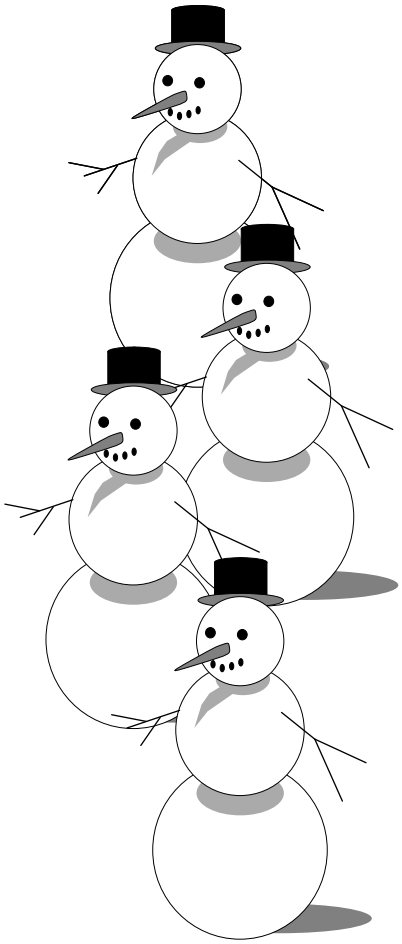
Now, we can solve our outlet message problem internally to our controller object. We know how many outlets are being used in the controller object (for this example, we will use two outlets). By simply counting each outlet initialization as it occurs, we can figure out when we can safely message any of our objects.

We add a counter called outletCount to our controller object. In the controller object's init method, we must make sure this counter starts are zero. Then, we create an outlet initializer method for each of our outlets:

```
- setOutlet1:anObject
{
   outlet1 = anObject;
   if (++outletCount==2)
      [self nibAwake];
   return self;
}
- setOutlet2:anObject
{
   outlet2 = anObject;
   if (++outletCount==2)
      [self nibAwake];
   return self;
}
```

When both outlets have been properly initialized and not before, outletCount will be equal to 2, no matter what order the nib loader chooses to set up the objects. Once all of the outlets are initialized, we can safely call our nibAwake method which will presumably send some messages to the outlets for initialization purposes. Of course, if your application has more than two outlets, you will need more outlet initializer methods and you will need to check for the proper count in the if statement. Also, you do not need to create outlet initializer methods for any outlet that you know will not be referenced either directly or indirectly by nibAwake. Do not include such outlets when checking the count.

The name nibAwake was not chosen at random. We learned at Dev Camp that in NeXTstep 3.0, the method **nibAwake** will automatically be called for each and every object initialized by loading a nib file after all objects in a nib are actually loaded and initialized. This will eliminate the need to create a large number of outlet initializer methods when the above approach is required. If you have followed the above approach, all you have to do when NeXTstep 3.0 becomes a reality is to eliminate the outlet counter and the outlet initializer methods.



JiroViews

by Jiro Nakamura
jiro@shaman.com

(Ed.: Born in the deep jungles of Indonesia and raised in the outback of Australia, Jiro Nakamura has remained defiantly unclassifiable. Currently he has been seen hiking around the gorges of Ithaca, New York. Some say that he is a student at Cornell University, others say that he is a high powered consultant for a Tokyo-based firm developing the latest generation NeXT software. Neither can be confirmed at this time.)

Co-Xist

Pencom Systems

As a NeXT User Group leader (FuNK -- the Finger Lakes NeXT Users Group), some companies send me demo copies of software to pass around to our users. Pencom was one of those. They sent me a demo copy of co-Xist. Co-Xist, as you might know, is an X Window System v11r4 implementation for the NeXT. The copy they gave me was Release 2.01/ demo - the server was configured to automatically quit after about 10-15 minutes.

INSTALLATION

Installing the package was quite simple, it used an installer package. Unfortunately, it ran into NeXT's Installer Package bug and I had to install it by hand. Maybe the Install in 2.1 will not have this bug. I talked to Pencom and they acknowledged the problem and gave some easier workaround than installing it by hand. In any case, it looked like it was NeXT's bug and not Pencom's.

After installing it (the whole package sans Motif is about 2 megabytes, it fits on a 1.44 megabyte disk compressed), I dragged the xinit icon to my dock and ran it. The bare package that I was evaluating came with only the bare X11r4 runtime module, twm, xclock, xterm, maze and xhost - so these are the only things I tested. I couldn't find any libraries to link against so I didn't try compiling any Xprogs from the net. The full co-Xist package apparently has the libraries to link against.

GENERAL IMPRESSION

I found the co-Xist package to be pretty good. It does not take over the whole desktop like other packages, but instead creates a window (which behaves like other NeXTStep windows) within which the X environment exists (I am amply apt to alliteration). It was very well behaved. When the mouse wandered into the X window, it switched styles to the (annoying) X default point-to-focus mode instead of the NeXT's click-to-focus. Users more used to the NeXT's click-to-focus mode can re-configure X to do it this way (sadly NeXTStep cannot be reconfigured like this). You are able to configure the size of the initial X window using a config file. Configuration is as "easy" as other X packages, i.e., you can edit the rc files using your own special rc editor or using emacs or vi.

The interface was a very good X implementation. X windows in the implementation behaved like X windows on "real" X workstations. The twm menu popped up like it should. Xclock worked properly. Dragging and resizing were just as they are in X. Since it is such a total X emulation, naive users may get confused since X does many things differently from NeXTStep. The mouse pointer changes to an X when you have switched to co-Xist, so it is easy to tell which mode you are in.

I didn't have many demo programs to test the X emulation. I did try out Xterm and maze. The emulation for Xterm seemed solid. Emacs ran fine. I also ran worms, which is a curses base "game" to see how fast the emulation was. It was just as fast as Terminal or Stuart -- i.e. very fast. Mazes also ran very fast on my 040 board. The folks at Pencom did a good job, since the Xterm is effectively double-layed onto X and then onto NeXTStep. I was very impressed with the performance.

BUGS

There weren't any blatant ones. I did manage to hang the interface once by doing a series of strange mouse movements and control-c's. But this was the only time. It did not crash NeXTStep and I could quit out of it. The emulation for three mouse buttons is the same as other people -- you have to hold down both at one. Maybe I'm slightly weird, but holding down both simultaneously was difficult. I hope Steve comes up with a three button mouse for us.

PROBLEMS

Starting up the co-Xist package takes a short while. If you switch applications while it is starting it up, it sometimes crashes. The biggest problem I had with the package is that you *cannot* cut and paste between co-Xist's X window and NeXTstep windows. This is a serious design flaw that Pencom has to work on. Apparently, it is going to be in the "next version" (hopefully out sooner than Real Soon Now). Pencom has told me that "the cut-and-paste client posted by Howie Kaye (columbia) works very well with co-Xist," but I wish it was a native feature.

CONCLUSION

In summary, I thought it was an excellent package. Installation was simple (if it wasn't for the bug in NeXT's package). I managed to run it without any manuals (they didn't send me any). The implementation was smooth, with no noticeable jerkiness. It was also pretty bug-free. There were some annoying things about the interface, such as the cut and paste mentioned above, but all in all it was a good application. The base package is well worth the $149 academic / $249 commercial price. I did not evaluate the other packages mentioned below.

SUMMARY

Application:	**X Windows v11r4 implementation**
Version:	**V2.01 demo**
Description:	**X Windows v11r4 emulation for the NeXT. Comes with Motif (optional/not evaluated)**
JiroRating:	☆☆☆☆ **(demo)**

Price:	**List**	**Edu.**
co-Xist:	**$149**	**$249**
Motif:	**100**	**100**
Dig. Lib:	**50**	**50**
Package:	**$279**	**$379**

Contact:

Pencom Systems Incorporated
9000 Capital of Texas Highway North
Suite 300
Austin, Texas 78759

1-800-Pencom-4

#include <std_disclaimer.h>

I have no connections with Pencom System Incorporated, other than receiving and evaluating the demo copy of co-Xist.

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JiroViews by Jiro Nakamura
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Floppyworks
DIT, Inc.

This is my second software review. For folks who don't know me, I am the Group Organizer of FuNK (The Finger Lakes NeXT Users Group). Occasionally I find myself with some spare time and some altruism, so I write short reviews of key products in the NeXT marketplace. My last review was of Pencom's Co-Xist and I received enough favorable comments for more, so here it is.

I just recently bought FloppyWorks for two reasons, one was to facilitate the transfer of my SO's thesis from a Mac to the NeXT, where we are going to typeset it on FrameMaker. The second is that it is annoying to not be able to read the occasional Mac disk that floats by. The advert in NeXTConnection sounded good, so I made the plunge.

To those of you not familiar with FloppyWorks, very basically put, it is a software program that will allow you to read and write Macintosh 1.44MB disks with your internal or external 2.88MB drives. It can do other things such as reading/writing DOS disks, but they are of little interest since NeXT System 2.x can do that automagically anyway. It also can read/write much more than Mac floppies, it also supports Mac hard drives and removable media drives (such as Syquest drives). This makes this product strategic in the Mac-NeXT connectivity market.

A lot of folks, myself included, would like to be able to read/write Mac 400K/800K disks. Simply put, this is impossible unless you have a Mac 400K/800K disk drive. This is because the Mac 400K/800K disk system is totally incompatible with the NeXT/MSDOS 360K/720K systems at a *mechanical* level. Apple decided to twiggy their drives to get an extra 80K at the expense of ever hoping to get other drives to read their disks. The Apple SuperFloppy, being made by Apple, is an exception, of course.

I believe that DIT does make a drive that can read only Mac 400K/800K drives. It is called the CubeFloppy Plus and retails for $595 with FloppyWorks. However, this drive does not read NeXT/MSDOS 2.88MB Extended Density disks, the disks that NeXT uses for its standard distribution, so unless you are using it solely for its Mac capabilities.

INSTALLATION

Installing the package was quite simple since DIT uses the new Installer packages. Problems that people may run into are that you *have* to be root to install the program since it installs the support files /usr/filesystems/macintosh.fs/*). Along with these support files, it also places the application file FloppyWorks in your /LocalApps or other directory (such as ~/Apps, but since it messes with the root file system, you may as well put it in /LocalApps). The whole package installed is about 400K.

A pet peeve is that DIT forces you to enter your Name and Organization when you first run the program (ala many Microsoft programs on the Mac). This to me is only slightly annoying, but what made it aggravatingly annoying is that FloppyWorks *insists* on writing said information on the original floppy disk. Sorry, DIT, but I may want to sell FW in the future, and the buyer sure won't want my name on it each time it launches.

GENERAL IMPRESSION

To use my earlier summary, FloppyWorks is: unintuitive, expensive, but it works.

Unintuitive

The directory browsers that DIT uses for FloppyWorks are ugly, non-standard, and to make things worse, don't even work that well. You can't select directories by typing in their names (see BUGS below), thus forcing the user to have to do tremendously circuitous routes to get anywhere. The menu structure is ill-structured and confusing. The panel buttons are not well placed and are just generally unintuitive. They desperately need to have a User Interface Designer have a look at their program.

DIT informs me that a newer version of FloppyWorks is coming out *perhaps* next spring and will costs $35. My personal feeling about this is that this upgrade is sorely needed *now* and should be offered to prior owners for free. By golly, a $200 software package should at least include *1* free upgrade.

The ad blurb in NeXTConnection makes it sound like FloppyWorks has "built-in filters...supported file types include RTF, TIFF, WriteNow, WKS, WK1, SYLK, .wkz, .eps, .ps, and ASCII. It's the software you need for serious file sharing."

