

# IS&T

MIT

News about Information Services and Technology throughout MIT

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## Feel a Song Coming On? Make It Noteworthy with Hyperscore!

• Lee Ridgway

**D**o you – in the words of the old Fields and McHugh song – “hear a tuneful story ringing through you?” If you wish you could capture a melody, but don’t know musical notation, you might want to give Hyperscore a try. This computer-based, graphical composition system was developed for people with little or no musical training.

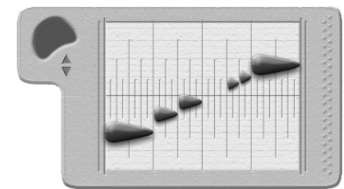
Hyperscore is the creation of recent doctoral student Mary Farbood (PhD 2006) and Egon Pasztor (MS 2003), a former master’s student in Media Arts and Sciences. The pair developed the composition system under the auspices of Tod Machover, Professor of Music and Media in MIT’s Media Lab.

### The Melody Window

Composing in Hyperscore is as simple as opening a Melody window and using the note tool, which looks like a droplet turned sideways, to click on the graph-like panel. As you place each droplet, or note, the corresponding pitch is played. Although you are laying down specific notes, you don’t need to know their names. Just remember that the pitches rise and fall as you place them higher or lower. (The horizontal line in the middle is equivalent to middle C on the piano.)

At first, all notes get the same duration – which would make for a not-so-interesting rhythm. Once placed, you

can select each note and change its length – which changes its duration. So you don’t need to know anything about the sometimes enigmatic note values of standard notation – just that short drops are short notes and long



Hyperscore's Melody window

drops are long notes. Spacing notes close together plays them in a more connected manner; spacing them farther apart puts silences, or rests, between them. (If you know music, you will see equivalents to quarter notes, halves, eighths, and so on.)

Now you have a melody. Maybe you want to create more melodies and try putting them together. You create different melodies, or melodic fragments called motives, in separate melody windows, each of which gets assigned a different color. With your melodies composed, you open the Sketch window.

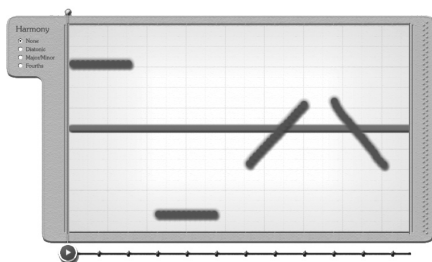
### Musical Sketches

In this new window, you take a pen tool to select the color for a specific melody, then drag the pen across the sketch window. The lines representing your melodies can be drawn above or below each other, to create different voices sounding simultaneously, or

*continued on page 2* ▶

## ▼ HYPERSCORE

continued from page 1



Hyperscore's Sketch window

they can be connected end to end to create a longer melody. As in the melody window, placing the lines higher or lower in the sketch window, or curving a line up and down, will change, or transpose, the melody to different pitch levels.

In addition to pitches, Hyperscore includes similar tools to create percussion tracks. The percussion is added to your composition in the Sketch window. If you wish, Hyperscore will also create harmonizations for your melodies, based on musical principles programmed into the system.

Thus, without knowing the details of music notation or theory, you can let your creative juices flow and use your eyes – and ears – to create quite com-

plex compositions. It may not be up to the level of Bach, the Beatles, or Beth Orton, but you've made music!

### Learning by Doing

At first glance, Hyperscore might look like just another computer toy, but from the beginning Farbood and her colleagues had in mind its educational potential and ability to foster direct involvement in music-making. This fits right in with its genesis in Machover's Hyperinstruments group, whose explorations into innovative, active musical interfaces have brought international renown.

Hyperscore unlocks the mysteries and joys of music-making, especially for children. As anyone who has studied music knows, learning to read music and play an instrument takes time and practice. But children usually take to music quite readily. From a very young age they sing and make up songs, dance, and often listen intently when music is played. Hyperscore helps them learn music by doing music.

