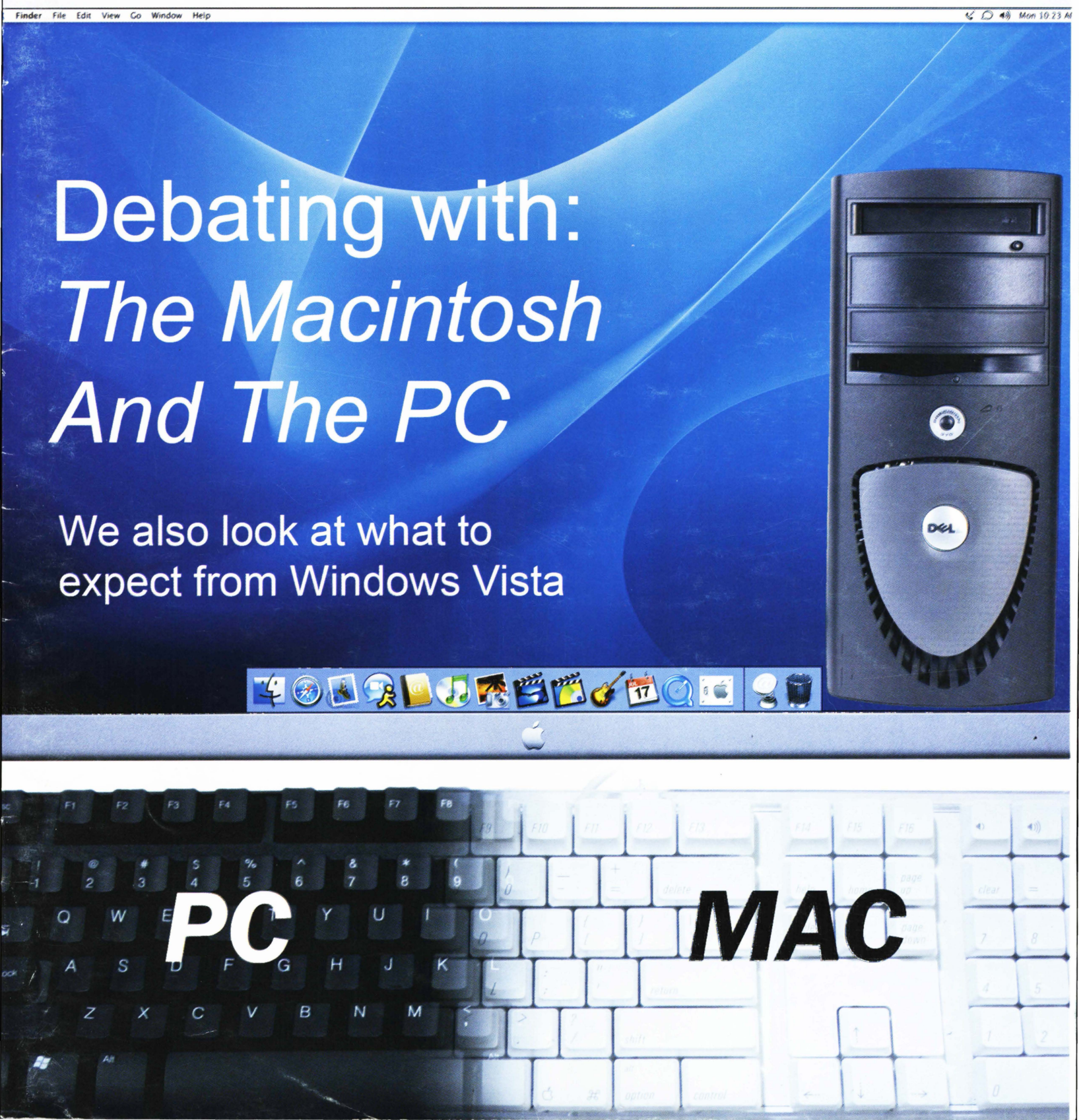
Engineers' Forum
Volume 26 No. 4 December 2006



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From The Editor

Dear Reader,

Welcome to the December issue of the Engineers' Forum. As I had mentioned in our last issue, we are going to add some new features into the magazine. So, this issue has the following additions: a new crossword puzzle and a Then vs. Now section. The crossword puzzle is about the various buildings on campus. I hope you enjoy doing it. Personally, I find the Then vs. Now section very interesting because it compares storage media from the early 1990s to today. Humankind has really come a long way since then. Be sure to read this.

As some of you must be aware, Microsoft, the computing giant is about to come out with a major update to its Windows operating system. Therefore, the Forum has decided to focus on computing for this particular issue. Included in this issue is a sneak peek at what is new and exciting in the new Windows and the centerfold of this issue has a very interesting opinion section from two of our staff members. Furthermore, there are other exciting articles about the Department of Engineering Education and the moon rock that VT was recently presented with. As always, feel free to voice your opinion. Good luck with finals and have a well rested winter break. I hope you enjoy this issue.

Respectfully,

Divakar Mehta
Editor-in-Chief

The Happy Engineers' Forum Team

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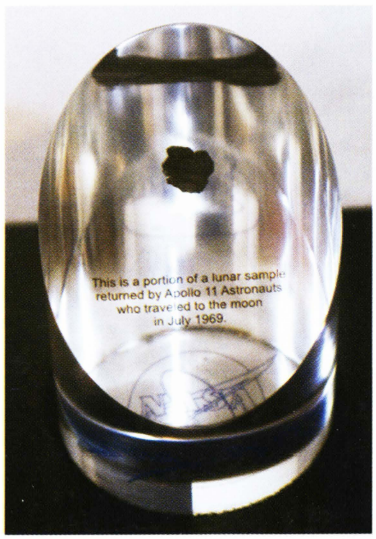
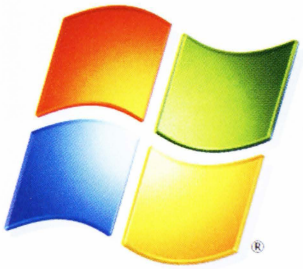
December 2006 Volume 26 No. 4





Windows Vista™

Inside

A Piece Of The Moon

By Kari Adkins

On September 30th, 2006 Dr. Christopher C. Kraft was awarded the Ambassador of Exploration Award from NASA, one of the highest awards given to personnel who were dedicated to the development of the space program in the 1960s and 1970s. The award is a piece of moon rock that was brought back on one of the latter Apollo missions. Dr. Kraft then turned around and gave his award to the College of Engineering here at Virginia Tech (VT) so that it could be placed in the lobby of the College of Engineering office on the third floor of Norris Hall.