When I had originally read the blurb, I had expected something akin to MacLinkPC or Apple File Exchange -- sophisticated file exchange protocols. What FloppyWorks "file-exchange" capability is a bunch of elementary converters or strippers (CR-LF to LF, strip control characters, strip non-ascii, etc.). This is *not* what I call a real file translator. So for you folks who wanted to convert your Mac documents to a NeXT document, you *must* have the same program on both ends (i.e., WriteNow on both the Mac and NeXT). FloppyWorks ain't gonna translate the file types for you. It's only a file *exchanger*, not a file *translator*.

DIT tells me that this was a misunderstanding between their ad copy writer and them, a misunderstanding that has Just Been Corrected(TM). Hopefully their ads will be more truthful in the future.

Expensive

Through NeXTConnection, FloppyWorks is $185. It is $250 list and has an academic discount of around 30% (contact DIT for that).

This is a bit too expensive for me. For $200, I want a much higher quality product than DIT provides. Neither the manual nor the software seemed very refined. At the very least, I would like an index to the manual (my pet peeve about software manuals. Come on if Joy of Cooking has an index, so should Floppy Work's manual). And having the manual on-line like many other people (Soft-PC, FrameMaker, Diagram!, must I go on?) would be nice too.

Also, the bit about touting its "file exchange filters" was a bit too much, in my opinion. To put it basically, FloppyWorks does no more file filtering than one could do using the UNIX program "tr" that comes standard with the NeXT. Calling this basic "filter" a "simple means of adjusting data files for different word processing, spreadsheet, database, and graphic formats" borders on misadvertising. It *will* not let you change MacPaint to TIFF, or any other true file conversion.

But It Works

It does its primary function of reading Mac disks fairly well. The transfer rate is fast (it at least *seems* pretty fast). It keeps you informed of the bytes transferred (although it *could* use a "percentage bar" or "pie chart" like everybody else).

It also is supposed to support Mac hard drives and removable hard drives. I have no way of testing out this claim, but this is impressive. It means that companies switching over from the Mac to the NeXT can simply connect their old Mac

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JiroViews by Jiro Nakamura
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hard drives or insert their old Syquest cartridges into the NeXT, launch FloppyWorks, and have instant access to their programs. And the beauty is, you can keep the drive attached all the time, just in case you want to return to the Mac (what heresy!).

Another nice feature is that it will automagically launch FloppyWorks if you insert a Mac disk and FloppyWorks isn't already launched. This is really handy and a great feature. For some reason, you have to have the "Public Window Manager" preference on while using this feature, so it isn't suitable for paranoid networked NeXT's (it's a security hazard).

Nice icons, too. :-)

BUGS

My only "bug" problems with the interface (seriously, the interface looks like it took five seconds of scripting in IB and not much serious afterthought). The browser does not work as it should. DIT says that the browser object was created under System 1.0 from scratch, so I sympathize, but my sympathy is since the next upgrade to FloppyWorks is not free.

I have not found any serious bugs that will damage either your Macintosh original disk or NeXT file system. The file transfer itself goes smoothly and does not seem to have any serious faults. So my only complaints are about the interface.

An Example of the Wacky Browser

There is a small form underneath the browser.

"Aha", I thought, "I can type a pathname in it to quickly snarf a file. Let's see, let me quickly jump to /tmp to grab something."

I type "/tmp" in the form.

"No go, bozo," says FloppyWorks as it quickly makes a file with *that name* on the *target disk* (the opposite side). What the !@*$?????

Further playing around with it reveals the bug. Select something on the target drive (right hand side), then in the left hand side "message area", type some garbage. Hit <return> and voila, FloppyWorks will rename the target filename to the garbage name, even though they were on opposite sides of the panel, so to speak. Software quality control, folks.

PROBLEMS

DIT needs to do three main things:

1) Lower the price, it's too high. You might get 4x more sales at $100 then at $250. If Lighthouse can sell Diagram! (which took a lot of work, believe me) at $25 academic, then FloppyWorks can be sold at $100 or less. MacLinkPlus/PC is $129 via NeXTConnection and Apple File Exchange is free (I believe).

2) Rework the interface and upgrade old user ;-) for free. If I pay $200 for a simple utility, I better damn well get free upgrades.

3) Start having some real file translators. License the AFE format from Apple and use their pre-built translators. I think DIT's gone half of the way with FloppyWorks, I'd like them to go 100% of the way and have a full blown file conversion/translation program. What about it, DIT?

CONCLUSION

In summary, I thought it was is too highly priced, the user interface was non-intuitive and buggy, but all in all it does the job adequately. I would like to see real file filters (perhaps they can adopt the AFE standard?) and transparent filesystem support.

I should give some more credit to the folks at DIT. To date, I believe that they are the only people who are really selling software that can read Mac disks.* This involved a lot of digging around in the internals of the Mac file system and it seems like they did an excellent job of this. I must give them credit for that.

If you need a lot of files transferred from the Mac to the NeXT, have the same program running on both, and are feeling a bit rich, I would recommend this program. It also has the little mentioned but great feature of supporting Macintosh hard drives and removable hard drives. This may be the quickest and simplest way of transferring or accessing large amounts of Mac data yet. This is yet another reason I wish DIT would work on FloppyWorks more -- it has so much promise but.....

If you are poor or don't have that much money, I'd recommend finding a friend with Apple File Exchange (I believe it is system standard software) and a SuperFloppy drive, and exchanging the files via MSDOS floppies.

Or, if you are feeling really rich and silly, buy a Mac Classic and MacLinkPC, and connect your NeXT to the Mac that way. I did this for a while, it actually works quite seamlessly and well.

I ended up taking DIT's money back guarantee. FloppyWorks currently does not give me my $200 worth right now. I'm interested in reviewing it again when the newer release comes out. Perhaps they will take some of my suggestions to heart (I have sent them a copy of this article).

SUMMARY

Application:	**Floppy exchange program**
Version:	**V2.2d (commercially purchased)**
Description:	**Let's you read/write Mac 1.44MB and PC, UNIX 2.88MB disks on your NeXT. Also has hard drive support for the MacOS.**
JiroRating:	☆☆

Price:	**List**	**NeXTConn**	**Edu.**
FloppyWorks:	**$250**	**$185**	**$175**

Contact:

Digital Instrumentation Technology, Inc.
127 Eastgate Dr. #20500
Los Alamos, NM 87544
(505) 662-1459

*(Note: The DIT person I spoke to mentioned two other products which I have never heard of nor used: Pacific Micro's Common-Link (SPARCstations) $495 and PLI's Mac-to-Dos (PC) lists for $139. I'm pretty amazed at the prices at these too (especially since he used them for justifying DIT's $250 price tag). In my humble opinion, something such as Illustrator which took years of developing may cost $500 or so, but a simple, single-minded utility should *not* have to cost more than $100.)*

#include <std_disclaimer.h>

I have no connections with Digital Instrumentation Technology Inc., other than having bought FloppyWorks from NeXTConnection. I subsequently returned the copy, so you can gauge that overall I was not happy with the product. Those feelings have definitely colored this article and this article should in no way be construed as an objective review.

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JiroViews by Jiro Nakamura
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VOID
(Look behind you!)
Lighthouse Design

This is a continuation of my online software reviews. For folks who don't know me, I am the Group Organizer of FuNK (The Finger Lakes NeXT Users Group). Occasionally I find myself with some spare time and some altruism, so I write short reviews of key products in the NeXT marketplace. I keep getting favorable comments from people and some user group magazines have started to syndicate me, so I think I'll continue for a while.

Let me start this particular review with a disclaimer. I am intensely biased towards Lighthouse -- I think they are a really wonderful bunch of guys. I think they have the right vision, are writing the right software, are great programmers, and are just all in all fun people. So although I will try to exert editorial immunity from my own feelings, I don't know how well I will succeed.

What is VOID? VOID is a game in the grand tradition of shoot-them-all-up-as-quickly as you can. It has two main modes -- single player and multi-player. In the single-player mode, one shoots up asteroids and a wealth of alien spaceships. The multi-player mode is when things get truly cool since you link up with 3 of your friends on a LAN to play the ultimate kill-all dogfight game.

INSTALLATION

Installing the program was a cinch. I just had to drag the Void.app program from the high density disk onto my floppy disk. The size of the application package is 1.1 MB. A peek inside the package reveals that 690K of it is the opening sound file.

GENERAL IMPRESSION

I think the first time anyone sees the VOID game launch, their jaw drops at least two inches. It has the most intensely cool startup routine I've ever seen. The sound (see above) and the animation sequence is right out of Lucasfilm. Totally cool.

The application follows this up with even more. Anyone who has played NX_Void, the earlier incarnation of this program, is in for a really pleasant surprise. The graphics are 300% better (real 3D, shaded polygons -- it's real great to watch/play it on a NeXTDimension board). The sound is in stereo and is true -- if someone is shooting at you off your starboard bow, you will hear the shots coming from the right. Why no other game on any platform has done this is a mystery to me.

The single-player game is very challenging. I hate the spacecraft from CMU. :-) But where VOID really shines is the multiplayer game. To basically sum up the multi-player game -- it's indescribably fun!

Imagine: you are hiding behind an asteroid. Engines off.

Your mind is tense. Your fingers are dancing over the keyboard, trying to look in every direction. Suddenly, you hear phaser shots coming directly behind you.

WHAT THE #$^!@!!!. Your online communication panel blinks --

"Die sucker!!!!!" Its a message from your enemy (actually your best friend... now your ex-best-friend). You frantically click to view behind you. YOWZA, the enemy ship is heading from 6 o'clock on an aggressive attack pattern.

You crank up the engines full blast. You can hear the huge roar of the warp turbines as they push against the small body of the space craft. You begin an intense climb, hands sweating on the mouse.....

This game is fun. What more can I say? If you have a small LAN, then it is definitely worth the $99 (NeXTConnection price, $149 list). Split it by 3 and it's $33 a copy. You'll spend more on pizza for the next few nights if you get this.

I talked to Kevin Steele, the author, about VOID. He apparently wrote it as a side project while working on Diagram! and the new presentation software package. Some people may have played NX_Void, the older version of the game for System 1.0. Kevin rewrote most of the program, added multi-player networked capabilities, squeezed every ounce of horsepower from the NeXT and has come out with an amazing package.

What next? Kevin brought up some possibilities:

- A larger "universe" -- right now the game is just the right size for a three player dogfight. Apparently it gets real crowded when you have six players though.

- Scenery disk. Actually I and some other people brought this up. I think it would be ultra-cool if we could have dogfights in the "Death Star" or other scenes. Kevin says "sure, just give me a faster machine." NeXT!!!!!!! WHERE ARE THOSE 050's!?!?!?!??!?!?!??!?!

BUGS

For a networked game this program is amazingly fast and robust. It works on all four machines in NeXT's lineup seamlessly -- 040 Monochrome Cubes, Next Dimensioned Cubes, monochrome Stations, and ColorStations. Apparently it runs a bit slower on color machines, so if you're dogfighting with your friends, you may want to acquiesce the ND machine to them. ;-)

I haven't found any bugs in it. There's a small quirk in it if you enlarge the startup window when it's going through the startup sequence. But it's a quirk, nothing more.