Machover makes the analogy between Hyperscore, with its visual interface, and how art is taught to preschoolers by having them explore their visual world through coloring, touching, cutting, pasting, and otherwise creating physical works of art.

Hyperscore serves as a kind of musical "training wheels," helping children rely on their intuition, eyes, and ears to create music that has melodic shape, harmony, rhythm, and continuity.

### Standard Music Notation

Moving from training wheels to traditional notation is very much on the minds of the Hyperscore team. Kevin Jennings, a performer, educator, and researcher, helps develop curricula to build a bridge between the music fundamentals discovered in Hyperscore and more advanced musical concepts. Already, music teachers and programs around the world are incorporating Hyperscore into their educational activities, giving the developers real-life research arenas for testing their current work and for guiding future enhancements.

### Harmony Line

Machover and others have started a new company, Harmony Line, to market Hyperscore. Further information on Hyperscore is available at <http://www.hyperscore.com/> including details on educational licensing. You can download a free version of Hyperscore through the Hyperscore Music Community at

<http://www.h-lounge.com/>

## An Instant Classic: Naxos Music Library

If you're a devotee of classical music, the online library from Naxos may be the next best thing to Symphony Hall. Naxos produces more new classical music recordings than any other label, and its online library includes the entire Naxos, Marco Polo, and Da Capo catalogs. Listeners can also groove to jazz, blues, new age, or world/folk music on other licensed independent labels. The collection, which continues to expand, has over 7700 CDs.

### A Growing Audience

Members of the MIT community can access the Naxos Music Library through a cooperative agreement with the Boston Library Consortium (BLC). This online audio service is available to all MIT students, faculty, and staff, on and off campus. MIT certificates are required.

Several music faculty have sent their students to Naxos for course listening

assignments. Others tune into Naxos for enjoyment or to expand their knowledge of music literature. Most classical recordings come with scholarly notes that you can read while listening.



### On a Technical Note

The Naxos Music Library is available to Macintosh and Windows users. There is no current support for Linux.

For instructions on accessing the library – including details on browsers and media players – go to

<http://libraries.mit.edu/music/naxos.html>

By default, tracks from Naxos stream at near-CD sound quality. If you have a problem with breaks in the music, try switching to FM quality.

### Feedback

MIT's Lewis Music Library welcomes your comments about this service. You can reach Peter Munstedt, the Music Librarian, at <[pmunsted@mit.edu](mailto:pmunsted@mit.edu)> or 253-5636. ☺



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## VirusScan and Virex Shield Your Computer from Viruses

• Robyn Fizz

There's been a steady increase in the volume of incoming email that carries computer viruses. IS&T has set up filtering on its email servers to mitigate this threat, but users still need to do their part locally to minimize risks.

IS&T strongly encourages all members of the MIT community to install anti-virus software on their computers at work and at home. These programs use scan engines to detect and remove viruses from email, downloaded files, and files on your hard drive. They also prevent scripts from performing malicious actions. Scan engines rely on a virus definitions file, sometimes called a DAT file. This file gets updated frequently.

While many viruses target Windows machines, Macintoshes are also susceptible. Files of type .doc – or any file created with Microsoft Word, Excel, or PowerPoint – can have macro viruses embedded in them. In addition, Macintoshes can pass on Windows viruses in email attachments.

### MIT's Volume License

MIT has a volume license for virus protection products from McAfee, Inc. These include VirusScan Enterprise 8.0i for Windows (including servers) and Virex 7.2.1 for Macintosh.

This volume license lets community members download McAfee's virus protection programs at no charge for use in their office, dorm, home, or other remote locations. MIT certificates are required. You can get VirusScan or Virex by going to the Virus Protection at MIT web site at

<http://web.mit.edu/ist/topics/virus/>

**Note:** The MIT-installed versions of these programs are preconfigured to perform daily scans and updates.

### VirusScan for Windows

VirusScan Enterprise 8.0i runs on Windows XP computers and on Windows 2000 Server and Windows Server 2003. Before installing the software, be sure to uninstall any previous virus-scanning software, such as VirusScan 7.0 or any version of Norton Utilities.



