

Georgia Institute of Technology

Atlanta Rotary Address

G.P. "Bud" Peterson, President

December 7, 2009

On December 7 President G.P. "Bud" Peterson addressed some 200 members of the Atlanta Rotary at their regular monthly meeting at the Loudermilk Center in Atlanta. Throughout 2009, he spoke with almost 1,000 people about Georgia Tech at more than a dozen Rotary and other civic clubs throughout the state.)

December 7, 2009—Thank you Bill (Todd). We are very grateful for the Atlanta Rotary's support and commitment to our institution for almost a century. Since the Atlanta Rotary raised \$75,000 to keep Georgia Tech's doors open during the Depression, I thought it would be only fitting to give you a progress report on what we've done with your investment.

I'll talk about our partnership with the Atlanta community, touch on some of the incredible things we're doing at Tech, and what we're doing to plan for the future.

A number of Georgia Tech alumni have been Atlanta Rotary leaders, including Ivan Allen and Charlie Yates.

I understand that in 11 of the last 25 years, Atlanta Rotary has had a president who is a Tech graduate. And, 11 past presidents of the Georgia Tech Alumni Association are current members of the Atlanta Rotary.

Several of you have asked me about our ACC Championship game in Tampa this weekend. This is what I have to say about that. (Places an orange on the podium)

We're proud that our team is in the top 10, but we're just as proud of our academics.

What you may not know is that this fall, every one of our undergraduate engineering programs ranked in the top ten nationally, and we are a national leader in graduating minority and female engineers. We are number one in graduating African American engineers, and number two in graduating Hispanic engineers.

We are the seventh best public university in the country. In addition to engineering, we also have outstanding programs in architecture, computing, liberal arts, management, and the sciences.

We have 20,000 students, with women making up about a third of the student body. It is interesting to note that women lead 42 percent of the student groups.

Here are some things about Tech that may surprise you.

The fastest growing college at Georgia Tech is the Ivan Allen College of Liberal Arts, which has about 1,225 students in its degree programs. Because the program emphasizes the technical and analytical skills for which Tech is known, graduates enter the workforce with a distinct advantage.

More than a third of Georgia Tech's undergraduates study abroad, compared to 1 to 2 percent of undergraduates nationwide and less than 1 percent of engineering undergraduate students nationwide.

Despite the fact that no major outside of the School of Modern Languages requires language study, roughly 40 percent of Tech students study a language.

Of the two dozen endowed chairs in poetry nationwide, two are at Georgia Tech.

Each year around 2,000 students participate in music courses or activities. Georgia Tech has a long list of vocal and instrumental ensembles that travel the world—The Glee Club sang at Carnegie Hall last spring. Half of Tech students play musical instruments.

Tech's theater company, DramaTech, is the oldest continuously operating theater company in the city of Atlanta.

Georgia Tech is much broader than most people realize. We have a responsibility to educate students for a future through academic and extracurricular organizations and volunteer opportunities.

We offer students more than 400 organizations to get involved in. You'll find our students involved in the Atlanta community in hundreds of ways—helping elementary students read or use computer labs, providing their expertise to nonprofits, or donating thousands of cans of food to the Atlanta Food Bank.

Tech's influence on Atlanta

Atlanta would be a very different place without Georgia Tech. Just look at the skyline—it is largely the work of hundreds of graduates from Georgia Tech.

John Portman and George Heery are probably the two that come to mind for most of us.

In addition, the Atlanta Business Chronicle's 2008 Book of Lists reports that thirteen of the top fifteen architectural firms in Atlanta have Tech alumni as managing principals or founders. These firms were responsible for \$3.3 billion (more than 85 percent) of the construction value of projects done by the top fifteen firms. Most of Atlanta's skyscrapers have involved Tech grads.

Georgia Tech and Midtown Atlanta are growing together. A great example is Technology Square, home to our College of Management, shops and businesses. It is the result of collaboration between Georgia Tech and the Midtown Alliance and part of a vision that began more than a decade ago. Technologies that will transform our lives are being developed at the Georgia Electronic Design Center and the GVU Center at Georgia Tech. It is linked to our west campus by a bridge that looks more like a park.

Before I came to Tech, I had the impression that it was a commuter campus. Many people are surprised to discover that Tech is a 400-acre residential campus in an urban environment. Sixty percent of our undergraduate students live on campus. In addition, many more populate the new apartments and condos that have emerged in Midtown. You'll find them shopping at nearby Publix supermarkets and at Atlantic Station. How many other college campuses in the U.S. can claim an IKEA within walking distance?