SUMMARY

Application:	**Multiplayer Asteroid Game**
Version:	**V2.0 (review copy)**
Description:	**Space shoot-em-up game. Single player game is a 3D asteroid/ alien shoot up fest. Multi-player game is a space dogfight.**
JiroRating:	☆☆☆☆☆

Price:	**List**	**NeXTConn**	**Edu.**
VOID:	**$149**	**$99**	**N/A**

Game is licensed for three simultaneous players/machines. No group or academic discount available.

Contact:

Lighthouse Design
6516 Western Avenue
Chevy Chase, MD 20815-3212
void@lighthouse.com
(800) 366-2279

PROBLEMS

There's only one problem with VOID that Lighthouse needs to do: release a low-cost single user version. Although the game is 300% more fun in multiplayer mode, some of us (myself included) do not have networked machines. Lighthouse has told me that they're considering this request very seriously, so hopefully we'll see something cool come out of it soon.

Other problems: this program is not good for your productivity. Companies: watch out! DO NOT INSTALL THIS ON YOUR LAN! Or you will suddenly see a *whole* bunch of people donning headphones and frantically pounding away on their keyboards and mice!

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HINTS

Here are some game hints from Lighthouse:

- Look behind you (needless to say)

- Give the color machine to your worst enemy (best friend). VOID runs slightly faster in B&W

- Keep the window dimensions square. If you make it rectangular to fill the screen, you risk cutting off the top and bottom views.

- You turn faster when you're going slower.

- Asteroids are not only for blasting, they make great places to hide behind.

CONCLUSION

Right now there are only two commercial games on the NeXT market: VOID and Culture Shock. NeXTWorld did a fairly good review of Culture Shock (Winter 1991) -- basically it is a multimedia version of Shanghai/GunShy. As the "other" game, VOID is ranks above Culture Shock. If Lighthouse releases a <$50 single-player version of this game, they will have a runaway bestseller. Guaranteed. But $100~ is not at unreasonable price for what you get, in my humble opinion.

Buy it. You won't be disappointed.

#include <std_disclaimer.h>

I do have connections with Lighthouse Design. I've been on their beta-tester team for quite a while. I feel very warmly towards these guys. Those feelings have definitely colored this article and this article should in no way be construed as a totally objective review. (Not that there is any such thing as an objective review).

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CultureShock

Athena Design

Reviewing games is difficult. Unlike applications where you can quantitatively state whether the application fulfills your needs or not, with games you just have to say if you "like" it or not. What makes it more difficult is that there are those games we *hate* to play. But for some reason they are just so darn addictive, we play them anyway.

I really hate Shanghai/GunShy/Mahjong type games. They make me *so* frustrated with them - I'm always constantly hitting the Command-Undo key or cursing. Sheesh. The author of the original Shanghai falls in the same class as the one of Tetris --- people to avoid when you want to get any work done.

Anyway, as you may have surmised - Culture Shock is a Shanghai/Gunshy/Mahjong type game. You have a pile of tiles which you have to remove in a specific order. The twist with CultureShock is that each tile is a cultural motif of the year 1990. Here are some examples of the motifs that are represented on the tiles:

- Savings and Loans Scandal
- Gulf Oil Crisis
- Sex, Lies, and Video Tape
- Flag Burning
- George Bush
- Eric Clapton's Journeyman
- Bart Simpson
- RIP: I Love Lucy
- NeXT !
- Dick Tracy
- 2 Live Crew
- Madonna
- Pro-Choice

.... Each of these tiles has a little icon representing the cultural motif. In addition, some of them (such as "Milli Vanilli") have little sound bites attached to them so when you remove the tiles, they play a short (5 sec.) sound bite.

INSTALLATION

A cinch. Drag and drop the application from the disk to your Application directory. The entire program is 1.1 megabytes. It has lots of sounds and TIFF files. Very small online manual. There isn't a whole bunch to explain about the program. Except... perhaps the icons. Maybe it's just that I'm totally an alien fish in American culture, but I could only figure out 75% of the icons. Some of them were totally incomprehensible....

GENERAL IMPRESSION

I'm assuming everyone knows what a Shanghai/Gunshy/Mahjong game is. It's difficult to explain without a screen image, so I won't strain my ability to explain it to you. What I *can* say about the games are that if you enjoy Solitaire-like thinking games, are very spatially orientated, and have a good spatial memory - then you'll enjoy these games. Also, you need a *lot* of patience.

I guess I don't have any of the above since I really suck at these games..... In any case, Culture Shock is a fairly good implementation of Shanghai. It must have taken them a while to do all the icons and sound bites. There's no playing against the clock or against an opponent however. There is - happily - an Undo feature however. And a "save game" option.

The game suffers from the common Shanghai problem of perspective. It's sometimes very had to tell what piece is free to select or if it is blocked. The 3D perspective really needs to be fixed on this. However, if you press down the space bar, it will highlight all free tiles, which is very nice.

If you've already selected a tile, pressing the space bar will give you a "hint" -- i.e. highlighting the other tiles that match your selected one. This is God's reparation for giving us Shanghai. In any case, it makes 3am CultureShocking a bit easier.

CultureShock also allows you to make up your own tiles. I haven't tried this, but it's an interesting idea. I'd change all the tiles back to the original Mahjong tiles since I can think better in terms of those tiles rather than in "NC-17" and "Flag Burning".

The biggest plus for this is it's price: $25 from NeXTConnection. Considering everything, including the infancy of the NeXT market, it may be worth $25 (the color version is $29.95). You'll certainly play $25 worth of games on it ($25 is 100 games of pinball for example). The thing about this type of game is that you start it up when you're a bit bored, but end up playing with them for *hours*. Definitely *not* a productivity tool.

The other big problem is that there is a freely available version of NeXT Mahjong available at the cs.orst.edu and nova.cc.purdue.edu FTP sites -- "NeXTMj". This version uses the original Chinese tiles (with English subtitles) and has both a "Hint" and "Undo" option. Best of all NeXTMJ has source code.

Comparing the two: they seem very alike. My preference is for the plainer Chinese tiles. However, some people may prefer CultureShock's color tiles and sound bites. The sound bites certainly do make CultureShock more entertaining to play than NeXTMJ. People without Internet FTP access or those who are perpetually lazy may just prefer to whip out the credit card and order through NeXTConnection.

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BUGS

None found.

PROBLEMS

They could clean up their interface. They need to improve contrast and the 3d-ness of the whole interface. Also, a way to add levels of difficulty would be nice. I'm always finding that the default levels are too difficult. The Shanghai's in the arcades in Japan have levels if difficulty and also playing against the clock. Both features would be nice.

CONCLUSION

This is a pure matter of taste. If you like Shanghai and you want to help a small NeXT software company pay their utility bills, then buy this. It is definitely *not* a waste of your money as I've said above. While at WaNUG, I noticed a certain vendor (whose name we won't mention) was not getting a lot of attention. Bored out of his wits, he was playing CultureShock. That was, in fact, my first look at CultureShock in the flesh. It's a good game -- not too boring, addictive, takes a long time to play, etc.I heartily recommend that all developers who are going to conferences should get a copy. ;-)

Now if only NeXT had a laptop, I'd have something to do when I'm flying back to Tokyo.....

SUMMARY

Application:	**Mahjong game ala Shanghai**
Version:	**V1.0.10.1.91 Color (review copy)**
Description:	**Mahjong game ala Shanghai with cultural motifs of 1990 as tiles.**
JiroRating:	☆☆☆

Price:	**List**	**NeXTConn**	**Edu.**
Culture Shock:	**$25**	**$22**	**N/A**
Color Version:	**$30**	**$25**	**N/A**

Contact:

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athena@adi.portal.com
(617) 782-3550

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Create

Stone Design

I seem to be on a roll this week. Perhaps it is due to the fact that I am behind on my Real Life (TM) projects. Oh well. Writing these reviews are more fun anyway than AI projects anyway.

Some may have noticed that I've added a new item to the "Summary" at the very bottom. It's "Languages Supported." I know a lot of our European kin consider this a very important feature. Happily, Create supports French, German, and Spanish (along with English). I'm currently working on a Latin and Japanese version for Stone. The Latin version is for some priests over at the Vatican.... (a joke for the humor impaired)

Anyone who has met Andrew Stone knows that he must be the nicest guy in the whole NeXT world. This causes some problems when he writes software, though, because he commits the unpardonable sin -- HE ACTUALLY LISTENS TO HIS USERS.

Create has been beta-ing for the past nine months or so as Andrew put in every suggestion that he received (I must admit that I am the cause of some of those suggestions). Finally, though, Andrew decided to freeze the features and released Create V1.0 at Seybold last week. I can say this: it was worth the wait. Today's Create is a much more refined and mature product than the copies that have been floating around the FTP sites for a while.

What's Create? Stone Design says its "an extremely powerful drawing program..." I always hated the term "drawing program", especially when its applied to a program like Create. I say that Create is an extremely powerful *graphic design package*.

What's the difference? Drawing programs create drawings. Graphic design packages create graphic designs. They create things of beauty and refined aesthetics. Hell, Draw can create drawings. What most of us want aren't simple drawings, we want things that look good -- hell, darn good. As I'll explain below, Create is a program that lets you easily create darn good artwork and graphics -- even if you aren't an experienced graphic designer.

INSTALLATION

This is the most boring section of my reviews to write these days. Every body is using the Installer application to install their programs. Create is no exception. The program comes on 3 1/2" floppy disks. The application itself is 960 kilobytes, along with the online help files and extensive tutorials it takes up 2.01 megabytes.

GENERAL IMPRESSION

Create seems to defy one principle of software design -- it's both very simple to use and extremely powerful. I've had chances to use both TopDraw (v1.0) and Illustrator, and it took me at least an hour or two to figure what the heck was happening before I could use them. I still can't figure out all the selection modes in Illustrator. The lack of online help in these packages didn't help any (so to speak).

In contrast with both of these, Create is refreshingly easy to use. The "Inspector Panel" has some Stoney quirks to it, but once you get used to them, it's simple to navigate around it. Create provides you with an enormous amount of control over objects you draw:

- Neon
- Shades (both linear, diagonal, and radial)
- Multiple image
- Skewing
- Auto shading (for the "2.5D" look)
- Most the type manipulation tools of TextArt (a lot)
- Rotation in any amount
- Magnification both in x and y axes
- Line butt and arrow control

The drawing tools are themselves fairly standard:

- Line, curve, square, circle, round box, bezier freehand polygonal, line freehand polygonal, freehand, super text, paragraph text

(Since I've decided to keep these reviews all ASCII for our non NeXT and Newsgrazer friends, it's pretty difficult for me to show you what you can do with Create. So I've omitted describing tools in detail.)

Unlike Illustrator, Create does not succumb to having tri-modal tools or other utilities. Almost everything is controlled through the Inspector Panel. That makes Create easy to learn and what's more, it allows you to draw up really fantastic looking artwork within minutes.

Some tools that Create has are really unique and well thought out. One of them is the "Make Spline" tool. This

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JiroViews by Jiro Nakamura
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turns any corner into a bezier spline (curve). This allows you to really make wacky and great things out of simple objects such as squares and triangles. Another great tool is the "Mask Group" tool. I think this is more powerful and easier to use than the inferior masking tool in Illustrator.

One other neat thing is that Create lets you edit the PostScript that it uses for its objects. Suppose you just put the neon effect on an object, but you'd like to tweak it in a way that Create doesn't let you. If you are a real hacker, you'll pop-up the PostScript code for that object (from within Create), edit it and pop it back in. Not only is this a great learning tool for hacking PostScript, but it lets you extend the bounds of Create.