VirusScan Enterprise 8.0i runs daily updates at 8pm and daily scans at 5am. However, you can adjust the times, as described in IS&T's documentation for VirusScan. For full product details and links to useful instructions, go to

<http://itinfo.mit.edu/product.php?vid=644>

### Virex for Macintosh

Virex 7.2.1 requires Macintosh OS X 10.2 or later. For now, Virex does not work on the new Intel-based Macintoshes (see page 7).

To install Virex, you need to be logged in as an administrator. At startup, Virex checks the McAfee web site for the date of the latest virus definitions file. If McAfee's file is more recent than the one on your computer, an automated "eUpdate" begins.

For more information about Virex 7.2.1, including procedures for setting up and using the software, go to

<http://itinfo.mit.edu/product.php?vid=579>

Also, if you have a public beta version of 8.0i, you need to uninstall it before running the MIT installer for VirusScan Enterprise 8.0i.

### Staying Informed

The Virus Protection at MIT site, mentioned earlier, is a good springboard to a range of virus-related information. It includes, for example, a link to virus protection tips for Windows. A portion of this checklist is included in the box below.

McAfee provides a virus information library at

<http://vil.nai.com/vil/default.asp>

This resource details where viruses come from, how they infect systems, and how to remove them. It also includes information on virus hoaxes.

For a FAQ on virus protection, check out IS&T's Stock Answers database at

<http://itinfo.mit.edu/answer.php?id=4435>

IS&T also maintains the MITvirus email list, which sends out alerts about new viruses and updates. To subscribe, go to

<http://mailman.mit.edu/mailman/listinfo/mitvirus/>

### Getting Help

If you have questions about MIT's recommended virus protection software, contact the Computing Help Desk at <computing-help@mit.edu> or 253-1101. ☎

### Virus Defense Checklist for Windows Users

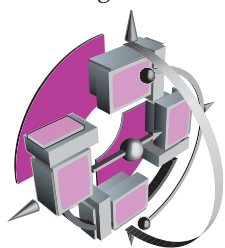
- Check the VirusScan Console, Last Result column, to ensure that daily scans complete successfully.
- Keep the default VirusScan setting for scanning all files.
- Don't open email messages and attachments from people you don't know.
- Don't open any files with executable extensions.
- Be careful when using Windows file shares.
- Don't install downloaded screen savers or games.
- Don't run Windows Internet Information Server (IIS).
- Back up your files, and test that the backups complete.
- Always use a password to log in to your computer, and make sure that it is not easy to guess – mix letters, numbers, and special characters.
- Don't allow your web browser to save your passwords, and don't use a tool like Gator to capture your passwords.
- Keep Windows security patches current. For information on Microsoft's Automatic Update and MIT's WAUS, see page 5.
- Periodically check the IT Security at MIT page at <http://web.mit.edu/ist/topics/security/> for new information.



## Take Advantage of MIT's Central Windows Domain – win.mit.edu

• Jag Patel and Richard Edelson

Most users at MIT are familiar with running standalone computers that are individually configured to connect to various services, such as backup and printing. To make this system administration more efficient and to foster collaboration across MIT, IS&T provides the win.mit.edu domain. This domain is a centrally managed Windows environment for the MIT campus, integrated with MIT's Kerberos realm, Moira database, and standard DNS namespace. It enables seamless sharing of resources across MIT.



The domain serves a significant base of users: over the past year win.mit.edu has been tapped by more than 60 departments and 10,000 users. These include faculty,

staff, and students in academic, administrative, and research departments. All faculty, staff and students who have an MIT Kerberos account automatically have a win.mit.edu account.

### Benefits For IT Administrators

The win.mit.edu domain provides a set of basic tools for departmental IT administrators, including group management, "containers" to manage groups of machines, and streamlined software installation. These tools let departmental IT staff concentrate on projects directly related to their own computing environments, without the overhead of account and domain management. Departmental administrators can also customize their environments in many ways – configuring a variety of support options for users, including department-level access to specific services.

