creative disruption

2005 georgia tech state of the institute
The pace has quickened

Steam locomotive

160 years

Diesel locomotive

22 years

Walkman

iPod
“Can America compete?’ is the nation’s new No. 1 anxiety, the topic of emotional debate in bars and boardrooms... No one is saying that Americans can’t adapt and win once more. But look at our preparedness today for the emerging global economy, and the conclusion seems unavoidable: We’re not ready.”

Geoffrey Colvin
*Fortune*, July 25, 2005
Competing in a world in which...

» We produce only one of every 4-5 inventions.
» Our wages and health-care costs are higher than those of our competitors.
» The largest high-tech markets are in Asia.
» The largest technological workforces are in other nations.

“We came to India for the costs, we stayed for the quality, and now we’re investing for the innovation.”

Dan Scheinman, Senior VP, Cisco
Georgia Tech and its graduates will compete in a world in which...

» Jobs migrate to the place of lowest cost as their economic sector becomes commoditized.

» An understanding of the global forces driving the world becomes more critical.

» The role of the U.S. technology workforce is at the highest end of the innovation spectrum.
Finding the right students...

» Enhanced the admissions process to include those students who are broader, more attuned to personal interaction.

... offering the right experience

» Web-based learning
» Mid-term grades, better advising
» More strategic approach to core curriculum
» Library West Commons
» Study abroad and undergraduate research
Pioneering innovative programs

» Algorithms, combinatorics, and optimization
» Bioengineering
» Bioinformatics
» Computational media
» Economics and international affairs
» Global economics and modern languages
» Human-computer interaction
» Quantitative and computational finance
» Global Team Executive MBA
» Nanoscience and nanotechnology certificate
» Undergraduate Research Option
» International Plan
Global Team Executive MBA

Georgia Tech College of Management

Instituto Tecnológico de Buenos Aires

ICN école de management, Nancy, France
Nanoscience and nanotechnology

» Certificate program available to all GT students
» 4 courses for 12 credit hours
» At least one course outside student’s home college

“Everything being made of atoms, the capability to measure, manipulate, stimulate, and visualize at the atomic scale potentially touches every material aspect of our interaction with the world around us.”

John Marburger III
Science Advisor to the President
Undergraduate Research Option

» 9 credit hours of research
» Thesis-writing course
» Thesis reviewed by 2 professors
» Indicated on transcript
International Plan

- Language
- International affairs, global economics courses
- 2 study abroad terms or international internships
- Capstone course in major
- Indicated on diploma and transcript
Addressing human needs

Students help improve water quality in Angola and Honduras; assist the Samborondon Canton in Ecuador in planning for population growth.
Alumni report value

» Undergraduate research experience
  - Well prepared to design and conduct experiments
  - Able to analyze and synthesize data
  - Could integrate ideas across disciplines

» Study abroad experience
  - Developed leadership skills
  - Comfortable in culturally diverse environment
  - Able to mediate/resolve interpersonal conflict in a group or team
2 Rhodes Scholars in 3 years:

- Jeremy Farris

2 Goldwater Scholars win double honors:

- Ambika Bumb, Marshall Scholar
- Monique Gupta, Churchill Scholar

Laurence Ralph, Mellon Fellowship in Humanistic Studies

- Anthony Hylick: Gates Scholar
- Gabe Brostow: Marshall Sherfield Fellowship
Exceptional athletes

Women’s tennis team 2005 ACC champs; in NCAA Sweet 16 for first time ever.

Baseball team captured ACC title, hosted NCAA regional.

Chaunte Howard won 3rd straight indoor NCAA high jump title; set new Tech record.

Golf team finished #2 nationally; 4th top-5 finish in 5 years. Named No. 1 program in nation by Golf Digest.
Student activities enrich life
Exceptional faculty

PECASE Awards:
Ali Adibi, ECE
William King, ME
David Anderson, ECE

Sloan Research Fellows:
Alex Kuzmich, Physics
Todd Streelman, Bio
Marcus Weck, Chem & Biochem

Fulbright Awards:
Fei-Ling Wang, Internat’l Affairs
Stuart Goldberg, Modern Lang
Carol Colatrella, LCC
CAREER Awards

Frank Dellaert, Computing

Monica Gaughan, Public Policy

Sam Nunn: Benjamin Franklin Medal, Nobel Prize nominee

Samuel Graham, ME

Roshan Vengazhiyil, ISyE

Milos Prvulovic, Computing

Atlanta Woman Magazine Top 10 Inventors

Barbara Boyan, BME

Beth Mynatt, Computing
Biomedical Engineering Professors Shuming Nie and Gang Bao are pioneers in applying nanoscience and nanotechnology to medicine.

“Nanotechnology... is sure to reshape every industry it touches.”

Rick Karlgaard, publisher Forbes

Their work was critical in helping Georgia Tech and Emory attract a $19 million National Center of Cancer Nanotechnology Excellence.
“How many more Americans need to die to get an electronic health record?”

Newt Gingrich, author
*Saving Lives & Saving Money*

RealOpt, a computer program developed by ISyE Professor Eva Lee, will help state and local health departments manage an outbreak of infectious illness, natural or manmade.
“High performance computing is essential to the leading edge of U.S. research and development.”

NSF Blue Ribbon Panel on High Performance Computing

This Dell cluster is among the world’s 100 most powerful computers. It is an important tool for research in biological computing and other disciplines across campus.
Strategic Energy Initiative

Collaborating with Southern Company to harness the power of wind off the Georgia coast.

Replacing conventional batteries with smaller, longer-lasting microgenerators.

Developing the next generation of solar cells based on organic materials.
Keeping soldiers safe

The ULTRA-AP is a concept vehicle, designed and built by GTRI to help the military evaluate multiple technological advances that will make future military vehicles safer.
Building international partnerships

Georgia Tech Lorraine

Technical University of Munich

National University of Singapore

Technical Institute of Monterrey
Research partnerships

Physicists from Georgia Tech are on an international team studying the formation of carbon nanotubes.

Biologists at Georgia Tech and the John Innes Centre in the UK study e coli bacteria.

Researchers from Georgia Tech and the Vienna Institute of Technology developed a system that combines chemical and biological sensors.
Corporate partnerships

Samsung cuts the ribbon on its new research lab at Technology Square.

Pirelli announces its move to Technology Square.

Technology Enterprise Park will house more companies that want to be near Georgia Tech.
creating innovative spaces
Improved outdoor spaces

The Tech Green

Manufacturing-related Disciplines Complex
Campus gateway takes shape

Fifth Street
Upcoming landscaping projects

*Klaus Advanced Computing Building*
Upcoming landscaping projects

Biotechnology Complex Quad
Upcoming landscaping projects

The Eco-Commons
“The emerging global university is set to be one of the transformative institutions of the current era.”

“The brains business”
The Economist, September 2005