Talking about extending bounds, Create also lets you create "images" of your graphics, that you can use a'la TIFF or EPS clip art in later graphics. It already comes with a (long) list of ready made artwork. Some of these fit more under "examples" than truly usable stuff, but it does get you thinking about the potentials. One can add your own clip-art images to the menu structure quite easily. This is great for those people who have logos or designs that they have to use repeatedly.

The on-line help system puts to shame all other on-line help systems that I've ever seen. Not only is it hypertext/multimedia, but it actually lets you experiment and learn through example. For example, let's say I draw a square. I want to know what the different fills will do. So I hold down the control-key (the Help Key) while clicking on the radial fill button. Instantly the context-sensitive online help panel jumps up. Not only does it explain the different features and capabilities, but it also offers to show me what a filled object will look like. If I click on that icon in the help document, it will bring up a small example of the tool's potential. *This* is user friendliness.

Another example of Create's user friendliness is in how it lets you select colors. It uses a new feature of the Color Panel that lets you simply drag colors from the Color Panel and drop them onto the appropriate part of your object. Normally you have to find the proper Color Well for the object, select that and then find the color in the Color Panel. With Create it is just drag and drop. People who are sick of Illustrator's Macintosh style color chooser will love this feature.

BUGS

Sadly to say, this program still has its small bugs and quirks. I haven't played with any drawing program that doesn't crash on me when I do truly weird things and Create isn't an exception. But in my experience, it is at least more stable than TopDraw 1.0 and Illustrator. This is most probably due to the immense amount of beta testing that it has gone through.

The program will crash when the moons of Jupiter and Saturn align wrongly. As with all programs, save frequently. The NeXT computer's UNIX system makes saves very quick (since it buffers them), so there's no good reason not to save.

Stone Design has a truly great update policy: upgrades within major revisions are basically free (media and shipping). This means that if you buy v1.0, you will get any version 1.x free. You will most probably have to pay a nominal charge for v2.0, though - which is only fair considering that major revisions add major features.

I just received my Mathematica 2.0 today. It turns out that Wolfram wants me to pay them $225 a year so that they can send me bug fixes for *their* program. This type of arrogance really p*** me off (which is why you won't see me review Mathematica or software from other monolithic companies).

Concerning bug fixes, I've gotten very quick personal responses to my bug reports from Stone Design, and I don't think it's because they knew I was going to write this review. I think Andrew Stone is a perfectionist and he really wants his users to be happy.

PROBLEMS

There are two features that Create really needs: autotracing TIFF images and text along freehand curves. Andrew Stone is aware of both of these lackings, but he also seems to not want to turn Create into the be-all, win-all kitchen-sink drawing program. He seems to relinquish that responsibility to Illustrator. I can see his viewpoint (I guess). It seems that he wants to keep Create as streamlined and easy to use as he can. I don't mind that philosophy, but I sure would like to see autotrace and text along freehand curves....

The two above reasons are why I have only give it **** 3/4 (Almost Excellent) instead of ***** (Excellent). If I'm doing really serious graphic design, I tend to sketch out my designs on paper and then scan them in to get traced. Then I fix up the artwork with a program (such as Create). I know a lot of other designers work this way too. Which is why autotrace is essential. Having text flow along freehand curves is also essential for graphic design.

Other than from those two, I can't think of any more problems. The problem for me is that I let Andrew Stone know of all the problems I had with Create when I was beta testing it. And he fixed them all so there isn't much for me to say. Phooey.

CONCLUSION

Anyone from a Sunday doodler to those who imagine themselves to be the next Paul Rand* will want Create.

The artistically handicapped will love Create. It lets even those who think that skewing is something to do with barbecues create amazing looking documents. As I said above, the amount of on-line help coupled with the twenty or so sample Create documents will quickly let people mix and match different styles and objects to make a snazzy presentation graphic.

Even advanced graphic designers will love Create because it doesn't get in the way of your creativity. It simply lets you do what you want to do. The amount of stuff that Create can't do compared to the stuff that it does lets you do transparently is minuscule.

Create is retailing at $495. Students and academics can buy it for $250. As the stingy man of the NeXT world, I consider this a bit high, especially since I bitched about paying $185 for FloppyWorks two weeks ago. However, unlike FloppyWorks, Create is a quality pack-

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** The graphic designer who did the NeXT floating square logo (for $100,000). That reminds me of an anecdote someone** once told me. A company had just commissioned an outside graphic design firm to design a new logo for the company. The design cost them $500,000 but it won huge approval from the industry. The head of the internal graphics design department stormed into the President's office. He said, "You know, we could have done that in-house (with Create) for a whole lot less." The president smiled, "Yes. But because we paid $500,000 for it, no one's ever going to bitch about the design. If we had done it in-house, people would have complained about it forever."*

*** Steve knows who he is.*

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JiroViews by Jiro Nakamura
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SUMMARY

Application:	**Drawing/graphic-design package**
Version:	**V1.0 (review copy)**
Description:	**Very easy to use drawing program. On-line help is excellent. Superb user interface, high degree of control over objects. Highly recommended for all levels of expertise.**
Languages:	**English, French, German, Spanish.**
File Formats:	**TIFF, EPS, .create, .createImage**
JiroRating:	☆☆☆☆½

Price:	**List**	**Edu.**
Create:	**$495**	**$250**

Site licenses are available.

Contact:

Stone Design
2425 Teodoro, N.W.
Alburquerque, NM 87107
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age. The program is stable. The manual is really high quality. The box actually looks like someone spent some money on it (unlike the Kmart specials that seem to populate the NeXT marketplace). Like I said before, Andrew Stone is a perfectionist (maybe he has more in kin with Steve Jobs then most people would believe....).

Create's main rival is Illustrator. Illustrator is retailing at $659 and selling for $459 from NeXTConnection. Considering the capabilities of the two, I think that they are really closely matched. If you take your work *very* seriously, get both. They complement each other well. If you can only afford one: get Create. It has less headaches, is easier to use, allows you to do more things, and is more fun than Illustrator -- not to mention that it is 30x faster. "Edit in Preview Mode" - hah!.

Let it suffice to say that Create will do 98% of the stuff you can do with Illustrator in 10% of the time and you will have 400% more fun doing it and as a result your document will look 200% better.

Stone Design isn't setting Create up against Media Logic's TopDraw for a good reason -- they don't consider it competition. I've played with TopDraw 1.0 for a while and my general impression was that it was Icon mixed with Draw so that you could do things similar to what Diagram! does. It didn't seem to good for graphic design and - damn it - it wasn't that much fun to play with. TopDraw seems more like a drafting tool than a general drawing and graphic design tool. It all depends on what you want/need.

My recommendation is: get a demo copy of Create by anonymously FTPing cs.orst.edu or nova.cc.purdue.edu. Play with it for a while and try drawing a copy of pictures or playing with the tutorials and sample graphics. A lot of hard work has gone into this program. It isn't a simple port of a bloated Macintosh program.

Andrew Stone wants to "change the paradigms of how we think about software." Software needs to work for us. It is the tool by which we can expand our creativity. And as a tool it should try to be as transparent as possible while giving us as much flexibility as possible. I think Create takes us a step closer to a new perspective towards software.

#include <std_disclaimer.h>

I do have connections with Stone Design. I've been on the beta-tester team for Create and Dataphile for quite a while. I also think Andrew Stone is the all-round nicest guy in the NeXT world. And so I must append my usual disclaimer that this isn't a 100% objective review.

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Diagram!
Lighthouse Design

Diagram! happened to pass my way a long time ago, I was an early beta tester for version 1.0. Lighthouse, however, has rewritten Diagram for NeXT System 2.x and I am reviewing that version (v1.1).

The copy that I am reviewing is a full distribution copy. As many may know, Lighthouse Design amazed the NeXT world with its academic pricing for Diagram! Students can purchase a fully enabled version of Diagram! for only $25 (sans printed manual).

INSTALLATION

Like most NeXT software packages for System 2.0, installing Diagram! was a cinch. The application, sample files, and complete on-line manual managed to fit on one 1.44 megabyte floppy disk. The complete package installed is about 2 megabytes.

The disk actually comes with two packages, which is quite convenient. The first is the application packages, which has the on-line help manual bundled inside it. The other has some sample documents and palettes. The sample palettes are very useful and you should keep them handy somewhere if you are doing lots of diagrams.

GENERAL IMPRESSION

The one statement guaranteed to make the hair of Lighthouse Design's Product Manager Jonathan Schwartz stand on end is to say in a public fora: "Yes, Diagram! is an excellent tool for doing diagrams."

Once he has finished strangling you, he will say in a calm, subdued voice: "And it isn't only for doing flowcharts either, GOT IT!?"

Diagram! is a strange and wonderful product. It's so hard to classify it. Lighthouse says in its sales blurb that it is "A graphics tool for people who think and draw at the same time." Great. That doesn't explain much.... What's it *really* good for?

Everything..... (almost)

Let me put it this way: I've used Diagram! extensively both in my business and in my research. Diagram! has a home in every researcher, student, and businessperson's app dock. Why? Because it does all the illustrations and drawing that every researcher, student, and businessperson is ever going to need. Read no further, it's as simple as that.

Face it, you're no da Vinci. Not even a Donatello. Hell, you can't even draw a cube in full perspective. Whenever you try doing some "art" for a publication, you give up and go use some clip art. So why pay gazillions for a top-line drawing program like Create or Illustrator?

Diagram! is the drawing tool for the "rest of us." It is ideally suited for doing the kinds of drawing that the rest of us need. It can whip out snazzy looking graphs, charts, and explanatory diagrams in seconds.

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JiroViews by Jiro Nakamura
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It can't do snazzy pastel watercolor-like textured drawings. And don't use it as an excuse to get your Significant Other to pose nude -- you can't do freehand sketching in it. But hey, 99% of us can't do justice to packages that *do* let you do that. So Diagram! doesn't try.

On the other hand, Diagram! gives you a tremendous amount of flexibility when it comes down to the types of illustrations that you *do* do. Let me explain some of the fundamentals. Diagram! is centered around "palettes" of drawing objects. Some of them are basic drawing objects such as lines, squares, circles, polygons, etc. Almost everything in Diagram! is done with these palettes.

Lighthouse provides palettes for almost everything, from the mundane flowchart symbols, to palettes for making organizational charts (for companies), to little NeXT Cubes and Megapixel monitors for making ethernet networking diagrams, and productivity palettes.

Unlike simple drawing programs like Draw, Diagram! make drawing fun. You pick icons off the palette and then plop them onto the canvas. Then you drag your mouse between icons to make links between them. And there's the whole beauty of Diagram! since the links are fully configurable. Want an arrow point one way? Both directions? Dotted line? Dashed line? Grey line? These are all possible using Diagram!'s Inspector Panel. You can even specify bezier curves instead of the default straight lines.

What's more, and what's the funnest part of Diagram!, is that when you move icons around, the links move with the icons. And so you can play around with rearranging your diagram without harming the organizational structure of it. This is what differentiates Diagram! from normal drawing apps. Objects are fundamentally linked but movable. Consider it a true object-orientated, user-friendly, smart drawing program.

Lighthouse has also built in hypermedia functionality into Diagram! You can have any type of file you want linked in -- sound files, directories, WriteNow documents -- anything. You can also link parts of the Diagram! to other documents. It would be possible and very useful, for example, to have the entire AppKit hierarchy drawn up in Diagram! and have links from the names of the classes to the files in the NeXT Library that describe them and also to the respective header files.