Dr. Kraft was born in Phoebus, Virginia in 1924 and graduated from Virginia Tech in 1944 with a degree in Aerospace Engineering. After graduating, Dr. Kraft went to work for Langley Aeronautical Laboratory of the National Advisory Committee for Aeronautics, and in 1958 he was appointed as a member of the team that founded what we know today as NASA. Dr. Kraft later served as the flight director for the Mercury, Gemini, and Apollo programs, paving the way for man to land on the moon by the end of the 1960s, as outlined by President John F. Kennedy in 1961.

After the success of the Apollo missions, Dr. Kraft was also involved in the development of the Space Shuttle, which would replace the Apollo craft. The space shuttle was a revolutionary, reusable system that changed the way Americans conducted space travel. During this time he also served as the director of the Lyndon B. Johnson Space Center, and in 1982 he retired from NASA.

Dr. Kraft presenting moon rock to Dr. Benson

During the presentation, Dean Richard Benson of the College of Engineering, congratulated Dr. Kraft for his accomplishments and thanked him for being an inspiration to the next generation of aerospace engineers, especially those attending VT. Dr. Benson then showed a video about Dr. Kraft and his accomplishments while at NASA. Benson then turned the presentation over to Captain John Young of the Air Force, an astronaut who flew under Dr. Kraft's leadership. Young flew on the first Space Shuttle flight and has logged over 15,000 hours of flying time. Moreover, he was awarded the Congressional Space Medal of Honor, and was the chief astronaut for thirteen years for the Astronaut Corps. Young talked about his experiences with Dr. Kraft, calling him "one outstanding human being," and then read a letter from Dr. Michael Griffin, the current NASA administrator, who said that Dr. Kraft helped to "carry our torch throughout the solar system."

Dr. Kraft was then presented with the Ambassador of Exploration Award and he spoke about his experiences while at NASA and at Virginia Tech. Dr. Kraft said that the race to get to the moon succeeded because of "the national commitment to the cause. We [NASA] had financial problems. We had people problems, and we had horrible experiences to deal with...But the great majority of the public, the Congress, and the presidential administrations we

had during that time period were very supportive of the goals we had set." Dr. Kraft also talked about the Moon rocks that were brought back during the Apollo era. He said that if the United States were to sell the rocks today the ticket price would be 9.6 trillion dollars. Dr. Kraft then presented the rock to the College of Engineering and thanked the college for its support. Then, Laura Jones, a senior in Aerospace Engineering spoke about the influence that Dr. Kraft's accomplishments have had on the next generation of aspiring aerospace engineers. Next, Dr. Roger Simpson, of the Aerospace and Ocean Engineering Department here at Virginia Tech and the president of the American Institute of Aerospace and Aeronautics, then spoke about Dr. Kraft's accomplishments. Finally, Dr. Benson closed the ceremony and invited people to come by the College of Engineering to look at the moon rock.

Last year I had the wonderful opportunity to interview Dr. Kraft for an article I was writing about the next generation of space vehicles, and he offered some great advice for people thinking about going into Aerospace Engineering, "Anyone interested in engineering and science has always been....become an expert in some aspect of the field you have an interest in. This attribute will lead to a tremendous number of opportunities to contribute to its success and bring about the most gratifying experiences in life," said Dr. Kraft.

About succeeding in the Aerospace Industry, "there is, in my opinion, no easy way in our business. It takes a lot of hard work and dedication and the end result is extremely rewarding," said Dr. Kraft.

At Virginia Tech specifically, Dr. Kraft foresees great things from the faculty and students at this university. "[This university] will certainly be involved in the forefront of every aspect of the nation's programs to advance the state of the art [space exploration]. It is one of the finest educational institutes in the world, so many leaders of tomorrow's challenges will come from the halls of Blacksburg," he said.

As we look back on the accomplishments of Dr. Kraft and look towards the future of the space program in the United States, it is a good idea to listen to the views of those from previous generations of space explorers and learn from their experiences. Congratulations to Dr. Kraft on his accomplishments and for being awarded the Ambassador of Exploration Award.

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Then And Now...

...What's Next?

By Michael Miracle

Back in December of 1992, the Engineers' Forum published an article entitled "MULTIMEDIA: The education revolution." This article explained the meaning of multimedia and its influences on Virginia Tech and education in general. A lot has happened since:

The concept of a CD-ROM drive has become commonplace in today's technological society. It was not always this way. Having a portable device that can hold 600 megabytes worth of data is extremely advantageous when compared to lugging around a hard drive. Back in 1992, the CD-ROM was a rarity. Available mainly for graduate students, undergraduates were considered lucky if they were able to get into a class that allowed them to share data in such an easy manner. This means that there was no mad rush towards Torgersen Hall in the first week of school to get the latest software packages.

Today, flash drives have come to replace a portion of the large market that CD-ROMs previously occupied. Being smaller and more durable, flash drives transfer information between computers more easily than a CD-ROM. CDs, however, still remain a large part of the computer industry. Due to their inexpensive production, CDs are suitable for distribution by companies wishing to give users a hard copy of software instead of forcing customers to download from the internet.

Similarly, Slide projectors that were used in the 90s have become completely out of date. Unlike CD-ROMs, with the invention of software such as Microsoft's PowerPoint, there is no more use for manually amassing large amounts of still frame pictures to create a motion picture for a slide projector. With 180 students working a total of over 10,000 man hours, the College or Architecture and Urban Sciences was able to put together an hour-long frame by frame presentation in 1989. Using a compilation of PowerPoint and video taken from a modern digital camera, this presentation could easily have been done much quicker. Animation could even have been created straight on the computer using Macromedia's Flash software. Using two still frame images in different locations, Flash creates transitional images between the two desired frames, mimicking real time motion. New software has made animation easier and more fluid, eliminating the necessity of slide projectors.