### Group Management

In win.mit.edu, departmental IT staff use Moira groups (similar to mailing lists) to control access to their Windows resources. There's no need to manage user accounts directly.

### Containers

When a department signs up for win.mit.edu, it is given an "OU" or

container where it can build its own environment. These containers can be thought of as "islands of control." Container administrators have powerful tools to control workstations and servers in their container.

### Streamlined Software Installation

Say goodbye to desktop installers, which include a standard set of software that has to be installed on each machine. Win.mit.edu provides a streamlined desktop by default, with tools to deploy a customized set of applications, scripts, and settings for a department's environment. Many common software packages are available centrally, and some can even be deployed across a department with a few clicks on a web form.

### Flexibility for Users

A user logging into a computer in win.mit.edu has a roaming profile and a server "home directory" with 1GB of quota. When the user logs out, the profile is copied back to the user's home directory and can be loaded on any win.mit.edu machine that the user logs into. This gives each user the flexibility to access his or her home directory – and the documents in it – from any machine in the win.mit.edu domain.

### Microsoft Previous Versions Client

A powerful feature for all workstations in win.mit.edu is the Microsoft Previous Versions client. Using this client, users can view, copy, or restore older versions of files in their home directory, as far back as 64 days. This self-service feature does not require intervention from an IT administrator. It is especially useful for retrieving data that may have been deleted from a document as it was edited over time. Users should still back up important files on their computers.

### Home Base

The win.mit.edu domain is home to MIT's Citrix service for hosting business applications like BrioQuery, SAP, and COEUS, as well as GIS applications. It is also home to the MIT Windows Automatic Update Service (WAUS).

If you'd like to find out more about win.mit.edu, visit

<http://web.mit.edu/ist/topics/windows/server/winmitedu/>

This web page includes instructions for joining the domain. ☛



This column presents announcements about IS&T-supported software. For more information about recent releases, see <http://web.mit.edu/swrt/>

### New SAPgui Clients for Macintosh

Two new SAPgui software installers for Macintosh are now available: SAPgui 6.30 for OS X 10.3.9, and SAPgui 6.40 for Mac OS X 10.4. (IS&T recommends version 10.4.3 or higher.) MIT users can download these installers from the MIT Software Distribution site at

<http://web.mit.edu/software/mac.html>

Certificates are required.

There is a known issue with both SAPgui versions related to the processing of line-end character strings in text files. Users of the SAPgui 6.40 version may also experience file upload delays or problems pasting text from the clipboard. In addition, while SAPgui 6.40 is supported on PowerPC Macintoshes, it isn't designed to run on the new Intel-based Macintoshes. IS&T plans to release a SAPgui version that is compatible with Intel-based Macs after SAP makes it available.

For more details, click on the descriptions for SAPgui 6.30 or 6.40 on the MIT Software Distribution site.

### Mac Users: Back It Up with TSM 5.3.2

IS&T recently released TSM 5.3.2 for Mac OS X. TSM is IS&T's supported backup application.

TSM 5.3.2 adds compatibility for Mac OS X 10.4, letting users backup and archive files created on Macintoshes running Apple's latest operating system. Users of Mac OS X 10.3.9 should also upgrade to this version of TSM.

TSM 5.3.2 supports the 128-bit Advanced Encryption Standard (AES), the U.S. government's standard for non-classified but sensitive data.

You can download TSM 5.3.2 from the MIT Software Distribution site at

<http://web.mit.edu/software/mac.html>

Certificates are required.

The TSM 5.3.2 for Macintosh page at

<http://itinfo.mit.edu/product.php?vid=700>

describes new features and provides links to documentation.

If you need assistance with TSM, contact the Computing Help Desk at <[computing-help@mit.edu](mailto:computing-help@mit.edu)> or 253-1101. ☛



## The Importance of Keeping Software Up to Date

• Tim McGovern

**H**ardly a week goes by without another news story warning computer users about a major flaw in some piece of widely used software. In a similar vein, the security research group SANS recently reported that the number of bugs, software vulnerabilities, and exploits used to attack computers has reached an all-time high.