Another truly great feature is that Diagram! documents are fully indexable in the Digital Librarian. How could you use this? Let's say for example that you want the floor plan of each floor of your office building. Next to each workstation icon, you note the workstation type, the system software, etc. Next to each person you note their name, rank, serial number, etc. Now you load all of your Diagram! documents into Digital Librarian and presto! You can now instantly search for any workstation type, person's name, etc. and instantly bring up a floorplan that will show you *exactly* where that person is. Snazzy? I think so. I hope all application vendors in the future include the ability to index their documents with Digital Librarian.

SUMMARY

Application:	**Illustrating tool**
Version:	**1.1 (review copy**
Description:	**Very easy to use drawing program. On-line help is excellent. Superb user interface, high degree of control over objects. Highly recommended for all levels of expertise.**
Languages:	**English, French, German.**
File Formats:	**TIFF, EPS(copy, paste, open, and Save To...) Any other file type or folder can be dragged and dropped in as a hypermedia link.**
JiroRating:	☆☆☆☆☆

Price:	**List**	**NeXTConn**	**Edu.**
Create:	**$399**	**$339**	**$75***

Price for academic staff. Students price is $25. Packages sold at academic prices do not include a printed manual. Also note that NeXTConnection will sell you the product at academic prices if you show them the proper proof of identity.

Contact:

Lighthouse Design, Inc.
6516 Western Ave.
Chevy Chase MD 20815-3212
1-800-FOO-BAR9

BUGS

I've been beta-testing Diagram! since the early days. Which is really annoying since most of the bugs I've found have been fixed. There are some minor ones left, but I've forgotten about them.... In any case, I haven't had Diagram! crash on me during my work (unlike many a program) and my files have never become corrupted -- two things I think most essential in any application.

PROBLEMS

One thing people should never ever mistake is the fact that Diagram! is not a freehand drawing tool. It is a diagraming tool. So please don't expect to be able to do surrealistic simulated-pastel sketches of your chihuahua with Diagram!

It might be handy if Lighthouse did have a freehand drawing tool in Diagram! Sometimes, I've severely wished for one. But all in all, I'm glad that they chose to make Diagram! not a tool for all trades, but an expert at one. There are other great packages for freehand drawing such as Create or Illustrator (see my previous review of Create) and both of them are able to exchange palette icons with Diagram! Which means that if you need to have an icon or palette item that Lighthouse does not provide, then you can simply drag and drop it into Diagram! Lighthouse provides you with a number of palettes from the beginning and I think I've seen some more palettes on the FTP sites for more specialized things.

CONCLUSION

In conclusion, I'd like to say that Diagram! does fantastic flowcharts..... :-)

Seriously, Diagram! is a wonderful tool. If you don't do any illustrations for your documents, get with the decade. If you do any illustrations and don't have time to fool with mega-drawing apps, then buy Diagram! It's the productivity tool for the rest of us.

#include <std_disclaimer.h>

I have no connections with Lighthouse Design, Inc. other than being a beta-tester and occasional advice-giver. They *did* let me sleep in their attic during WaNUG, but I *guarantee* that that did not affect my editorial integrity. ;-)

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EDUCOM '91

Assembled By Mike Mahoney

The abstracts included in this issue of *SCaNeWS* were written by faculty who were invited to show their stuff in NeXT's booth at EDUCOM'91 in San Diego last October. EDUCOM is a large annual conference featuring exhibits, speeches, discussion groups and parties for educators, academic computing directors, etc. If you are an educator who uses computers, then you should consider attending EDUCOM.

Each faculty member at EDUCOM had a NeXT to show his apps and other creations to the rest of academia. Next to each faculty member was his abstract, copies of which are printed here. Thanks so much to those faculty for allowing us to reprint these interesting and diverse abstracts.

EDUCOM'91 was a very successful event for NeXT and it's no wonder lots of educators want and use NeXTs.

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Dr. John R. Glover is a Professor of Electrical Engineering at the University of Houston. He received the B.A. and M.E.E. degrees in Electrical Engineering from Rice University in 1967 and 1968, respectively, and a Ph.D. in Electrical Engineering from Stanford University in 1975.

In 1975, he joined the Department of Electrical Engineering at the University of Houston, where he is now a Professor, and Director of Engineering Computing. In 1981 he received the Outstanding Transactions Paper Award from the IEEE Education Society for the paper, "Integrating Hardware and Software in a Computer Engineering Laboratory."

His current research interests are in the areas of adaptive signal processing, knowledge-based systems, and bioengineering applications. In addition to these areas, his teaching interests include computer engineering, particularly object-oriented programming, and real-time laboratory programming. Glover is also President of the Houston Area NeXT Group (hAng).

A Workstation Environment for Electrical Engineering Instruction and Research

Glover's presentation at EDUCOM'91 highlights examples of the use of NeXT computers in undergraduate instruction in electrical engineering, and similar use of NeXT in EE research.

NeXT in Electrical Engineering Instruction

Glover is currently Principal Investigator of National Science Foundation grant no. ENG- 8851973 entitled, "A Workstation Environment in a Computer Engineering Laboratory." The goal of this project is to develop a prototype of what would be the ideal laboratory environment for courses in computer engineering.

As part of that project, a laboratory of 14 NeXT workstations has been established. These are in addition to an equal number of NeXT workstations in faculty offices and other labs.

To aid students in learning object-oriented programming (OOP) and the NeXTstep development environment, a complete set of OOP course notes was developed. These notes include slides that are shown by a NeXT using a video projector, along with program demos and examples to support the notes. There is also a set of laboratory exercises with solutions.

A senior project design course, Computer Engineering Design, was also developed. This course includes instruction in project planning, management, and implementation; oral presentations; and written reporting. Both hardware and software projects are provided. Students choosing software projects learn OOP and develop EE educational courseware. This courseware is then used in other electrical engineering courses.

For example: PowerPlus! is a three-phase power system simulator which allows the user to test various wye and delta configurations. ET allows the user to place charged shapes into an electrolytic tank and see the resulting field distribution. Bounce! is a program which simulates a voltage pulse propagating down a transmission line, and draws the corresponding "bounce diagram" indicating reflections at discontinuities in the line. Still under development is LogicSim, a digital logic simulator. It is actually part of a larger project to develop a general icon-style discrete simulator. Meter is a demonstration of an analog meter-type screen object. ArrayFactor demonstrates array antenna patterns, allowing the user to vary the spacing and phasing of elements and observe immediately the result on the antenna pattern. Beam, designed by a civil engineer taking the design course, draws shear and bending moment diagrams for a loaded beam with three supports.

Demonstrated also will be two third-party applications that are useful in EE: DADiSP, a powerful signal analysis package for courses in signals and systems; and Lotus Improv, a spreadsheet application that can be used to model systems described by difference equations.

NeXT in Electrical Engineering Research

Graduate students find NeXT computers equally useful in their research. Three examples are demonstrated here. Adapt is a program used for teaching and research in adaptive signal processing. It allows the user to choose various signal inputs, and then shows all relevant filter parameters and signals during the adaptation.

Spiker, still in progress, is an expert-system for automated detection of sharp events ("spikes") in the electroencephalogram. It includes elements of a more general object-oriented system for signal analysis and interpretation. Also demonstrated will be the screens being developed for control and monitoring of the Wake Shield Facility, a molecular beam epitaxy experiment to be deployed by the Space Shuttle in early 1993.

Benefits of NeXT for Electrical Engineers

There are two principal reasons why we chose to purchase NeXT computers in electrical engineering. First and foremost, the NeXTstep development environment allows engineers for the first time to develop useful and usable programs. Engineers, as opposed to computer scientists, generally consider themselves "part-time" programmers spending time writing programs only as necessary to facilitate the engineering. NeXTstep simplifies program development so that faculty and students can develop the educational and research software that is either unavailable or too expensive on the open market.

Second, we have discovered that only the NeXT will allow us to do essentially all of our tasks in an integrated environment on the same machine and do it quickly, easily, and elegantly. At the same time, it is cheaper that its competition. Although

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we will always have a mixed-vendor environment, NeXT computers have the potential of being the principal machines used in the classrooms, in the laboratories, and in the offices.

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Michael K. Mahoney is a Professor and Chair of the Computer Engineering and Computer Science at California State University, Long Beach. He regularly teaches courses on Computer Graphics, User Interface Design, and Discrete Mathematics.

He has directed several students who have written graphics applications on the NeXT, including a tutorial which demonstrates 3D viewing parameters and transformations, an interactive design tool which demonstrates shadowing, and NeXTPHIGS, an object-oriented implementation of the industry standard Programmer's Hierarchical Interactive Graphics System.

Mike earned his Ph.D. in mathematics at the University of California, Santa Barbara in 1979. He has published papers in computer graphics, computer science education and mathematics and given presentations on Object Oriented programming, NeXTstep and Interface Builder at ACM meetings in Seattle, Los Angeles and New Orleans. He won campus-wide teaching awards at both UCSB and CSULB.

Mike is founder and President of SCaN, the Southern California NeXT Users' group, which meets monthly at various sites in Los Angeles County. He is also co-editor of the *SCaNeWS* newsletter, which can be obtained from the nova.cc.purdue.edu archive site.

The Benefits of NeXT for Me

As a professor who teaches classes and does research, a department chair who needs to communicate and administrate, and a user group president and newsletter editor who gathers and disseminates information, I find the NeXT an invaluable tool. It helps me keep everything organized, perform numerous high-level and mundane tasks in parallel, and effortlessly integrate all these activities with impressive looking results. To communicate the benefits the NeXT provides for me I'll describe my interaction with my NeXT during a typical hour in my office. Note how the immediate access and integration of all the applications (e.g. drag and drop, interapplication messaging) affords me the time to be very productive while wearing three hats.

An Hour in the Life of a Computer Science Professor and Chairman with the Best Tool in the World

I log in and the Mail, (UNIX) Terminal and Preferences applications automatically launch from my dock, a column of 12 application icons at the right of my NeXT screen for easy access. I quickly scan the e-mail subjects and read the only urgent item, a message from a SCaN user group member that he will soon e-mail his article for the *SCaNeWS* newsletter. I'm relieved because it's the only missing article and I must make hardcopies of *SCaNeWS* today for a snail- mailing tomorrow. I decide to take one last look at *SCaNeWS* so I double-click its file icon (on my File Viewer's shelf since I've been working on it recently) and FrameMaker is automatically launched with *SCaNeWS* front and center. It looks good so I miniaturize its window in anticipation of the missing article.

Having some time I decide to work on my NeXTstep tutorial, also in Frame format, which I'll be presenting at an ACM conference. The tutorial file icon is also on my handy shelf (still visible even though Frame is active), so I double-click it and my tutorial comes up front and center. Frame has lots of panels (e.g. paragraph, character, graphics) that I'd like to see simultaneously so I hide the Workspace Manager and drag my dock down for more screen real estate. However, I don't drag the dock down so far that I can't see incoming mail, indicated by envelopes flipping up and down within the Mail app icon in my dock.

I'm at the point in my tutorial where I am describing NeXTstep window types and want a screen dump which demonstrates the difference between main and key windows. So I hide Frame and launch NeXT's Interface Builder (IB), the most productive development tool ever created! I choose the "New Application" menu command, in anticipation of quickly creating an app which demonstrates the window types

New Application automatically creates a window and menu for me, so all I have to do to complete the picture is drag another window from the Palettes menu into the workspace. Having created this new demo app in seconds, I choose the "Test Interface" menu command to see how it looks. It looks okay so I launch the Grab utility from my dock to dump the screen to a file for import into my tutorial. I hide IB, activate Frame, and import the screen dump into my tutorial. Looking at the screen dump within the tutorial I realize the windows are not arranged properly. So I reactivate IB, test the interface, rearrange the windows, dump the screen and save under the same file name as before. Reactivating Frame I see that the new screen dump has already replaced the old, since the dump was imported by reference and not copied into my tutorial.