The entire 1989 presentation's computer animation was stored on a video cassette and viewed off of a projector equipped with an audio system. It was probably not considered that this same presentation could be viewed fourteen years later, if not transferred to a cassette, on the screen of an iPod. Having both visual and media capabilities, iPods have brought multimedia to a new level. Audio advancements can be recognized through mobiBlu's

Flash disks provide rapid storage and data transfer

"Today, flash drives have come to replace a portion of the large market that CD-ROMs previously occupied"

A Kodak Carousel 4200 Projector

breakthrough with the invention of a cube-shaped, quarter-sized MP3 player capable of holding 2 Gigabytes. This presentation would be much different if it was designed by today's standards.

Technical gadgets are continually getting smaller and smarter. If the radical advances that have happened in the last decade are any indication, the future will hold a diverse array of new tools for engineers to play with.

WITH THE INVENTION OF SOFTWARE SUCH AS MICROSOFT'S POWERPOINT, THERE IS NO MORE USE FOR MANUALLY AMASSING LARGE AMOUNTS OF STILL FRAME PICTURES TO CREATE A MOTION PICTURE FOR A SLIDE PROJECTOR.

Above: A modern projector by Studio Expereince

Below: A tiny 1 GB Mp3 player by Apple

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By Naren Sundaravaradan

Amidst all the battle that goes on between the Mac world and the PC world, there is an undying sense of Americanism that a Mac breathes and follows: freedom. The personal computer revolution is highly interesting in that the technological world was split into to two unequal halves.

The first being the larger one who wanted the computer to be a business tool, a product that would increase business productivity and enhance the business models followed by companies. This camp was occupied by IBM, Microsoft and the greats of the revolution.

While this camp grew omniscient and mightier, a smaller group of people led by Steve Jobs (CEO of Apple Computers), wanted a computer that could be used by the masses seamlessly and with ease, which has now become the Apple legacy.

It is this philosophy, the American ideal of being in control of one's own destiny rather than being directed by another that makes a Mac.

America is a land with plenty of resources and so is a Mac from the moment it is removed out of the box. When plugged in, the user can indulge in music with iTunes, or load and organize one's photos using iPhoto, or make a movie with one's camcorder without worrying about drivers, and even make music using Garageband without worrying about not having enough funky sounds or rhythms to enhance a musical piece.

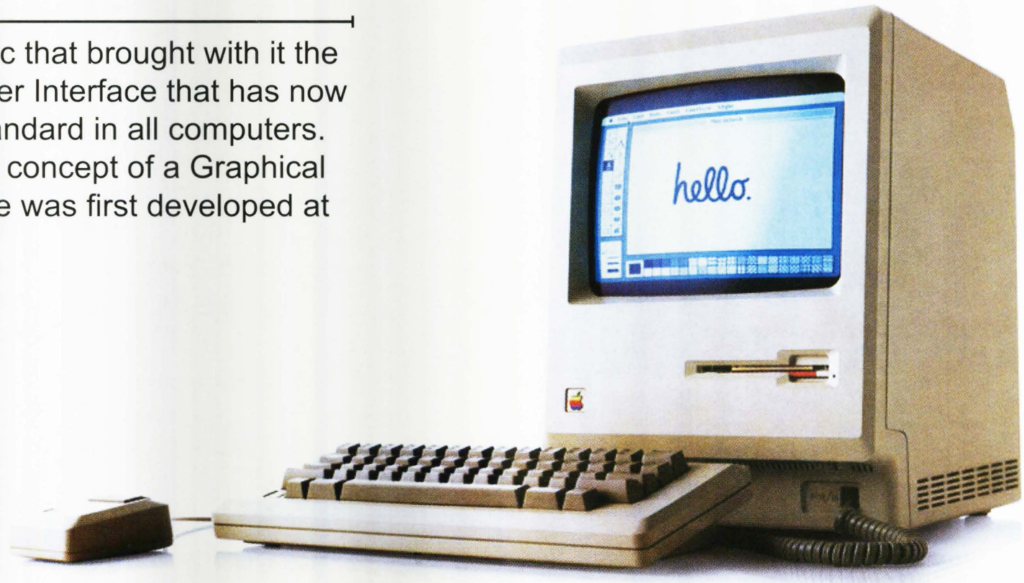
The reader may argue that this is possible on Windows, and my answer is yes, without a doubt; but, not before purchasing a suite of software to do these different things that can otherwise be taken for granted on a Mac.

(continued on page 10.)

"THE MAC LETS YOU DO WHAT YOU WANT, IT UNTANGLES YOU FROM THE COMPLEXITY OF TECHNOLOGY, AND IT LETS YOU BE FREE."

-A MAC SUPPORTER

The 1984 Mac that brought with it the Graphical User Interface that has now become a standard in all computers. However, the concept of a Graphical User Interface was first developed at Xerox.