Despite this disheartening news, the Institute has experienced few major outbreaks over the last two years. Is MIT dodging a bullet?

### Safeguards Make the Difference

Three interrelated phenomena are making computers safer to use at MIT.

1. *Vendor patches.* Almost all software companies regularly provide updates to fix bugs and close security holes. These updates are usually free and simple to apply, and are posted on vendors' web sites.
  - ✓ The operating systems of MIT's major workstation platforms – Windows, Macintosh, and Linux – incorporate an update function.

2. *Defensive measures.* MIT has invested heavily in its network infrastructure and in service improvements such as spam screening and virus filtering. These measures keep a lot of the threats from reaching MIT computers.
  - ✓ MIT's Windows Automatic Update Service (WAUS) ensures that MIT's enterprise systems are compatible with critical Windows software patches.

3. *Automatic updates.* Most important, thousands of faculty, staff, and students at MIT have taken the simple step of configuring their computers for automatic software updates. For example, nearly 3900 users have adopted MIT's WAUS.

**Note:** Some of these protections only help while your computer is on campus or connected to MITnet. If you have a laptop that lives at MIT by day and at home at night or on weekends, or if you travel with your laptop, you may incur risks depending on the network service you use when away from campus. For more information, see the *Hot Spots* pamphlet at

<http://web.mit.edu/ist/topics/security/pamphlets/hotspots.pdf>

### Continued Vigilance

While the low rate of outbreaks at MIT is encouraging, this is no time to ease up. Unless you're instructed differently by your system administrator, IS&T strongly encourages you to configure your anti-virus software and operating system to check for updates daily. (Schedules for running updates may be based on departmental requirements.)

If you use a Macintosh or Linux system, don't make the mistake of thinking that only Windows computers are vulnerable. Windows security breaches grab headlines because there are many more Windows computers in use. But each platform is a target for exploits.

### Advice Before Signing Up

Before signing up for automatic updates or accepting any major upgrade, back up your system. That way, if there are conflicts between the update and the software on your machine, you'll be able to restore your files. If your computer is administered by another person, consult him or her before adopting an update regimen.

The box below provides pointers to Windows, Apple, and Linux update services. For an overview of anti-virus software, see page 3. ●

## Automatic Update Services by Platform

To keep security threats at bay on your work and home computers, set them up for automatic updates. Windows, Macintosh, and Linux update services are available.

### Windows

Windows users have two options for automating security updates.

- *Automatic Updates*

This option is set up via the Automatic Updates control panel. You can choose both the frequency and time of day you want the update to take place.

- *Windows Automatic Update Service (WAUS)*

<http://web.mit.edu/ist/topics/windows/updates/>

MIT WAUS provides a more conservative selection of Microsoft's Automatic Updates – focused on critical security patches – than those avail-



able directly from Microsoft. This service may be used by MIT faculty, staff, and students on MIT-owned and personal machines.

Computers in the win.mit.edu domain are subscribed to MIT WAUS by default. This service can patch machines that are off campus but connected to the Internet (VPN not required).

### Macintosh

Apple's *Software Update* feature checks for Mac OS updates weekly by default. It's available through System Preferences or, if you run Mac OS X 10.3 or later, from the Apple menu. Through Software Update's Preferences, you can switch to daily checks and choose to download important updates in the background.

### Linux

Linux users at MIT can get automatic software updates by registering for *Red Hat Network*. Full details are available at

<http://web.mit.edu/ist/topics/linux/rhn.html>

### Microsoft Office

It's also important to keep Microsoft Office up to date. This happens automatically on Windows machines set up for Automatic Updates or WAUS. Macintosh users can select the Check for Updates command under the Help menu in any open Office application.

### Need Help?

If you have questions about automatic updates, contact the Computing Help Desk at <computing-help@mit.edu> or 253-1101. ●



This column presents tips about computing. If you have a question you would like to see answered here, send it via email to <techtips@mit.edu>.