I notice the envelopes fanning in my dock so I activate Mail and find a message from *SCaNeWS* co-editor Lorraine. She says there are two items she found on the net which should be mentioned in *SCaNeWS*, a new app at an archive site and a great posting in Usenet (network news) about how C++ can be integrated with Objective-C on the NeXT. So I double-click the miniaturized *SCaNeWS* window and launch NewsGrazer, a public domain easy-to-use interface to Usenet. I easily find the posting by searching for "C++", drag its text icon right from NewsGrazer and drop it into the *SCaNeWS* document!

After closing NewsGrazer I launch Touch, a public domain easy-to-use interface to file transfer protocol (ftp), command it to automatically log in to the archive site and bring up a File Viewer of the remote file system. It looks like Purdue's archive disk is mounted on our local net. After finding the README file for the app Lorraine mentioned I drag its icon and drop it right into the *SCaNeWS* document as well. In both cases the text files dropped into Frame automatically format into columns within the *SCaNeWS* document.

Again I notice the envelopes fanning in my dock and this time it's a message from a student in my graphics course who has a compiler error in his program that has stumped him for hours. He's so desperate that he mails me a copy of the folder containing his source files and pleads for immediate help. I drag his folder into my home folder, activate NeXT's Terminal app and compile his code. I recognize a common compiler error, select it and choose the Services/Mail/Selection menu command in Terminal. Automatically Mail is activated, a

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"Send" window opens, and the text I selected in Terminal is inserted! I type in a few words telling the student what the error message means and deliver the mail to him.

My secretary walks in and says that the teaching assistant checks have arrived and that the Dean would like a memo updating the department's budget status. So I open my budget spreadsheet in Lotus Improv by double-clicking its icon in the File Viewer, request a 3D bar graph, and copy the graph to the pasteboard. Then I double-click the icon for my memo template, the template opens within the WriteNow wordprocessor, and I paste the graph right into the template. I type in a sentence or two, print the memo and the spreadsheet and hand them to the secretary.

Once again I notice the envelopes fanning in my dock (this really happens folks) and this time it's a message from "Steve", a fellow who wants to join SCaN. Fortunately Steve has included his U.S. mailing address in his message so I select and copy it, activate WriteNow by double- clicking on SCaN's mailing list document icon and paste his address into the document. This reminds me that I have to print SCaN mailing labels so I open SCaN's mailing label template and use WriteNow's merge command to automatically create a document with all the labels.

Since I've added 15 new names to the list since the last mailing, creating this document allows me to verify the labels on screen and not waste paper. This reminds me that I should also send e-mail to all SCaN members on the Internet about the NeXT meeting. So I copy Steve's return e-mail address, find the SCaN group in Mail's Addresses window, paste Steve's address in the group and mail messages to 75 members in one shot. While I'm at it, I e-mail a message to the TA group so they know they can pick up their checks from the secretary.

Finally, the missing article arrives (how did I know?) but it's in WriteNow format. No problem. I double-click the WriteNow document icon in the Mail message and the article opens within WriteNow. I choose "Select All", copy to the pasteboard, activate Frame and paste into *SCaNeWS*. Now that *SCaNeWS* is finished I save it, select its icon in my File Viewer, choose Services/Mail/Document from the Workspace menu and a Mail Send window is automatically opened containing the *SCaNeWS* icon. I'm so proud that I copy the *SCaNeWS* graphic header from Frame and paste it into the message, and click on Lip Service to add a cute little comment before mailing it to Lorraine for review. Whew! Got it done on time, with style!

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Professor Hal Varian is the Reuben Kempf Professor of Economics and a Professor of Finance at the University of Michigan. He received his SB in Economics from MIT in 1969, and an MA in Mathematics and Ph.D. in Economics from University of California at Berkeley in 1973. Varian is the author of the graduate text Microeconomic Analysis and the undergraduate text Intermediate Microeconomics. He is the author of numerous scholarly papers and has served as coeditor of the American Economic Review, the leading scholarly journal in economics.

Textbook Publishing and Experimental Economics

Varian has been using NeXT computers in several capacities. One project involves preparing the third edition of his graduate text on the NeXT using TEX. The TEX software, the UNIX editing and text processing tools, and the Display Postscript environment have proved very useful for this work. The integrated environment offered by the NeXT makes the author's job much easier: all the tools necessary for producing professional publications using TEX come bundled with NeXT machines, and all the tools work well together.

Varian's major project involving NeXT computers is in "experimental economics." Economists have lots of theories about how people should behave in strategic interactions involving markets, bargaining, and negotiation. Experimental economics is an attempt to test these theories in a controlled environment. The typical procedure is to present human subjects with a set of strategic decision and observe how they behave. It is generally convenient to do this using a network of computers.

Varian is studying subjects' behavior when they play a variation of the Prisoner's Dilemma, a famous game involving cooperation and defection. In this game, both players do best if they cooperate; despite this, each individual is tempted to defect from the cooperative solution. One can vary the parameters of the game and study the incentives to cooperate or defect.

In Varian's implementation each player has two playing cards, say a 6 and a 4. There is a pot of money in the middle of the table. If I play my 6, the other player will receive 6 chips from the pot. If I play my 4, I will receive 4 chips from the pot. The plays are made simultaneously, so neither player knows what decision the other player has made. Furthermore, each player plays against a different person each time.

The sum of the payoffs is maximized if both players cooperate and play their 6's. But if I think that the other player is going to play his 6, I might as well play my 4 and get a total payoff of 10. But if both players do this, they each end up with 4.

The Prisoner's Dilemma can be used to model price wars, arms agreements, and a variety of other situations involving conflict. Varian is interested in examining what happens if players can "negotiate" (in a particular way) before they make their decision.

Benefits of NeXT Technology for Economics

The major cost of developing programs of this kind for experimental economics is designing the interface. After all, these programs are almost all interface: the actual computations are trivial. It is important to have an intuitive interface since the student subjects have to learn to play the game in a short amount of time. Furthermore, the interface should be fun. We want the students to play to win, so the they should get attractive visual simulation.

Developing such interfaces by conventional methods is costly and time-consuming. With Interface Builder, development time is substantially reduced. Furthermore, the object- oriented design of the NeXT encourages reusability. Each experiment is run only a few times, but each experiment has many features in common with other experiments. Having a toolkit of objects for such games should prove very useful in future research.

We also anticipate that simulations of this sort will be very useful in the classroom. Economic concepts become much more vivid when students can get hands-

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on experience, and the NeXT provides a very convenient platform for this type of experimentation. We hope to prepare other simulations of market games, auctions, and bargaining in the future that could be useful both for research and in the classroom.

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Dr. Jeffrey E. Froyd is a Professor of Electrical and Computer Engineering at Rose-Hulman Institute of Technology. He received the B.S in Mathematics from Rose- Hulman in 1975 and the M.S. and Ph.D. in Electrical Engineering from the University of Minnesota in 1979. Since 1981, he has taught at Rose-Hulman. Research interests include control system design, adaptive control systems, large-scale integrated circuit design, and complex systems design. Teaching interests are focused on integrating numerous topics around central themes, discovering fundamentals in engineering education, and using the computer to explore and communicate concepts more effectively.

Integrated, First-Year Curriculum in Science, Engineering and Mathematics

The Integrated, First-Year Curriculum in Science, Engineering, and Mathematics evolved from faculty discussions in 1986 to address two problems with traditional curricula: overemphasis on rote manipulation and failures to make connections between the various disciplines taught in the first-year. It is a three-quarter, twelve credit per quarter course sequence for first-year students who plan to major in mathematics, engineering, or the physical sciences. The curriculum is being offered to 120 students in the 1991-92 academic year. To support instruction, five classrooms are equipped with 145 NeXT computers. Software includes Mathematica, FrameMaker, and applications developed at Rose-Hulman.

In addition to the integrated curriculum, the remaining first-year students take calculus using Mathematica and Pascal programming in the NeXT classrooms. For upper class students, there are two sections of differential equations, one section of circuits, and one section of introduction to communication systems.

Presentation focuses on the applications which have been developed by undergraduate student developers during the summers of 1990 and 1991 to support the integrated curriculum. The applications were developed to help students visualize and explore fundamental concepts in science, engineering, and mathematics.

Applications include games such as Curves, TrigGigI, and TrigGigII in which students explore sinusoidal functions, SlopeGame and AreaGame in which students explore the relationships between a function and its derivative, and PositionGame and VelocityGame in which students explore relationships between position and velocity. PhysicsWorld is a simulation in which investigate and visualize the motion of particles in gravitational, electrostatic, and magnetic fields, the motion of a pendulum. RateLaw allows students to simulate the kinetics of a variety of chemical reactions. FieldSimuator helps students visualize field line and equipotential contours for both electrostatic and gravitational fields. An application called DataAnalyzer allows students to plot and fit functions to data. These applications are a sample of the almost 30 applications which have been developed to support visualization and exploration of fundamental concepts in science, engineering, and mathematics.

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In addition to the support of the National Science Foundation, development of the integrated curriculum has been supported by The Lilly Endowment, Inc., the GE Foundation, and the Westinghouse Educational Foundation.

Benefits of NeXT Technology

At Rose-Hulman, the most important NeXT technology is the programming development environment. Object-oriented programming and Interface Builder allow us to develop applications such as PhysicsWorld, TrussMaker, and FieldSimulator which we could not develop on another platform with our resources. Current plans call for further refinement of current applications and creation of more engaging applications through which students can explore concepts in science, engineering, and mathematics. Also, we hope to expand our horizons to include applications which will support exploration and communication in the humanities and social science. These software development plans are feasible with the NeXTstep programming development environment.

The communication technology built-in into every NeXT workstation is the second most important technology. Unix, Ethernet, multi-media Mail, Mach interprocess communication, and Speaker-Listener objects provide a rich environment in which new modes of interaction between faculty and students can be explored. Unix, AFS (Transarc), and Ethernet provide an Institute-wide file system through which faculty can share instructional materials with students. Multi-media mail enables rapid communication among the faculty who participate in the integrated curriculum and between the faculty and students. Speaker and Listener objects provide a productive interface to the Mach interprocess communication facilities with which a new class of interpersonal applications can be developed.

Finally, NeXTstep provides an engaging, productive user interface to a powerful computing environment. NeXT offers multi-tasking, virtual memory, and 68040 computing power with a user interface so compelling that students have no comprehension of the computing resources upon which they draw.

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William J. Davis is Professor of Mathematics at The Ohio State University. He received his B.S., M.S., and Ph.D. degrees in Mathematics at Case Institute of Technology, the Ph.D. in 1965. He has been on the faculty at Ohio State since 1964, except for sabbatical leaves in Jerusalem, Israel, Cambridge, England, and France. His research interests have centered around geometry of Banach spaces, with particular recent interest in vector valued probability and harmonic analysis. His teaching interests have ranged throughout the mathematics cur-

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riculum, and he has been deeply involved in the honors curriculum, experiments in teaching calculus with hand held, programmable calculators, Socratic methods in Real and Functional Analysis, and so forth. For the past two-and-a-half years, his passion has been the teaching of calculus with the aid of Mathematica.

