Gates Urges Students to Pursue Careers in Math, Science and Technology

Bill Gates, the chairman of Microsoft and one of the world's most well known philanthropists, visited the Columbia campus on Oct. 13 and spoke with Lee C. Bollinger, computer science faculty and students about the future of computers and software, urging them to set their sights on an industry that will create products that are "even more revolutionary and far faster than anyone anticipates today."

The highlight of Gates' visit was a tribute to Columbia's one of the event's hosts, said it was a tribute to Columbia's computer technology into every academic discipline," he said.

Meanwhile, computer screens were a tribute to Columbia's foundation activities as well as the philanthropic work of the Bill and Melinda Gates Foundation, which focuses on world health issues.

In a half-hour speech accompanied by rock music, a humorous video spoofing Microsoft's recruiting practice featured in a starring role, and a cache of soon-to-be released products, Gates outlined his vision of a world where software interacts with nearly every human activity.

He explained that industry progress over the past 30 years had increased computing power by a billion times greater than previously, as well as placing personal computers in the hands of over 1 billion people worldwide.

He urged students to work in the software field. Gates said that in the near future, new computing devices will be within reach of $4–$5 billion people—a growth rate that would depend in part on inno-
vative software developments.

"We need young, open-minded people from your generation who will come in and look at this foundation we have built over the past 30 years and take it to a whole new level," Gates said in a speech interrupted by boisterous applause and laughter, especially when the most famous Harvard dropout joked that "dropping out worked for me." He later qualified the statement by explaining that he's "on extended leave" from Microsoft so he could always go back if things get bad.

Far from recommending that students follow his path, Gates said that students should study computers and math if they wanted to have an impact on society's future. In his speech, which is part of his annual tour of college campuses to promote computer science and engineering careers—other stops included Princeton, the University of Wisconsin and Howard—he said that education was the key to keeping software products in the research and development pipeline. Education, he argued, would help feed the cycle of creating high-capacity, affordable software that is reshaping the industry and influencing how computers are used in everyday life.

Previewing a wireless future world according to Microsoft, Gates demonstrated a display table equipped with an infrared camera that recognizes and interacts with a mobile phone. The device would allow a user to scan a newspaper and edit computer files and then scan the information back into the mobile phone.

"Your toaster has a microprocessor in it today, and my wristwatch probably has more computing power than the whole computer center did when I started here as an undergraduate," he said. "But that's smart guy and besides all the billions, he looked quite normal," said Carlos Uzan-
darvas, an M.S. student in computer science.

"I'm going to write a virus, or a piece of spyware, I'm going to target the platform with the most users, not the platform with 10 percent of the market or less," Bellorin said in a recent interview before Bill Gates' Oct. 13 visit.

Bellorin joined the Department of Computer Science this year with expertise in networks and security, and specializes in why—in his words—the two don't get along. He is a member of the Computer Science Advisory Committee of the Department of Homeland Security. Together with Bill Gates and Paul S. Gray, he is the Lamatra Corporation, which produced the latest edition of the classic work, "Computer Security: Fighting the Wily Hacker," published in 2003.

Microsoft's Operating System: A Hit with Hackers

The ubiquity of Microsoft Windows makes it a target for larger hackers wanting the biggest bang for the buck in exploiting the operating system's weaknesses, according to computer science professor Steven Bellorin.

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Microsoft is one of the few compa-
nies that licenses its operating sys-
tems directly to hardware manufac-
turers. Apple does not because Windows is also proprietary software and provides for PCs, Microsoft has con-
trolled its distribution. Due to Windows' widespread usage—some 90 percent of desktop computers worldwide run the operating sys-
tem—most hackers target Windows rather than operating systems such as Linux, Unix, Mac OS X or FreeBSD.

Microsoft, however, is making remarkable strides in improving the security of its operating systems, Bellorin said.

"Microsoft is not just spinning PR when they say they've been putting a lot of effort into security," he said. "They are spending a quarter of $1 billion to improve the security of their product line. Even Windows XP Service Pack 2 is far more secure then anything else they've ever fielded."

"To stay ahead of hackers who exploit weaknesses in Windows code, Microsoft releases security patches approximately once a month and crit-
ic updates even more frequently," Bellorin said. This need for patches may diminish with the release of Microsoft's new operating system, due out in 2007 Vista's built-in Web browser, Microsoft Internet Explorer, will include many security enhance-
ments to protect users from phishing and spoofing attacks.

"What was known as 'Longhorn' and is now known as Windows Vista will be a lot better," Bellorin said. "Windows Vista also will feature a protected mode of Internet Explorer to prevent user data and configura-
tion settings from being deleted or changed by malicious Web sites. Another new feature of Vista is the 'secure-at-install' system, designed to help secure new installations of the operating system in specific server roles. When a new server is installed, the system can automatically find and apply security updates."

Bellorin, however, advises people to wait before they upgrade to Windows Vista.

"I would not rush to upgrade," he said. "There is a saying in the comput-
ering industry that 'dot-zero' of anything is dangerous, because it takes a while to get the immediate bugs out."

Apart from the ubiquity of Windows, the omnipresence of com-
puters themselves presents a security problem, not just for Microsoft cus-
tomers but for anyone living in today's technologically advanced world.

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Finally, Bellorin echoed Gates' comment to the CU students in his Oct. 13 speech, that computer science could use an infusion of talent from today's leading universities. "Everything is controlled by soft-
ware and this will demand a lot of computer talent. There is a lot left to be done, especially if you understand the subject domain, not just comput-
ers," he said.