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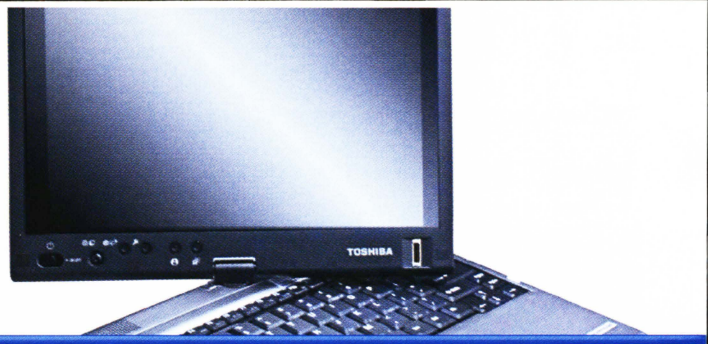
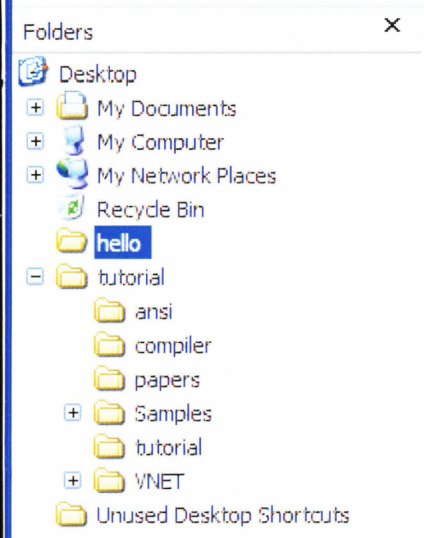
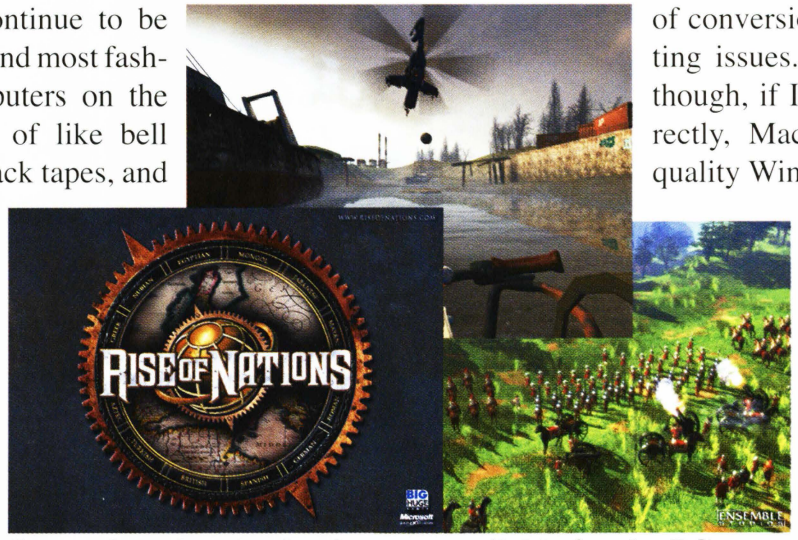




By Robert Ridgell

As you may or may not know, the Apple Macintosh is a very pretty machine because of its stunning chiseled features. If it were a girl, I would probably date it. At one point or another, we have all been seduced to feel the smooth curves of a Macintosh mouse, to gaze upon a computer so compact and contemporary that we feel like we are hanging with some trendy artists in the Upper East Side of Manhattan.

Macs will continue to be the trendiest and most fashionable computers on the market, kind of like bell bottoms, 8-track tapes, and the soothing sounds of most of the 80s music scene. I want to get a Mac so I can feel like I am part of the fad.



Some of the hundreds of games available for the PC.

The Macintosh has an awesome selection of games, from Tetris to Bone. I don't know what Bone is, but it sounds super awesome. Much better than games for the PC, like Half-Life 2, Age of Empires 3, and Battlefield 2, just to name a few of those terrible PC games. I am sure that the single mouse button on a Mac makes playing games so much easier and so much fun.

Forget the mouse hotkeys--let's use the GUI (Graphical User Interface) or the keyboard. I know that I personally hate using the seven buttons included on my PC mouse. It makes a game so boring when I can perform intricate actions instantly with the slightest movement of my finger.

Let us talk about productivity while we are on the topic. Have you ever had to use a PC? There are so few compatibility problems that I get bored of not having to convert my files for use on my friend's Mac. The entire 90%+ of the computing world using PCs should clearly convert to Macintosh to save the Mac owners the trouble of conversions and formatting issues. Wait a minute though, if I remember correctly, Macs now have a quality Windows emulator. I mean, OS X is great because it is exactly what you expect out of a Mac. Nonetheless, now you have a Windows emulator that essentially turns your Mac into a PC. Why don't they have emulators to turn my PC into a Mac? Maybe I want to play some Apple Tetris or look at that sweet analog clock on the desktop.

Now, I think I want a Mac because it will be so much more cost effective than my PC, which cost me about $1500 a year ago. I built a "top of the line" gaming rig, customized to my liking for that price. Why customize, when I can have a Macintosh that is exactly the same as every other one?

(continued on page 10.)

"MACS WILL CONTINUE TO BE THE TRENDIEST AND MOST FASHIONABLE COMPUTERS ON THE MARKET, KIND OF LIKE BELL BOTTOMS, 8-TRACK TAPES, AND THE SOOTHING SOUNDS OF MOST OF THE 80S MUSIC SCENE."

- A PC SUPPORTER

The Macintosh continues

One of the greatness of American development is the efficient and effective infrastructure that is in place for its citizens. Similarly, the Mac easily organizes its data with the use of a powerful finder that can search instantly, or it can use Expose, a tool used to manage all the windows on the screen with a touch of a key.

Ultimately, freedom in a computer lies in the software and as Steve Jobs has correctly mentioned many times, "the heart of a Mac is its operating system." The Mac OS provides developers with an amazing set of features that are built right into the core of the operating system to reduce the overhead of services running on top of the system.

Features such as Core Audio and Core Video provide libraries of efficient code that developers use to make applications that work seamlessly on the Mac. Without getting into too many technical details, I can tell you about the many wonders of the Mac OS, including the upcoming version, Leopard.

One feature of Leopard that portrays the creativity of the Apple design teams is Time Machine. Time Machine is a back up tool that allows users to visualize their computer several days in the past, just like it was at that time. Then, the user can pull a document right from the past and bring it into the present and recover it.

This exemplifies the way software is designed at Apple, where the teams come up with a metaphor to create programs that are analogous to the real world so that the outcome of the design is more human and comprehensible than something more arcane.

This is precisely why a Mac is more than a computer that crunches out numbers and creates spreadsheets to ease the burden of accounting. A Mac is the result of creative teams putting powerful technology under the hood of elegance and simplicity so that the user may co-operate with it rather than fight to perform a task. The Mac lets you do what you want, it untangles you from the complexity of technology, and it lets you be free.

The PC continues

I guess if you really want to be part of a fad, you have to look the same as everyone else. I am willing to pay $2500 to get the features I want and look the same as everyone else. I guess I will need that gigabyte of video memory when I am playing an intense game of Tetris.

Well, I bought that Mac and here I am a year later. My computer is obsolete and I want to be a trendsetter, just like all the other Mac owners. Is it possible for me to upgrade my Mac? I would like to get a new video card, processor, or more memory. I have been told that it is not possible to do so.