The Calculus&Mathematica Project

The Calculus&Mathematica project started at the University of Illinois in 1988 when Horacio Porta and Jerry Uhl first saw Mathematica and decided that the living textbook envisioned by Jacob Schwartz could now be realized. From the beginning, the project has been primarily concerned with the teaching of calculus. All content and design decisions are based on the fundamental question: "What does this have to do with a student's learning of calculus?" Davis entered the project by encouraging Porta and Uhl to define calculus, and hence, to both limit and expand the scope of the project. Here is that definition:

Calculus coalesced as a coherent body of knowledge when Isaac Newton announced the fundamental theorem of Calculus. C.H. Edwards, in his book The Historical Development of Calculus, states:

The contribution of Newton and Leibniz for which they are properly credited as the discoverers of the calculus was not merely the fact that they recognized the "fundamental theorem of calculus" as a mathematical fact, but that they employed it to distill from the rich amalgam of earlier infinitesimal techniques a powerful algorithmic instrument for systematic calculation.

Thus, while arithmetic is the introduction to the science of counting, calculus is the introduction to the science of measurements: both exact and approximate. This is why we ask students to think of calculus as a toolbox of measurement devices. Calculus&Mathematica consists of learning what the tools are and how to use them.

Calculus&Mathematica is a lab course. We do not lecture; we treat Calculus&-Mathematica as a shared challenge for both faculty and students. Students are given lessons and assignments. They spend their time in the lab working on the lessons, asking questions, and sharing insights with their peers. What we see is students working during their assigned class time and for another hour or two each day. The center of the course is the "Give It A Try" problems. Everything is here: the experiences introducing ideas and topics, the challenges to intellect and patience, the excitement of beating the course, and solving a really difficult problem.

The course is presented to the students as Mathematica Notebooks. Each Notebook is broken into three principal sections, Basics, Tutorials, and Give It A Try. The Basics and Tutorials contain the first worked examples which lead the students to the content of the notebook. Since these are Mathematica Notebooks, students are free and encouraged to modify the examples presented there to attempt to discover the principles involved. The Give It A Try problems lead the students through experiments which ask them to discover and apply basic principles of the calculus. They play, conjecture, test conjecture, play more, and nearly always come to the correct conclusion.

One of the basic design principles of the course is that it must run with "off the shelf" Mathematica. As a result, there are no added gimmicks or toys which employ other software or operating system features. Further, we strongly believe that mathematics is anything but a spectator sport. No one learns mathematics by simply watching it go by. Therefore, we don't provide the students with an array of animated secant lines, or rolling wheels, or orbiting planets.

The project is supported at both Illinois and Ohio State by the National Science Foundation. This year, Calculus&Mathematica runs at approximately twenty institutions. Of those, six use NeXT computers.

Advantages of NeXT Technology for Mathematics Instruction

We chose NeXT computers for our new lab for several reasons. Primary, of course, was the value-per-dollar. All of the features in common use in a lab situation come with the package. The critical software, Mathematica, is bundled along with TeX, and NeXTmail (for students' homework). Built-in, easy networking is essential for a learning lab. NeXT includes the physical Ethernet connections as well as NetInfo file and traffic management. Our experiences on other platforms has led us to using computers with a friendly interface, easy networking, and true multitasking. And, we are very pleased with the fact that the NeXT machines are so fast. In Calculus&Mathematica, students frequently compute complicated graphic images of surfaces. We know that such images must be computed and recomputed before one is happy with the results. This is exaggerated with students. This machine saves students enormous time in completing their homework. We are also happy to see the students' need to carry floppy disks go away. We are finally able to tell students that their work will be preserved on the network. Irritating features of systems in which students must carry their own work with them on floppy disks are that the floppies fail, students forget to save their work to their disks as they leave the lab, etc. Students now receive their lessons from the lab's server, and turn in homework via NeXTmail. Teachers can now sit at remote machines with the lab server mounted to grade. That was not possible in the previous labs.

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Dr. Michael J. Mezzino, Jr. is a charter faculty member of the University of Houston - Clear Lake where he currently serves as Chairman of the Department of Mathematics. He received a B.A. in Mathematics and Physics from Austin College in 1962, an M.A. in Mathematics from Kansas State College in 1963, and a Ph.D. in Mathematics from The University of Texas at Austin in 1969. Although trained as a theoretical mathematician in point set topology, he has maintained an active interest in computers since 1963 when he wrote his first computer program, a machine language routine for an LPG-30 (the first of only two computers made by Royal Typewriter Corporation). His current research and teaching interests are to investigate ways in which modern technology can be used as a vehicle for enhancing the teaching of mathematics through new pedagogical concepts.

PhaseScope Mezzino demonstrates PhaseScope and describes how it can be used as a pedagogical tool in a typical undergraduate course in ordinary differential equations. In particular, he shows how PhaseScope can be used to visualize solutions in 2D and 3D, including phase plane and phase space orbits, as these so-

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lutions are used to qualitatively analyze the stability characteristics of the dynamical system.

PhaseScope is also an example of a custom front end to Mathematica's kernel. PhaseScope uses the kernel to compute the numerical integration of the dynamical system, locally linearize the system, compute spectra and perform other typical calculations which arise with these problems. PhaseScope can be used to investigate arbitrary numerical integration algorithms, written in Mathematica's programming language. Recently, PhaseScope won First Place in IMPACT's first national software contest and it was also nominated for a Computerworld Smithsonian Award.

MathGraph - A New Mathematical Graphing Object

Mezzino also demonstrates the use of a new mathematical graphing object called MathGraph. As a loadable palette, this object can produce a 2D graph of several functions of one variable or graph a single function of two variables as a 3D surface or as a contour plot. The user may select linear, semi-log or log-log options for any combination of axes; choose line, scatter, error, bar or polar displays; examine a variety of ruled surface views; zoom and vary the viewpoint; and elect to print, copy to the pasteboard or build a Postscript file. In addition, this object has a "hook" to Mathematica's kernel and can therefore be used to evaluate any valid Mathematica command or use Mathematica to generate the data for a graph. Finally, this object can easily be made into a service provider which allows the user with data, say in a word processor, to message the graphing service to produce a graph of the data and then paste the graph directly into the word processor in one seamless easy operation.

Mathematica 2.0 Finally, Mezzino demonstrates Mathematica 2.0. In particular, he explains how Mathematica 2.0 differs from Mathematica 1.0 and describes some of the 283 new functions and their uses.

The Benefits of NeXT Technology

As chairman of a small but demanding department, Mezzino no longer has the time to devote to long, complicated software development projects. Yet, through years of teaching, he has accumulated many pedagogical concepts that with modern technology, should enhance the learning experience and provide entertainment in the process. Until the NeXT's Interface Builder was introduced, he had no interest in pursuing this task because either the learning curve for development was too imposing, the task would clearly exceed the computer's performance, or the cost to obtain the necessary resources was prohibitive. With a NeXT computer, these projects are now feasible. Interface Builder, inspires you to refine the design of a graphical user interface beyond normal limits because you sense that artistic elegance and intuitive functionality are achievable.

If price/performance is an issue for you, nothing competes with NeXT! In particular, bundling the most sophisticated implementation of Mathematica 2.0 made the NeXT an easy choice for our department. Some say that there is more software for the Mac, but the NeXT has the important packages that we must have, such as an intuitive object-oriented development environment, word processing, document preparation, text editors, etc., and with seamless integration, one is easily convinced that the whole is much larger that the sum of its parts. In fact, it is really easy to believe that you are using one big package and that you are simply moving from one feature to another in a smooth and natural way.

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Dr. Joel Smith is a historian and philosopher of science who received his Ph.D. in History and Philosophy of Science from the University of Pittsburgh in 1987. His research interests include the structure of scientific theories, the history of quantum theory, and non-standard logics. His special interest centers on the nature of scientific representations of the world, their logical structure and the role that they play in the discovery process. Smith has taught in the History and Philosophy of Science Departments at both Allegheny College and Indiana University. For the past two years, he has directed an ambitious effort by faculty and staff at Allegheny to find a more significant role for computer-based representation and reasoning in support of teaching, learning, and research at the College.

Computing Across the Curriculum

Recognizing that a traditional liberal arts education supports a wide range of needs and emphasizes individualization of learning style and research approach, Allegheny began searching for computer support of learning that (1) wouldn't demand conformity to existing instructional software and that (2) would help answer the special needs of Allegheny students. The faculty, through the Computing Committee, identified those pedagogical problems they found most intractable and the goals they hoped to achieve in their courses.

The Computing Committee in consultation with the administration decided that some sort of large scale local development of computer-based tools and lessons custom-designed by faculty for their courses was one of the few approaches that held promise for answering the diversity demanded by a liberal arts curriculum.

Over the past three years, Allegheny has scaled up to a fairly large program of custom development of computer tools and lessons for disciplines ranging from religious studies to physics. Today, there are 43 different classes in chemistry, biology, philosophy, English, physics, mathematics, geology, and religious studies using software developed by professors and Educational Computing Services staff on NeXT computers at the college.

Here is a listing and brief synopsis of a fraction of these programs: Reimann Sums, a front end to Mathematica that illustrates the concepts of a lower, midpoint, and upper Reimann Sum and their relationship to the concept of an integral. English 100 Lessons, an ensemble of 12 separate applications that teach important concepts in writing such as fair use of sources, the proper marshalling of evidence, and avoiding informal fallacies.

Reader's Response, an easy-to-use bulletin board for students to raise questions about their reading and for other students to give their answers to those questions. Annotate, an application that allows faculty in all disciplines to insert voice comments into any papers that students have submitted to them electronically (via NeXTmail). Gene Mapping, an application that simulates a standard experiment to locate genes on a chromosome. Secants, an application for early instruction in Calculus to show the relationship between the secant at a point and the derivative of a function.

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Commentator, an application that allows students to select any portion of a text and make it a button that will bring up either written and/or voice commentary on that particular selection. Landslide, an application that shows students the geological forces in soil and rock strata and allows them to learn experimentally about what conditions produce a landslide. Barrier, a physics application that displays a time-dependent wave function for a particle approaching and interacting with a potential barrier giving a graphical demonstration of a fundamental quantum mechanics principle. Table, an electronic periodic table developed as a tool for students to use when working on other chemistry applications. Function, a math application designed to give an animated depiction of the relationship between a function and its independent variables for all beginning math students.

Idiom, an application designed to help foreign students taking English as a second language learn American idioms.

This list represents a fraction of the applications developed using NeXTstep at Allegheny. The central feature of the curriculum is that Allegheny professors are designing and creating new, computer-based representations and tools for teaching traditional liberal arts subjects. In the process, they re-explore these subjects and find new insights both for their teaching and for their research.

The Role of NeXT computers at Allegheny

Three aspects of the NeXT platform are essential to Allegheny's goal of individualization of learning. First and foremost is NeXTstep, the most powerful development environment available. Without NeXTstep and its Application Kit and Interface Builder tool, it would be impossible for a large number of professors at a small liberal arts college to design and develop computer tools and lessons for their students. What might have taken months or years before now takes professors and staff only days to develop.

This makes it feasible to develop instructional applications in the same amount of time that one would have spent on developing lessons anyway, yet with much more powerful and profound results. NeXTstep has turned many professors at Allegheny from computer users into application developers. The breadth of this result is incredible: there are now professors in chemistry, biology, mathematics, philosophy, geology, and physics developing their own instructional software. Others in all these areas plus those in English and religious studies design lessons to fit their needs that are then created by Educational Computing Services.

