

REMARKS BY GEORGIA TECH PRESIDENT G. WAYNE CLOUGH
Ground-breaking for Klaus Advanced Computing Building, April 1, 2004

It is exciting to welcome all of you to this virtual ground breaking for the Christopher W. Klaus Advanced Computing Building. We have been patiently waiting for several years while the state-funding component for this building slowly percolated up to the top of the priority list of the Board of Regents. But the day we have been eagerly anticipating has finally arrived. We are ready to celebrate the beginning of construction, and when you see the virtual presentation of the new facility a little later in this program, I think you will agree that it is worth the wait.

When I was a student, back in the 1960s, the computing tool of the day was the slide rule, and we were convinced of its superiority. As the famous scientist Isaac Asimov wrote in an introduction to the slide rule, "We might wish that we ourselves owned ... a computer to do the work for us. Such a situation would have its disadvantages, however. Electronic computers are bulky, expensive, complicated, and can be handled only by people with special training... [A slide rule] is small enough to put in your pocket, it need not cost more than a couple of dollars, it can't go out of order, and best of all, it can solve almost any numerical problem that you meet up with under ordinary circumstances."

Then came the 1970s, and even Stewart Brand, who had founded the Whole Earth Catalog in the 60s, changed gears and went into computing. When someone asked him about that somewhat odd progression in his career, he said, "Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road."

No other technology in history has rolled over the world as rapidly and as thoroughly as information technology and computing, far surpassing even the expectations of those who were most in the know. Contrary to the prediction of IBM chairman Thomas Watson in 1943, a market has developed for more than five computers worldwide. Contrary to the prediction of Digital Equipment President Ken Olsen in 1977, people do have computers in their homes. And contrary to the prediction of Bill Gates in 1981, there are those who need more than 640K.

Moore's law, which says that the speed of computing doubles every 18 months or so, has been proven true. I've been using the same IBM Think Pad with a Pentium III processor for several years now, and it's gotten to be pretty pedestrian as laptops go these days. But as recently as 1995, my laptop would have ranked as one of the fastest 500 computers in the world. Today, as supercomputers become ever more powerful, the speed of computing has zoomed past gigaflops to teraflops, and has its eye on petaflops.

The decline in the cost of computers has been as dramatic as the increase in their speed and power. The cost per gigabyte of stored information has dropped from more than \$10,000 in 1988 to less than \$10 today. Inexpensive PCs have allowed the Internet to expand rapidly. And Internet access, in turn, has helped drive the demand for inexpensive PCs. So that by January of 2001, 100 million computers around the world were connected to the Internet.

Businesses have invested heavily in information technology, which is proving its ability to increase productivity. E-commerce has accelerated to the point of accounting for \$500 billion in manufacturing shipments – more than 12 percent. Computers and IT are now at the heart of the financial industry worldwide, and you can do business in a stock market somewhere in the world 24 hours a day.

Computing technology has also migrated into a wide range of devices and equipment, from motor vehicles to MEMs. Today, virtually every product that plugs into an outlet or uses a battery has a microchip in it somewhere.

Here in academia, computers have become the test tubes of the 21st century. Scientists use them to model complex behavior of virtually anything that is too big, too tiny, too far away, or too dangerous to deal with in person – from exploding stars to individual atoms, from earthquakes to disease outbreaks. Computers enable engineers to crash-test cars, test-fly airplanes, and subject skyscrapers to hurricane-force winds without causing any actual damage.

Massive databases have become important resources for research in a wide variety of disciplines, from the social sciences to bioinformatics. Digital libraries and electronic journals are changing how researchers access and share technical information. Networks allow researchers around the world to collaborate in real time, and our ability to do that will expand tremendously when Georgia Tech's hub on the National LambdaRail network goes live in a few months.

Computers have become a vital part of the educational process as well. Soon after I became President, we began requiring all Georgia Tech students to have computers that meet certain specifications, and our curriculum has been enriched with many web-based enhancements. Georgia Tech is a pioneer of the e-classroom, which offers a multi-media learning experience, freeing students from the tedious process of taking notes to be more intellectually engaged with the material. And it is IT that makes our growing distance learning programs possible.

It is clear that Georgia Tech is part of the steamroller rather than part of the road. The College of Computing ranks 12th in the nation and the computer engineering programs in the School of Electrical and Computer Engineering rank 6th, according to *US News & World Report*. Counting all three degree levels, we have more than 3,400 students studying computer science and engineering.

The National Science Foundation places Georgia Tech sixth in the nation in our R&D expenditures in the computer sciences; and in electrical and computer engineering, we lead the nation. That research covers a wide range from computer architecture and design tools to computer graphics, from networking to human-computer interaction.

The Christopher W. Klaus Advanced Computing Building will allow Georgia Tech's research and education programs in computer science and engineering to move to the next level by providing some of the most advanced computing labs and innovative educational technology in the world. In addition to providing badly needed space for both the College of Computing and the School of Electrical and Computer Engineering, it will provide a focal point for interdisciplinary collaboration between these two units. The Klaus Building is the final piece in

the creation of an IT complex right at the heart of the Georgia Tech campus, and connecting skywalks will facilitate communication between this building, the College of Computing, the Microelectronics Research Center, and the Van Leer Building.

This new facility also reflects Georgia Tech's commitment to environmental sustainability in the development of our campus. It will make extensive use of recycled materials, employ energy efficient systems, and collect the rainwater that falls on its roof to use in irrigating the landscaping around it. Our goal is that this building will join the College of Management Building at Technology Square in receiving Silver Certification from the U.S. Green Building Council for Leadership in Energy and Environmental Design.

The Klaus Advanced Computing Building is going to be a tremendous asset in strengthening the national leadership of the College of Computing and the School of Electrical and Computer Engineering, and we are grateful to the Board of Regents and the state of Georgia for recognizing its importance and providing the basic funding component. We are also deeply indebted to Chris Klaus for making a significant addition to that basic funding level, allowing us to expand and enhance the building to better serve our students and faculty.

Computer technology, programs, and operations are going to continue their rapid expansion in all directions, and the Christopher W. Klaus Advanced Computing Building will help Georgia Tech educate the students and make the discoveries that will enable us to lead the way.