I guess I will just do the hip thing and turn my Mac into a pretty paperweight. Then, I am going to go spend $3000 for the newest Mac; I hear that the analog clock on the desktop is glowing now and that the objects on the dockbar are slightly prettier.
In closing, for those of you who did not pick up on my sarcasm, in my opinion Macs are too expensive, too uniform, incompatible with just about everything, extremely hard to upgrade, and honestly useless. They are pretty though.

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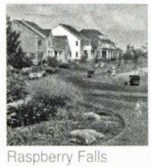
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Personality Profile: Dr. Lori Wagner

By Salma Mohamed

In 1996, she was recognized as one of Virginia Tech's Outstanding Women Graduates. Likewise in 2001, she received the Outstanding Service Award from the College of Engineering. This successful personality who has become a notable persona of wisdom as a woman engineer is Dr. Lori Wagner.

Wagner is a chemical engineer who completed her undergraduate and doctorate education at Virginia Tech in 1982 and 1987, respectively. Currently she works as the Technology Manager for Advanced Fibers and Composites at Honeywell International in Richmond, Virginia. Her experience as an engineer has been very delightful with research in polymer processing and development for high performance process.

Wagner's interest in this field started in high school from her encounters in science and mathematics classes. Initially she thought the field was mostly related to the oil and refinery industry, but in reality she says, "It's much broader". And that is what she likes about her profession which has brought forth diverse opportunities.

She received her first job offer during an on-campus symposium. "It was a poster session where my graduate work was approached by Allied Signal Corporation (now known as Honeywell International) research for High Performance Fibers," she said. And from that point onwards, she has worked on several projects ranging from fishing rod strings to armory for the army and navy. Now as a Technology Manager, she works with a group of twelve engineers and performs applications and science processes as they build on products to satisfy their customers. When asked about the differences in skills a scientist and a chemical engineer brings to the field she said, "An engineer's approach is problem solving with outside knowledge, where as a scientist does this on a minute scale".

Of the courses she took in college, she finds that everything she learned has carried through with primary emphasis on fundamentals of chemical engineering principles and good problem solving skills.

While in college, she feels she should have gotten more involved in organizations, society meetings, and all other varieties of college life. She also made reference to how essential networking, presentation, and organization are very important competencies needed for the transition from college to professional life.

Being a woman engineer, she has been subject to being the only female in meetings ninety percent of the time which she feels has been a drawback in her profession. Her reasoning for the limited number of female engineers is probably because of discouragement in early schooling, that many get the feeling that mathematics and sciences are very difficult subjects. Wagner also indicated that even during her college years she experienced the weak strength of women to men in her engineering based classes, but she is satisfied by the fact that the ratio is at least rising despite not being a rapid increase.

As a woman engineer myself, Dr. Wagner is the perfect role model to whom I can look up to. Success in any field knows no bounds and differences in color, ethnicity, sex etc., are trivial as long as one has the drive to succeed.

Distribution Manger Position Open

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The Computer Science Facility at the Virginia Tech Corporate Research Center

A look at the Computer Science Facility at the CRC.

The GigaPixel display that can used for massive data visualisation.

By Charlie Crawford

Over the past few years, Virginia Tech (VT) has been a university on the rise. One department in particular has stood out for its recent growth. This past September, the Department of Computer Science at VT opened a new facility located at the Corporate Research Center (CRC) just behind the Virginia Tech Airport.

The grand opening was kicked off with a ribbon cutting ceremony and included a speech from College of Engineering Dean, Dr. Richard Benson. Following the event was an open house which showcased the new facilities as well as the on-going research within the department.

The building itself is exceptionally well planned. No longer landlocked by the campus, the facility includes new labs, new graduate student space, and plenty of room for expansion. Department head Dennis Kafura explains, "We wanted to create an environment where facility, students, and labs are all closely connected," which in turn "creates a sense of community that is extremely important in the propagation of new ideas."

The final product exemplifies this sentiment. Each floor is filled with open office areas as well as large and small conference rooms designed for both quick discussions as well as long-term collaboration.

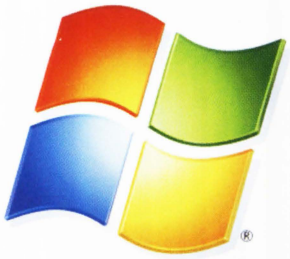
The building is also extremely well lit through a combination of non-intrusive lighting and a multitude of windows, both of which add to the feeling of openness.

Not only does the new building provide new opportunities for collaboration, but it also allows for expansion. One such benefactor of this new facility is the Gigapixel Display Project. Since moving to the new building, the team has been able to double the size of their feature display, thus allowing them to carry on with their research efficiently and effectively. The new building provides many groups space for large setups that were just not possible in on-campus facilities such as McBryde Hall.

Dr. Dennis Kafura
Professor and Computer Science Department head

However, change for McBryde Hall is already well underway according to Dr. Kafura. "We are really trying to integrate the undergraduate experience," he said. "We want to provide them with the ability to connect with the opportunities that exist within the department."

The McBryde Hall changes include both physical and conceptual renovations, both of which will help the integration process. Advisors, student organizations, and industrial affiliates will all be able to use this new space. The renovations are set to be completed by April or May of 2007.



Worth It, Or Not?

Windows Vista™

By Divakar Mehta

Like it or not, we all need to use computers. Modern life revolves around computers. Ever since the early 1980s, computers have become a big part of the College of Engineering at Virginia Tech (VT).

It all started with a requirement for a desktop computer, which eventually became a laptop requirement, and, just this year, has turned into a tablet PC requirement. One of the biggest challenges that I personally faced after getting into college was how every little thing related to my classes was online, on this place called Blackboard.

I was used to high school, where the teachers made sure that everything we needed was provided to us. Fast forward through all of this and you will notice that VT has always been at the forefront with computing technology, when compared to other similar schools around the country, and the College of Engineering has mostly required computers that are loaded with Microsoft Windows.

I am going to make a very big presumption that you know the basics about what Windows is, how it relates to you, and how it really is a major part of your life.

So let's start at the very beginning.