Research

Our new campus construction is making dynamic additions to the area. Since arriving at Tech last April, I have participated in several groundbreakings and building dedications.

One is the opening of the Marcus Nanotechnology Building. It is one of the largest facilities of its kind in the world, already attracting companies such as Intel, Hewlett-Packard, and Kimberly-Clark.

Nanotechnology is predicted to be as transformative as silicon chip development was in the 1980s and 90s. Georgia Tech will be an epicenter for this technology, redefining the status quo for everything from electronic storage to cancer drug delivery, while shepherding spin-off companies into the surrounding area.

Funds that come into Tech help grow businesses and foster growth in the community. Georgia Tech has more than \$525 million in annual research expenditures of a \$1.2 billion annual budget, which help the Institute consistently rank among the top ten nationally among research programs without a medical school. Let me share a couple of examples of what we're doing.

Several dozen researchers are finding clues and developing solutions to fight the war on cancer. They are contributing expertise in multiple disciplines, including basic cancer biology, the design of new intervention methods, and development of detection and monitoring technologies in bioinformatics, biosensing and bioimaging. Their efforts are being combined with clinicians at Emory University and other medical institutions, such as Memorial Sloan-Kettering in New York—working with all types of cancer patients.

We're working on another step toward repairing spinal cord injuries. Georgia Tech researchers have developed an improved version of an enzyme that degrades the dense scar tissue that forms when the central nervous system is damaged. The new enzyme could facilitate recovery from central nervous system injuries.

We have designed and tested a new crew survivability concept for the U.S. Office of Naval Research that would build military vehicles around a protected personnel compartment and use a sacrificial "blast wedge" to absorb energy from improvised explosive devices, saving lives.

Through a three-year grant from the National Science Foundation, we're working to improve the security of mobile devices and cellular networks to help alleviate security and privacy risks, including developing a way to get rid of viruses remotely.

Converting sunlight to electricity might no longer mean large panels of photovoltaic (PV) cells on the roof. Researchers at Georgia Tech are using zinc oxide nanostructures grown on optical fibers coated with dye-sensitized solar cell materials to develop a 3-D photovoltaic system. It would give architects and designers new options for incorporating PV into buildings, vehicles, and even military equipment.

Economic Impact in the State

Through our research and partnership with business and industry, we're an economic engine for Georgia and the Southeast, with an annual impact of more than \$2 billion. In 2008 alone, Georgia Tech programs helped Georgia companies save or create 20,000 jobs.

Georgia Tech's resources are a powerful selling tool in helping us attract new business and industry to the state. The latest example is NCR.

Georgia Tech is a leader in innovation. This past year Georgia Tech was second in the State of Georgia behind only AT&T Intellectual Property for issued U.S. patents.

Examples of Local Impact

The Georgia Tech Procurement Assistance Center helps Georgia companies at no charge to identify and compete for contracts with local, state, or federal government agencies. Companies in the metro Atlanta area won new contracts worth more than \$238 million during calendar year 2008 as a result of help from the procurement assistance center.

Georgia Tech's Manufacturing Extension Partnership program helps companies become more competitive in world markets through assistance with such services as lean manufacturing, quality, energy management, environmental issues, and strategies for business growth. Georgia Tech's Enterprise Innovation Institute (EI2) has conducted more than 700 projects for metro Atlanta companies and organizations over the past four years, helping nearly 400 different companies and organizations improve their operations. This assistance helped companies grow their sales by more than \$14 million, retain \$34 million in sales, save more than 400 jobs, and reduce operating costs by nearly \$10 million.

EI2 serves Georgia's health care providers by applying process improvement and lean techniques—long proven in manufacturing—to hospitals and other health care organizations. An example is work with Children's Healthcare of Atlanta.

Through its Advanced Technology Development Center (ATDC) program, Georgia Tech helps connect entrepreneurs and startup companies to the people and resources they need to succeed. During fiscal year 2009, EI2 evaluated 149 Georgia Tech innovations and formed 20 new companies. These startups based on Georgia Tech intellectual property attracted nearly \$100 million in investment.

An example of an early-stage companies assisted by Georgia Tech is Suniva. Using technology developed at Georgia Tech, Suniva became the Southeast's first solar cell manufacturer in early 2009. The company, which is based on long-term research funded by the U.S. Department of Energy, has opened a 73,000-square-foot manufacturing facility in Norcross and has more than \$1 billion in outstanding orders. Suniva's founders received initial assistance from EI2 in formation of the company before being incubated at the ATDC. Suniva uses a patented technology it calls "Star" to extract maximum performance from wafers of monocrystalline silicon, a material often used in photovoltaic systems.