The second crucial feature of the NeXT is the range of representations it allows. The power of PostScript drawing allows us to create many varied graphical representations of subjects that otherwise would be reduced to text. The combination of textual and graphical representations appeals to a wide variety of cognitive styles among our students, thus answering their individual needs. Of course, sonic representations are also possible as in the case of voice commentary on papers. Many students respond better to voice than written comments, so here again the range of representations possible with NeXT allows us to cast wide pedagogical nets.

Finally, the ease of use of such a powerful environment is crucial. The central focus in all our classes, save computer science, is on the course material, not on the computer. We have students using the NeXT computers with a one-hour introduction. Soon, they are using our custom applications, as well as some third-party applications such as WordPerfect and Lotus Improv with such ease that they can focus on the problem or material at hand rather than the syntactical difficulties of the computer. At a traditional liberal arts college, this "transparency" of the computer as a teaching and learning tool is absolutely essential. The ease of electronic mail use has also created a revolution in communication between faculty and students. Many professors now make assignments that require the use of e-mail among students to promote collaborative learning.

It is fair to say that the combination of a powerful development environment, the ability to provide a range of modes of representation of reality, and the transparency as a machine make NeXT the only computer that would have made possible the uses to which computing is being put at Allegheny College in support of a liberal arts education.

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Dr Gray is a Professor of Mathematics at the University of Maryland. He received his BA (1960) and MA (1961) in Mathematics from the University of Kansas and his PhD (1964) in Mathematics from UCLA. His main field of interest is differential geometry; he has written over 90 research articles in that subject. His book Tubes, which was one of the first research monographs to use Mathematica graphics, was published by Addison-Wesley in 1990. He wrote the appendix, Using Mathematica, for Mark Pinsky's Partial Differential Equations and Boundary Value Problems with Applications, published by McGraw-Hill in 1991. Dr. Gray speaks Spanish, Italian, French, Portuguese, German and Russian. His joint research project with Spanish mathematicians in Bilbao and Santiago de Compostela has published many articles on complex and symplectic geometry.

Curves and Surfaces

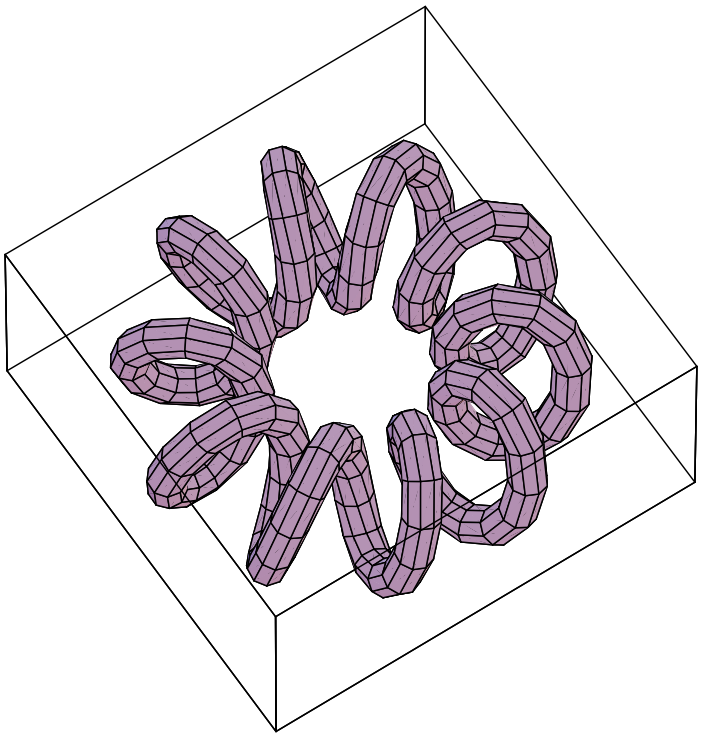
Dr. Gray's book Curves and Surfaces will be published by CRC Press in 1992. This book is a traditional text for a differential geometry course, but it uses Mathematica. Mathematica notebooks will be available for those computers that support them. Some of the aims of the book are the following:

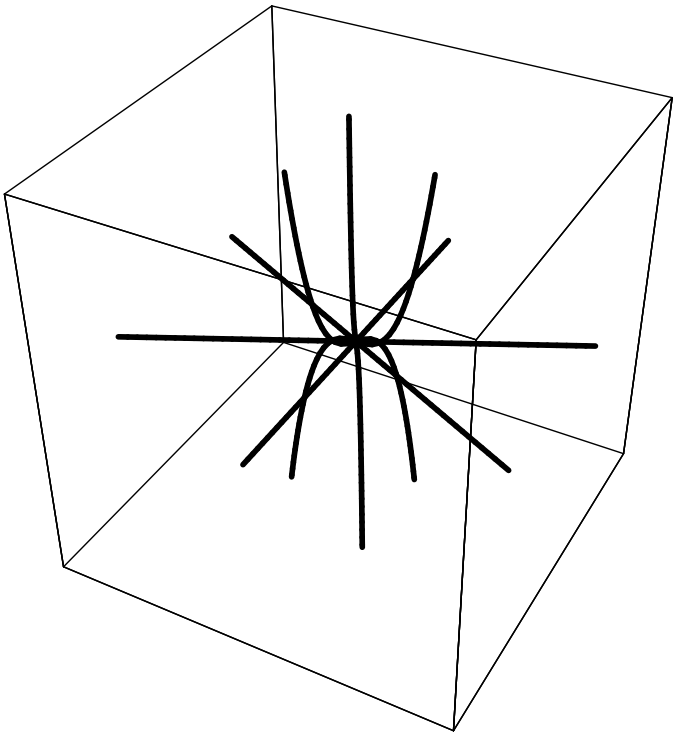
• To show how to use Mathematica to plot many interesting curves and surfaces, much more than in the standard texts. Using the techniques described in Curves and Surface students and teachers can understand concepts geometrically by plotting curves and surfaces on a monitor and then printing them. The effect of changes in parameters can be strikingly portrayed.

• To show how to define and compute standard geometric functions such as the curvature and torsion of a curve in space. When the curvature and torsion become too complicated, they may be graphed instead.

• To define operators that construct new curves and surfaces from old. For example, there is a simple program that generates a surface of revolution from a plane curve.

• To apply techniques from numerical analysis in the differential geometry of curves and surfaces.



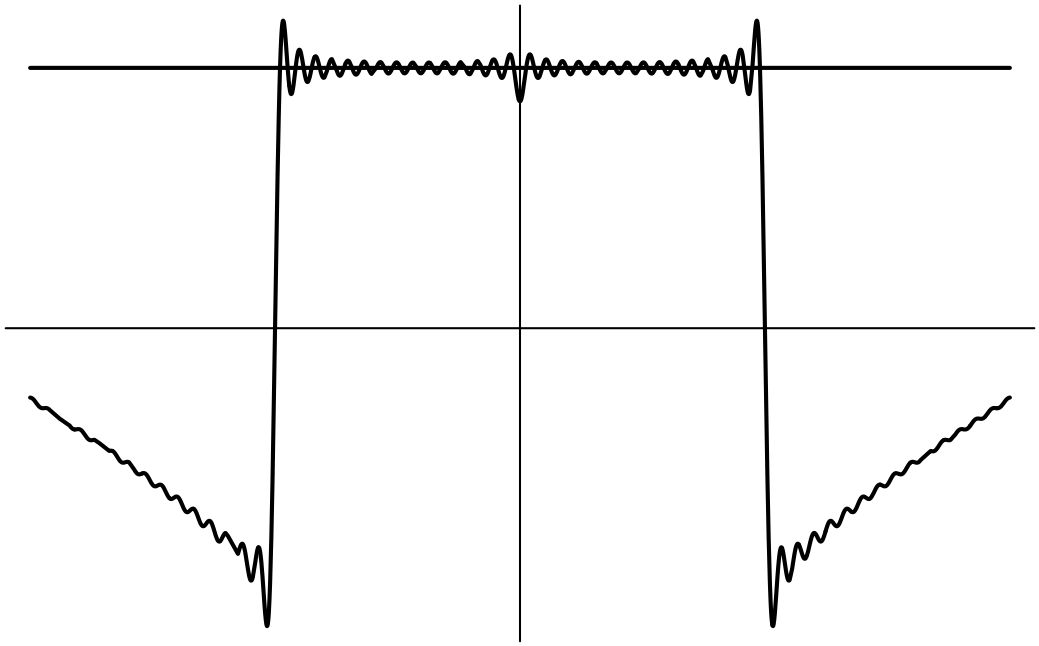


Geodesics

Dr. Gray's has written Mathematica programs for finding geodesics on an arbitrary surface and displaying them. These programs will allow students and researchers to study geodesics interactively. In addition to the notebook versions of these programs for the NeXT, versions for the Iris, written with Professor G. K. Francis of the University of Illinois will be available.

Gibbs Phenomenon for Bessel Functions

When he was writing, Using Mathematica Dr. Gray discovered that there is a Gibbs for Fourier-Bessel Series that behaves somewhat differently from that of ordinary Fourier series. The ordinary Gibbs phenomenon consists of overshoots by the Fourier series at points of discontinuity. In addition to this type of Gibbs phenomenon, a Fourier-Bessel Series can exhibit similar behavior at points of continuity. In spite of the fact Gibbs phenomenon has been a subject of intense interest for mathematicians and physicists for over 75 years, this behavior had not been observed. Professors Gray and Pinsky have now established the analytical reasons for this new Gibbs phenomenon. Mathematica's powerful interactive graphics is thus a very important tool in research. But in contrast to research articles, new results can be distributed in an interactive form that makes them much more accessible to both students and researchers.



SCaNeWS' Role in the NeXT User Community

Our goals in distributing *SCaNeWS* are modest. We are geared more toward the needs of end-users, students and faculty than those of developers. Developers may find our newsletter interesting but perhaps not as technically oriented as they may like. Among our regular features we plan to include product reviews, tutorials for basic software development as well as for some of the more complex applications, bug reports, updates on how NeXT is faring in the marketplace (with an emphasis on the comings and goings of third-party vendors, ever-crucial to a product's success), and pointers to the most reliable sources of NeXT information.

We refer developers and other sophisticated programmers to the *NeXT Users' Journal*, which can be downloaded from the same archive site as *SCaNeWS* (see the adjacent box "Downloading .."). We read it and love it and occasionally make copies available at our meetings.

Downloading SCaNeWS (from an Archive)

If you miss(ed) any issues of *SCaNeWS* and have access to Internet, you can obtain them via anonymous file transfer protocol (ftp) as follows (**bold** indicates onscreen prompts, *italics* what you type): At your local system prompt, type

ftp -n nova.cc.purdue.edu
ftp> *user anonymous <your full address>*
(e.g. mahoney@beach.csulb.edu)
ftp> *binary*
ftp> *cd /pub/next/Newsletters/SCaNeWS*
ftp> *ls -l*
This will give you a listing of all the newsletters currently available. To retrieve an issue:

ftp> *get <filename>*
Repeat the last command for as many issues as you want to retrieve. To return to your local machine:

ftp> *bye*

The file is in compressed form (you can tell by the .Z extension). To uncompress it, type *uncompress <filename>*. Now the newsletter is ready to be loaded into the NextApp *Preview* and printed.

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We wish you a Merry Christmas, and a Happy New Year
We wish you a Merry Christmas,
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SEASON'S GREETINGS
from
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