At the end of my previous paragraph, I mentioned that Windows is a major part of an engineering student's life at VT, or anywhere else for that matter, because more than 90% of the world uses Microsoft Windows as their primary operating system (OS). I am not here to argue that Windows is a great product. I am simply trying to cover the new Windows, because it is important to all of us.

Five years ago, Microsoft released Windows XP, which was an upgrade to Windows Millennium. With Windows XP, Microsoft made remarkable changes to its OS, which will now be replaced by Windows Vista. It is very hard to tell when Microsoft really began working on Windows Vista, but the gist of the story is that it has been in development for way too long now.

Windows Vista was originally supposed to be a very minor upgrade to XP and was slated for release to the general public in 2003. Slowly, as development progressed, this minor upgrade transformed into a very major upgrade to Windows.

During initial development and with the preliminary hype that was created around this product, Microsoft promised a lot of things, such as a brand new file storage system that would store files in a radically new way compared to the current method, but due to unknown reasons, many of these things changed. In the last few months, Microsoft reached the point where it was forced to set a deadline (end of 2006) because Vista was becoming a project with no end in sight.

Major changes were brought to the Windows division and a good bit of upper management was shaken up so that the division could focus on the task at hand. All of these delays and mismanagement issues led to problems and disappointments for the general public because they led to the removal of key features that Microsoft could not successfully implement in time for the new operating system.

Does all of this mean that Windows Vista is a dud? I personally do not believe that it is a dud, but that is just my opinion and I will let the reader be the true judge. The bottom line is that Microsoft Windows Vista, the next major upgrade to Windows, will be out in a few months. It is in the final stages of testing and Microsoft is working out the last bugs in the product before it is released to the public.

A brief look into what is new and exciting in Windows Vista

There are a wide variety of new features that will be introduced with Windows Vista; however, it is important to note that some of the new features will be deployed to older versions of Windows as well. Some of these features include an update to Internet Explorer (Microsoft's web browser), an update to Windows Media Player, and a brand new interface.

I am not going to list each and every feature that is new with Windows Vista for the sake of not boring the reader with unnecessary and uninteresting technical details. In the following few paragraphs, I discuss some of the major reasons why Vista is a good upgrade for students.

As I mentioned earlier, Internet Explorer 7 will be updated for Vista, which is an important update for everybody because it is much more secure than previous Internet Explorer versions.

Tools such as a pop-up blocker, a phishing filter (which helps prevent people from visiting and giving away personal information to rogue websites), tabbed browsing etc., are already built in. Additionally, I think it features a cleaner interface that allows a person to do what they need to do and move on.

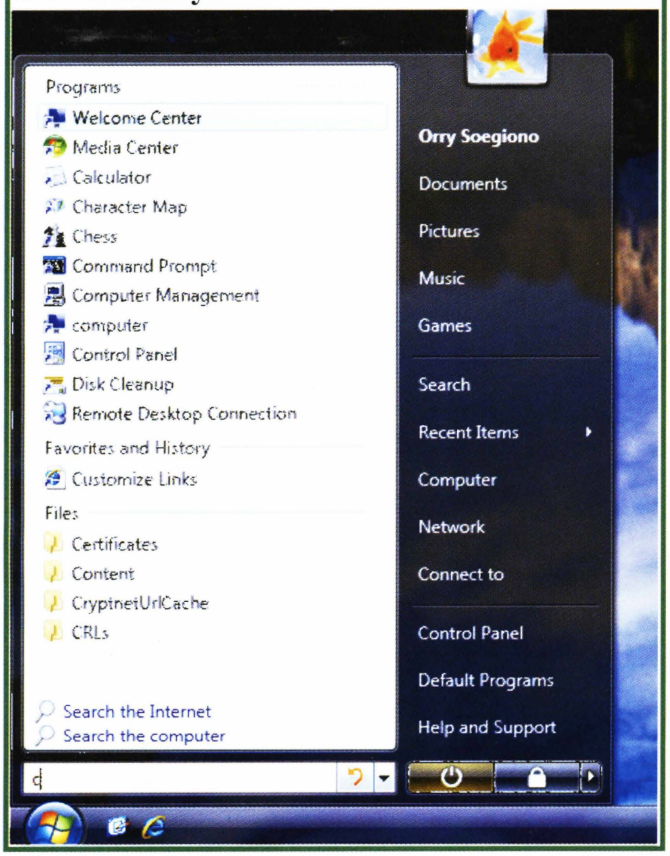
Similarly, Microsoft has finally started learning from Apple, and they have radically simplified Windows Media Player into a no-nonsense, simple player with powerful features. A brand new interface, along with the new Vista black theme is what is new with Windows Media Player.

As students, we spend a lot of time typing things up, manipulating data etc., most of which is handled by a single suite of programs called Microsoft Office. Along with the new Windows, Microsoft will also release a brand new version of its productivity suite, Microsoft Office 2007.

This version is also very radical because it departs from the known and ordinary. It is important to note, however, that this is being developed separately from Windows Vista. You could potentially use it on Windows XP, but if you want all the frills and thrills, then Vista is needed.

Additionally, Windows Vista also upgrades many security features

A look at the start menu and the integrated search facility.



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that Windows in general has been lacking. Listed below are some other new features along with a brief description of them and whether or not you could get this for Windows XP:

Windows Aero (Authentic, Energetic, Reflective, Open) is the redesigned interface that I mentioned earlier. It includes new transparencies and lots of eye candy for users. For example, Windows Flip 3D replaces the boring window switcher in XP. This is a Vista specific feature.

Windows Search is a new and very important feature for students. As our computers get filled with everything from pictures to music to homework assignments, we tend to forget what was put where; Microsoft has emerged as a leader by coming up with a very good search engine for a computer. Users can try this on Windows XP by downloading Windows Desktop Search, however, the Vista version will be built into the operating system and will be more comprehensive.

Windows Sidebar is a unique, little useless feature, in my opinion. It allows you to put a variety of things on your desktop such as fancy clocks, the weather and other unnecessary things that you could live without. This becomes a part of Windows Vista; however, it is nothing new, really.