For more information technology Q&As, check the IS&T Stock Answers database at <http://itinfo.mit.edu/answer/>

**Q** I use TSM to back up my computer files over MITnet. How do I change my TSM password or account information?

**A** You can find links for resetting your TSM password, changing other account information, or canceling your service at

<http://web.mit.edu/ist/products/tsm/update.html>

**Note:** The password reset and billing change forms require certificates, and may only be accessed by the primary account holder.

**Q** How can I perform a manual backup or restore using TSM?

**A** If you run TSM on a Windows or Macintosh system, you can find detailed instructions with screen shots under the "Using" heading on these TSM pages:

*Windows*  
<http://itinfo.mit.edu/product.php?vid=647>

*Macintosh*  
<http://itinfo.mit.edu/product.php?vid=700>

**Q** How can I use TSM at home with Tether or a cable modem, when remote connection uses a different IP address for each session?

**A** The TSM server doesn't use your IP address to recognize your computer. The authentication process requires only your TSM node-name and password. The fact that your computer uses a different IP address each time you connect to the network via your service provider (e.g., cable, DSL) has no effect on establishing a TSM session.

**Q** How can I verify that a scheduled TSM backup has completed successfully?

**A** You can check the Schedule log. This is especially important if you have moved to a new computer or a new office, or have made any system changes. Here's where the log file is located on different platforms:

*Mac OS X (TSM 5.2.3 or 5.3.2)*

**Library>Logs>tivoli>tsm>TSM Schedule Log**

*Windows*  
**Program Files>Tivoli>TSM>baclient>dsmsched.log**

*Linux*  
**/opt/tivoli/tsm/client/ba/bin/dsmsched.log**

Near the end of the log, look for this text "incremental backup of [your node name] finished with [number of] failures" followed by a table of summary statistics. This confirms that the backup completed. ☺

## New Media Center Features form•Z and Much More

• Nadeem Mazen

**T**o the students who take introductory physics down the hall, 26-139 is just another faceless door. But the Athena combination lock hints at more. On the other side of the door is a Macintosh cluster for "do-it-yourself" creators of multimedia – high-powered machines and up-to-date software for scanning, moviemaking, DVD publishing, 3D modeling, and more.

The New Media Cluster (NMC) is open to students and members of the MIT community for course-related and personal projects. In addition, instructors can reserve the NMC for media classes on a one-time basis or at a scheduled time throughout the semester.

### Recent Upgrades

Last summer, the NMC replaced its hardware and now features eight iMacs with eye-catching displays and three dual-chip Power Mac G5s. The iMacs offer Final Cut Express for movie edit-



MIT graduate student Maher El-Khaldi created this image using form•Z.

ing; Adobe Creative Suite 2 and Macro-media Studio 8 will be installed this spring. On the Power Mac G5s, Final Cut Studio Pro provides professional tools for movie editing, soundtrack design, DVD publishing, and post-production effects. The G5s also boast Shake, the software used by the Weta Workshop for touch-up, green-screening, and post-production in the Lord of the Rings movie trilogy.

NMC resources also include two scanners and an analog-to-digital video converter.

### Form•Z Workshop

In January, the NMC hosted an intensive form•Z workshop. This 3D modeling software from auto.des.sys is known for its precision, photorealistic rendering, and built-in software development kit. The 20-hour workshop, led by auto.des.sys staff, enabled attendees to produce sophisticated 3D renderings.

Auto.des.sys is continuing to build its relationship with MIT through a Joint Academic Study, a program in which MIT students (and some computing facilities) get free form•Z software. As part of this program, auto.des.sys publishes an annual review of the best student designs from Joint Academic Study institutions around the world.

All NMC computers will soon be equipped with form•Z 5.5.