Designing the Future at Georgia Tech

Our place among the best universities is continually being challenged and we will be judged not by how well we have done in the past, but rather by how well we can meet the evolving needs of the world around us.

That's why we have initiated a strategic planning process to develop a 25-year plan, a strategic vision that will identify what Georgia Tech should be like on its 150th anniversary.

We have to make sure we continue to build an enterprise that can be sustained in a changing environment.

We are preparing students for jobs that don't yet exist, using technologies that have not been invented, to solve problems that we don't know are problems yet.

The World Today

Predicting the world in 25 years is daunting, especially if you look at how much we've changed. Look back 25 years, IBM's first personal computers were just hitting the marketplace—(AT, XT, Commodore 64). The first cell phone was a brick—it weighed two pounds, cost nearly \$4,000, and held a charge for 30 minutes.

In 1984 I was a new faculty member at Texas A&M. We had two fax machines on the entire campus. I stood up in a meeting and asked if we could get a fax machine for our department. Our department chair said "What in the world would we do with one of those?" Now they're almost obsolete.

Nineteen years ago the protocol for the World Wide Web was developed. Google.com was formed just over ten years ago. Fast forward to today, to the Google library project, a project whereby Google is going to digitize every book that's been written in the English language, over 32 million volumes—and put it in a searchable data base that students who are freshmen today will have at their fingertips when they graduate. Our challenge is to help them take that tremendous amount of information and turn it into knowledge, because there is a difference.

Strategic Plan: The Rationale

The strategic planning process will chart a new course for Georgia Tech for the next 25 years—one that:

Provides greater agility in a rapidly changing environment

Enables us to make investments today to better prepare for tomorrow, and

Helps us better serve the state, the region, the nation, and the world through our education, research, creative works, and service

The process is comprehensive and inclusive. As part of my Investiture activities in September, we held open sessions where the entire Tech community was invited to provide feedback on a number of key areas. More than 700 people participated.

Through workshops, forums, and the Web, we're asking people for their big Ideas: long-range statements of the future that are consistent with our vision and culture, but which may be outside of our comfort zone. These ideas need to be so compelling that they ignite our passions and strengthen our resolve to achieve them.

Let me share a few examples.

- **The Educational Guarantee**

A bachelor's degree may no longer be sufficient to last a student for their entire career because of the rate that information changes. What if we were to allow graduates to return to Georgia Tech any time to take a class free on a space-available basis?

- **Staple a green card**

The challenge of helping bright international students remain in the United States after they earn their graduate degrees sparked the "staple a green card" idea. The idea is an outgrowth of a column Tom Friedman wrote for the New York Times. He was at an institution watching the PhDs in physics be awarded. Walking across the stage were people named Chang, Lee, Hwang, Patel and Smith. Friedman wrote that "Smith saved the day" and he commented about the fact that we bring in this tremendous amount of talent in our graduate schools and then we make it very difficult for those students to stay in this country and contribute to the economic well-being and the technology development that is so important to our future. Tom Friedman said that instead of making it difficult for these students to stay in this country, we ought to be stapling a green card to their diplomas when they walk off the stage.

- **Virtual learning environment**

Some classes could be taught in virtual reality. Work from people who study cognition could be used to develop an environment with a unique, customized learning approach for different individuals. Imagine a classroom a little bit like the Truman Show, where there's one real student and the rest are virtual students whose sole purpose is to help the one real student learn. This system could evaluate the questions and responses from the real student and have the other virtual students respond and interact in a way that helps to reinforce those concepts that he or she doesn't understand.

- **Cluster Requirements (performance, service, research)**

Students could be offered the option of choosing to fulfill a certain number of hours in various clusters, including performance, service learning, or research. For example, requirements could be met through a

team project that incorporates presentation of materials, or a musical, or participation in a DramaTech production.

These are just a few of hundreds of ideas being considered as part of the strategic planning process. The work will continue throughout the year, and the new plan will be introduced next fall. You can stay informed on our Web site: www.gatech.edu/vision

Close

In the past 25 years, Georgia Tech has transformed itself from a regional institution into a national research university. In the next 25 years, Georgia Tech must firmly establish itself as an international leader in resolving the most pressing problems that we face today—issues in areas of global health, water, and energy, and the linking of technology with economics, policy, and management, while remaining true to our original purpose.

It is a privilege and honor to be able to serve as Georgia Tech's president, and to serve the people of Georgia in such an exciting and pivotal time, both for our university and for society.

Thank you.