MSN Explorer, a proprietary software that Microsoft has handed to its internet service customers has featured a side bar for a very long time now, but downloadable widgets are something new for Windows, despite being a part of Macs and available as a free download from Yahoo called Yahoo Widgets for quite a while. It is basically eye candy on the desktop, but at the cost of system resources of course.

Speech recognition technology has been deployed throughout the Windows Vista system and is supposedly capable of being trained to understand a very wide variety of commands from its users. As the science of computers evolves, features such as voice recognition become more and more powerful; however, this is still a work in progress so people should not expect perfection.

SuperFetch is a new memory management tool that analyzes and studies your computer and loads only the mostly used things on to your

IMAGES OF THE NEW FEATURES IN WINDOWS VISTA. FROM THE LEFT:

- WINDOWS FLIP 3D CAN BE USED TO LOOK THROUGH AN ARRAY OF OPEN WINDOWS EASILY.
- THE NEW PICTURE GALLERY FOR MANAGING AND EDITING PICTURES.
- THE NEW SIDEBAR, WHERE GADGETS THAT PERFORM VARIOUS TASKS CAN BE ADDED.

computer so that it runs more efficiently. This is a Windows Vista specific feature.

Windows Defender is an anti-spyware tool from Microsoft and is designed to help the computer run safer. This can be downloaded for Windows XP and has been in testing for a very long time now.

As I mentioned before, the list above does not cover each and every feature that is new in Windows Vista. There are many more features that I have not even talked about. Additionally, what I have presented is just a sneak preview of what is coming in the near future.

I am in no shape or form connected to Microsoft and all of my information was researched from credible sources and I am sure that Microsoft is not releasing each and every piece of detail to the world.

The system requirements for running Windows Vista according to Microsoft.

	Windows Vista Capable PC Logo	Windows Vista Premium Ready
Processor	Modern processor (at least 800 MHz2)	1 GHz 32-bit (x86) or 64-bit (x64) processor2
System Memory	512 GB	1 GB
GPU	DirectX 9 Capable (WDDM Driver Support recommended)	Windows Aero Capable DirectX 9-class GPU that supports: • A WDDM Driver • Pixel Shader 2.0 in hardware • 32 bits per pixel
Graphics Memory		128 MB
HDD		40 GB
HDD Free Space		15 GB
Optical Drive		DVD-ROM Drive

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Department of Engineering Education Given the University Exemplary Department Award for 2006

By Danielle Willgruber

In May of this year, the Department of Engineering Education was given the University Exemplary Department Award for "developing and sustaining innovative and effective departmental approaches to

Dr. O. Hayden Griffin, Jr. ENGE Department head

introductory courses at the graduate and undergraduate levels."
The award was created in 1994 by the Office of the Provost to "recognize the work of departments and/or programs that maintain exemplary teaching and learning environments for students and faculty." There is a different focus every year for this award.

In the two years since the Division of Engineering Fundamentals officially became the Department of Engineering Education (EngE), there have been many changes, not only to the undergraduate freshmen engineering curriculum, but also with the creation of a graduate program in engineering education. In addition, the EngE faculty has and will continue to conduct research in collaboration with other engineering departments at Virginia Tech and with other universities to further improve the courses they offer.

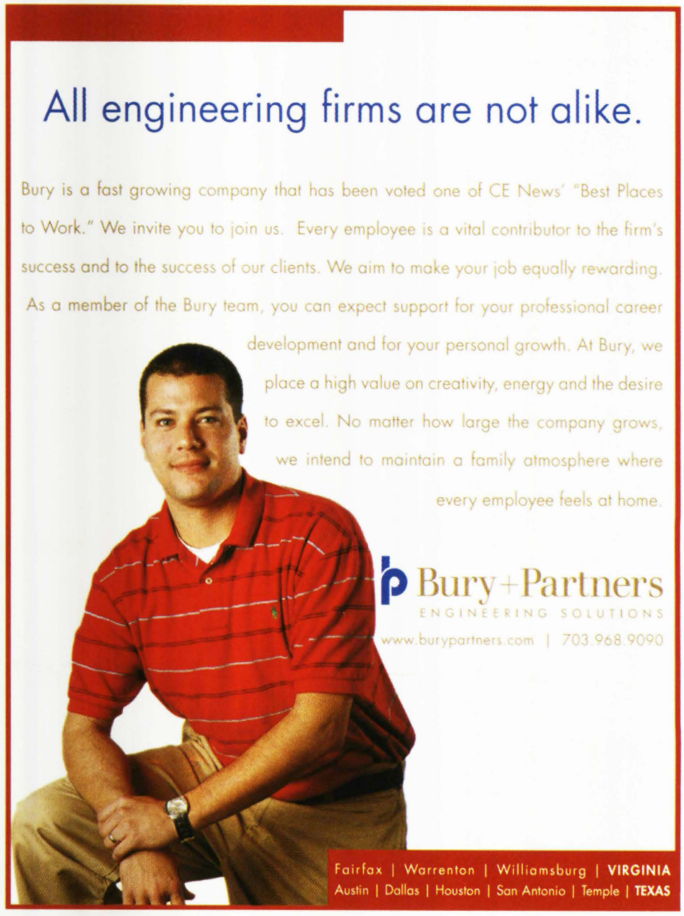
There have been a variety of goals that the EngE faculty try to accomplish with freshmen engineering students. Teamwork, communication, and hands-on experience are the focus for first year engineering students. Students not only learn how to work with other engineers, but also with other students, such as working with industrial design students on projects.

Both written and verbal communications are emphasized through essays, presentations, and report writing. Electronic portfolios are created by students so that they can reflect on what they have learned in their classes, which in turn helps in their professional development.

Real world experience is essential to any engineer because no real world problem is ever a text book problem. In the new EngE program, hands-on experiences can be gained through in-class experiments preformed by students, but there are also chances to study abroad or conduct research. In fact, a two-semester course sequence has been created to assist students in finding a research position over the summer, and then documenting and sharing the work done when the research is completed.

The Department of Engineering Education has also recently begun offering courses to graduate students interested in engineering education. It is drawing students from both the College of Engineering and the School of Education who are interested in learning how to better teach engineers.

As of now, there are nine graduate courses that have been approved,



covering topics such as assessment techniques in engineering education and evaluating engineering communication assignments. Additional courses are being planned, and include topics like the history of engineering.