### Exploring the NMC

If you'd like to use the NMC for your own projects or for MIT classes, you can find out more by visiting

<http://web.mit.edu/nmc/>

or sending email to <nmc-consult@mit.edu>. ☺



## Apple Begins the Switch to Intel's Core Duo Processor

• Al Willis

**A**t Apple's World Wide Developers Conference (WWDC) last June, Apple CEO Steve Jobs made a startling announcement: a switch to Intel processors throughout the Macintosh product line. These are the same chips that lie at the heart of the Windows Intel platform. It turns out that every version of Mac OS X, going back to 10.0 in 2001, has been able to run on Intel processors – just in case. Recently Jobs became convinced that Intel has the best road map for high-performance processors with low power consumption.

At the WWDC, Jobs said that Apple would start selling Intel-based Macintoshes by June 2006, giving users and developers a year to prepare. But at the Macworld conference this January, Jobs announced the immediate availability of new iMacs using Intel's Core Duo processor and, fast on its heels, an Intel-based laptop called the MacBook Pro.

### Features and Specs

Both the iMac and MacBook Pro come in two models, and sport built-in features like the iSight camera.

The new iMac lets you span your desktop across two displays. It can also drive a 23-inch Cinema Display with its built-in mini-DVI port.

While the MacBook Pro adds speed and better video capabilities, it lacks the FireWire 800 port available on current 15- and 17-inch PowerBook G4 laptops. This port is handy for faster backups to external hard drives. Also, the MacBook Pro has an ExpressCard/34 slot instead of a CardBus slot. ExpressCard is the latest standard for laptop expansion, but if you have existing CardBus- or PC Card-compatible expansion cards, they won't fit this slot.

For full details about the iMac and MacBook Pro models, visit

<http://www.apple.com/>

### Benchmarks and the Bottom Line

Apple claims that the Intel-based iMac is two to three times faster than the iMac G5 it replaces, and that the MacBook Pro is four to five times faster than the PowerBook G4. You can see Apple's benchmark information at

<http://www.apple.com/intel/>

The Intel Macs *are* faster than their predecessors in doing floating point and integer calculations. That's because the Core Duo is essentially two processors on one piece of silicon, while PowerPC-based Macs run on a single processor.



However, to take advantage of the speedier Intel Macs, you need applications that have been compiled for the Intel processor. Applications that can run natively on both PowerPC and Intel Macs are known as Universal applications. There are relatively few of those at this time; Apple maintains a list at

<http://guide.apple.com/universal/>  
The iMac and MacBook Pro ship with an Intel version of Mac OS X 10.4.4; all of the applications that ship with the operating system are Universal. Those include two applications supported by IS&T – Safari and Mail. The only other IS&T-supported software with a Universal binary version is Fetch 5.1.

<http://guide.apple.com/universal/>  
The iMac and MacBook Pro ship with an Intel version of Mac OS X 10.4.4; all of the applications that ship with the operating system are Universal. Those include two applications supported by IS&T – Safari and Mail. The only other IS&T-supported software with a Universal binary version is Fetch 5.1.

### All About Rosetta

Until developers are able to update their applications to run natively on Intel Macs, Apple is providing a technology called Rosetta. It translates PowerPC instructions into Intel instructions on the fly, enabling applications designed for the PowerPC to run on Intel Macs.

While Apple says that applications run "fast enough" in Rosetta to be useful, those that need a lot of processing power – like Photoshop – will not be up to snuff for professional users. In general, applications in Rosetta run at about half the speed that's typical on an iMac G5. Users upgrading from G4 systems won't see as much of a difference.

Rosetta also has other limitations. For now, applications that use Java Native Interface (JNI) calls don't run: SAPgui and MATLAB fall into this category. Applications that rely on kernel extensions – such as Cisco's VPN client and Virex 7.5 and higher – also don't run on Intel Macs at this time. IS&T expects to test new versions of these applications soon after they ship.

Most IS&T-supported applications – such as Office 2004, FileMaker Pro 8, and Dreamweaver 8 – need Rosetta to run on Intel Macs. The next version of Office 2004 for Mac will be Universal, though Microsoft has not specified a

time frame. Meanwhile, in March, Microsoft is expected to release an update that will help Office 2004 run better in Rosetta. Microsoft is also said to be deciding whether it will develop Virtual PC for Intel Macs. This program, which comes with Office 2004 Professional, allows Windows to run on Macintoshes.