Currently, only a Certificate in Engineering Education is available to graduate students, but there are plans to develop three graduate degrees: a Masters in Engineering Education, a non-thesis degree, and a Master of Science in Engineering Education. The Master of Science in Engineering Education would require a thesis that would lead into a Ph.D. program.

Additionally, EngE faculty members are also conducting research to better understand how students learn the material presented in the freshmen engineering courses to improve the classes.

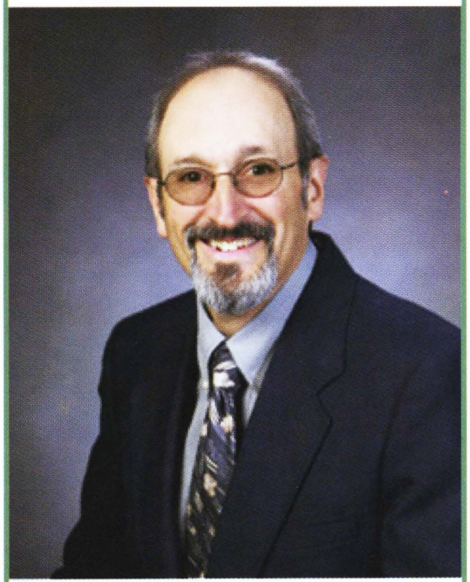
Multiple online surveys have been given to students to obtain data about their past experiences and learning styles in order to keep students interested in the topics covered in the class and ensure that all students succeed in understanding the course material.

Thanks to a National Science Foundation grant, faculty members are also working with other engineering departments at Virginia Tech to create a "spiral curriculum", connecting concepts covered in freshmen courses to the upper-level courses more closely.

Through the use of all these techniques, the engineering college at Virginia Tech is constantly evolving. Modern society requires organizations to stay dynamic in order to attain success and Virginia Tech is doing a great job doing this and it can see the fruits of its labor by the consistently high rankings of its various engineering colleges.

Other ENGE Faculty

Dr. Maura Jenkins Borrego
Assistant Professor



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Asst. Department Head

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Here are a few

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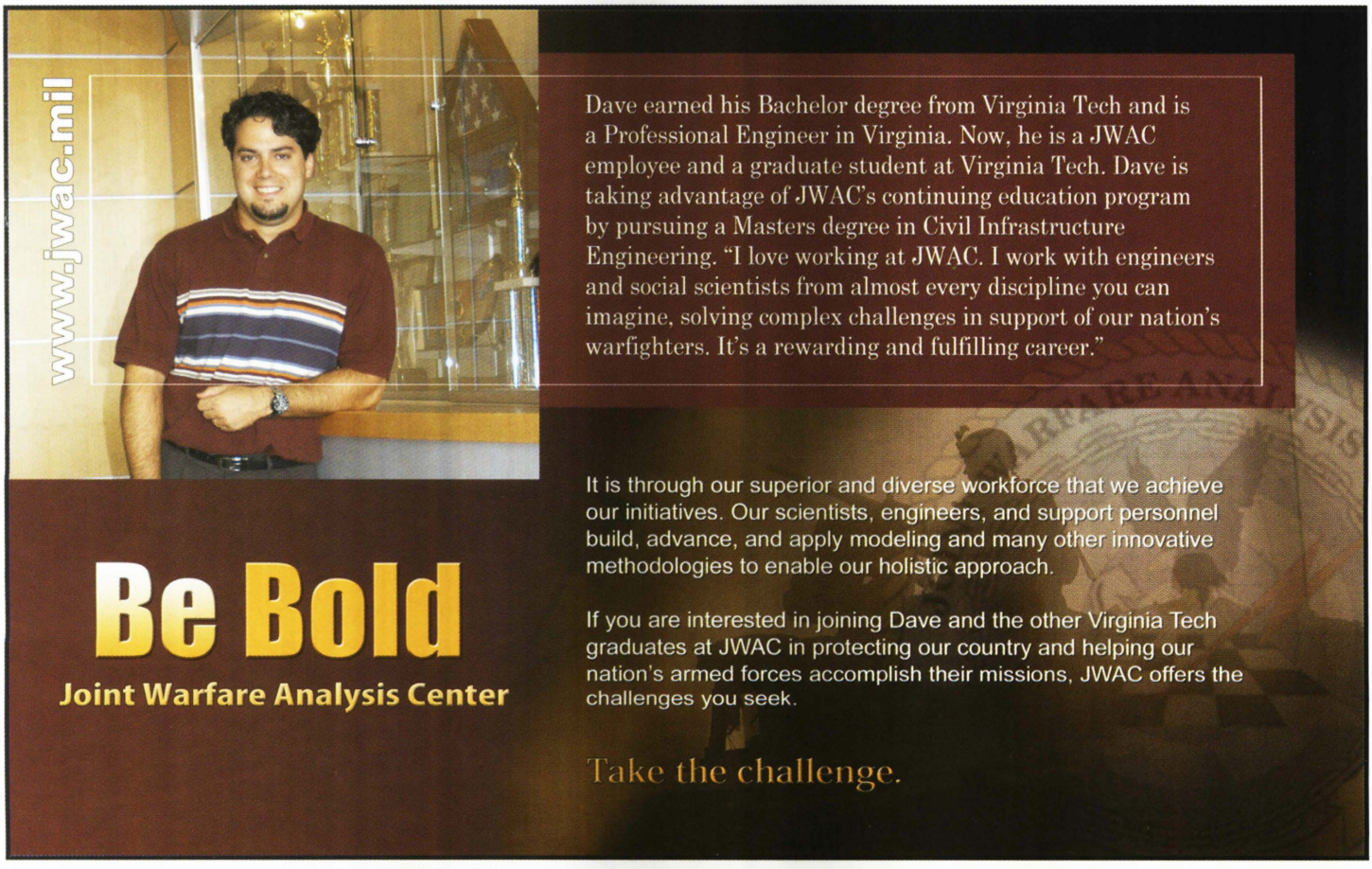
COWGILL
DAVIDSON
DURHAM
FEMOYER
HAHN
HOLDEN

There are at least 11 more.
Have Fun!



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