Last but not least, Adobe Systems recently announced that its applications won't be Universal until Creative Suite 3 is released in 2007.

### Farewell to Classic

The Classic Environment for Mac OS 9 applications does not run on the Intel Macs. There are a few ways you can handle this.

- Migrate to the Mac OS X native version of an application.
- Switch to an application that's native (e.g., move from PageMaker to InDesign).
- Make sure you always have a PowerPC Macintosh available.

### Buying Decisions

While Apple will switch its entire product line to Intel processors by the end of 2006, it will continue to sell PowerPC versions of supplanted models while supplies last.

If you can't take chances with compatibility or need to run processor-intensive applications at full speed now, your best bet is to buy a PowerPC Mac.

If your primary applications consist of Safari for web browsing, Mail for email, and Office 2004 for word processing, spreadsheets, and presentations, you will likely do fine buying an Intel Mac. As more Universal applications ship and Apple continues to release Mac OS X updates for Intel Macs, the overall user experience will improve.

And if you own a PowerPC Mac, don't fret. Your applications already run natively, and Mac OS X 10.5 ("Leopard") will support both PowerPC and Intel Macs. However, given Apple's commitment to Intel, you should seriously consider an Intel-based Mac when you're ready to buy again – keeping the provisos above in mind. When they arrive, Universal applications are going to be blazingly fast.

To check pricing for departmental or personal orders, go to MIT's online Apple store at

<https://web.mit.edu/ecat/apple/secure/>



If you don't know where to get help for your computer, network, or telephone problems, dial one of the help lines listed to the right.

If you prefer to use email, you can send your questions to the corresponding email addresses on the far right. (When logged into Athena, you can also use the `olc` command to send questions to Athena's online consultants.)

You can also submit a question online via Casetracker at

<http://casetracker.mit.edu/>

**For help with...**

**Dial...**

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General computing questions Macintosh, Windows, network/ connectivity, business applications, computer buying advice	253-1101	<a href="mailto:computing-help@mit.edu">computing-help@mit.edu</a>
Academic computing	253-0115	<a href="mailto:et-consult@mit.edu">et-consult@mit.edu</a>
Athena Computing Environment	253-4435	<a href="mailto:olc@mit.edu">olc@mit.edu</a>
Computer and printer repairs	253-0815	<a href="mailto:pcservice@mit.edu">pcservice@mit.edu</a>
Disabilities and computing	253-7808	<a href="mailto:atic@mit.edu">atic@mit.edu</a>
Telephone and voice mail services	253-3670	<a href="mailto:telecom-csr@mit.edu">telecom-csr@mit.edu</a>
Telephone repairs	253-4357	<a href="mailto:3help@mit.edu">3help@mit.edu</a>
Unix/Linux	253-1103	<a href="mailto:unix-linux-help@mit.edu">unix-linux-help@mit.edu</a>



Surf Sites: Music to Your Ears

If you love to listen to music, play an instrument, or compose (perhaps using Hyperscore; see lead article), there are several web sites that may strike a chord. Starting at the home page of MIT's Lewis Music Library at

<http://libraries.mit.edu/music/>

you can find not only the Naxos Music Library (see page 2), but also many great reference sites, including the Music Index Online and Grove Music Online.

To sample different artists, learn music theory, or find out about concerts and music classes on campus, check out the sites on the right.

Allmusic

<http://www.allmusic.com/>

Arts at MIT – Music

<http://web.mit.edu/arts/music/>

BBC – Music

<http://www.bbc.co.uk/music/>

Berklee Shares: Free Music Lessons

<http://www.berkleeshares.com/>

Pandora – Find Music You'll Love

<http://www.pandora.com/>

Ricci Adams' Musictheory.net

<http://www.musictheory.net/>

Science of Music: Exploratorium's Accidental Scientist

<http://www.exploratorium.edu/music/>



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