Tech study shows China in front as technology leader

John Toon
Research News

A new study of worldwide technological competitiveness suggests China may soon rival the United States as the principal driver of the world’s economy—a position the U.S. has held since the end of World War II. If that happens, it will mark the first time in nearly a century that two nations have competed for leadership as equals.

The study’s indicators predict that China will soon pass the United States in the critical ability to develop basic science and technology, turn those developments into products and services, and then market them to the world. Though China is often seen as just a low-cost producer of manufactured goods, the new “High Tech Indicators” study done by Tech researchers clearly shows that the Asian powerhouse has much bigger aspirations.

“For the first time in nearly a century, we see leadership in basic research and the economic ability to pursue the benefits of that research—to create and market products based on research—in more than one place on the planet,” said Nils Newman, co-author of the National Science Foundation–supported study. “Since World War II, the United States has been the main driver of the global economy. Now we have a situation in which technology products are going to be appearing in the marketplace that were not developed or commercialized here. We won’t have had any involvement with them and may not even know they are coming.”

China’s emphasis on training scientists and engineers—who conduct the research needed to maintain competitiveness—suggests it will continue to grow its ability to innovate.

Cleveland remembered, respected by his peers

Charles Cleveland, who joined the School of Physics in 1979 as a member of Physics Professor Uri Landman’s research group, played a key role in the establishment of the Georgia Tech Center for Computational Materials Science.

In his field, Cleveland helped further the science of investigating nature on a microscopic level, later turning his research to the underlying development of cancer. A senior research scientist, Cleveland died Sunday, Jan. 27, after battling pancreatic cancer for the last 17 months.

A graduate of Tech, Cleveland earned his doctoral degree under the guidance of Professor Hal Gersch. For a year, prior to joining Landman, he taught physics at the University of North Carolina in Greensboro.

“Dr. Charles Cleveland was a gifted scientist, endowed with exceptional analytical and numerical skills,” said Physics Professor Charles Cleveland had worked as a tech researcher since 1979.

COMM works with partners to promote Institute’s excellence

The new year has marked the advent of an entirely new organization on campus. With an ambitious mission and powerful new capabilities, Georgia Tech Communications & Marketing (COMM) is now open for business.

communications & Marketing is a key part of a broader effort to redefine and expand Georgia Tech’s capacity to communicate and compete at the national level in the increasingly competitive world of higher education. With this change, Institute Communications and Public Affairs (ICPA) passes into history.

Communications & Marketing is the Institute’s professional communications and marketing resource. Its purpose is to promote the Institute’s excellence and provide world-class communications and marketing support to the Georgia Tech community.

“We have developed 21st-century

Traffic continued, page 3

COMM continued, page 2

Campus commuters to feel traffic strain as road is closed

Robert Nesmith
Communications & Marketing

No less than two major road construction projects in the heart of Midtown will be well under way by summer, and commuters at Tech are starting to feel the pinch.

Road crews are preparing for a full reconstruction of the 14th Street bridge across Interstates 75 and 85, to begin in earnest this summer. Already crews have started working alongside the highway, clearing the way for two planned exit ramps to be added to the bridge.

To grant construction crews more space and give motorists a larger buffer for safety, one lane of Williams Street was closed in October. On Feb. 9, the Georgia Department of Transportation (GDOT) will close Techwood Drive between 10th and 16th streets, as well as the interstate’s southbound 14th and 10th streets exit ramps.

“These roads won’t reopen until next summer,” said GDOT spokesperson Melany Reynolds. “We’re closing Techwood for demolitions, space and for safety improvements.”

COMM continued, page 2

COMM continued, page 2

On Feb. 9, Techwood Drive (shown facing north between 10th and 14th streets) from 16th to 10th streets will be closed to traffic, as part of the 14th Street Bridge improvement project. The road will be reopened in September 2009.

Traffic continued, page 3

Caution: Construction ahead

COMM continued, page 2

COMM continued, page 2
Landman said. "His professional contributions are marked by a unique capability to devise methods for analysis and visualization of complicated patterns, (as well as) the unique talent to develop and implement efficient and reliable computational techniques."

Some elements of his research included the development of computational methodologies that enabled microscopic examinations of nature, as well as contributions to the understanding of complex problems in a broad spectrum of fields, ranging from melting materials, atom arrangement in nanoscale crystals, the nature of collisions of clusters with solid surfaces, the kinetics and dynamics of crystal growth and electrons attached to nanotubes of water.

Since 2001, he had worked on explaining properties in the damage of DNA, implicated as the source for chemical changes underlying the development of cancer. His work appeared in more than 65 publications, which in turn gathered more than 5,000 literature citations.

"Charles' insights into complex scientific problems, his devotion to rigor and his hard work were overshadowed only by his friendship, warmth and commitment to his colleagues," said Provost Gary Schuster.

At the Center for Computational Materials Science, Cleveland's research centered on the nature of materials, with an emphasis on the microscopic origins of chemical and physical behavior. He also managed and was responsible for the resources of the center, and facilitated the research of a number of faculty members and students.

"He carried the respect of his peers, faculty and students alike as a bright, original, helpful, kind and compassionate colleague, who—along with his own research activities—worked selflessly to promote and foster the works of others," Landman said.

Landman calls ironic that some of Cleveland's work was accepted for publication the day he received his cancer diagnosis.

During 17 months of treatment, which included 28 cycles of chemotherapy and a short course of radiation, Cleveland continued to work. He was treated by the MD Anderson Cancer Center in Houston and Georgia Cancer Specialists in Atlanta. In an effort to foster pancreatic cancer research, he donated his body to Johns Hopkins Hospital Pancreatic Center Rapid Tissue Donation program.

A memorial service was held Saturday, Feb. 2, at Sandy Springs Christian Church. He is survived by his wife, Sara; their two "swamp collies"; a cousin, Marion Bradford, and his wife, Janet Bradford, of Hendersonville, N.C., and a cousin, Beth Bradford of Rome, Ga.

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Library's Walters lends experience to digital registry

Robert Nesmith
Communications & Marketing

Library and Information Center

Director Tyler Walters has been helping to establish governance protocols for the internationally focused Global Digital Format Registry (GDFR), an organization seeking to future-proof digital archived files.

Spearheaded by the Harvard University Library, the GDFR is establishing an international protocol and database for creating and accessing information on digital file formats, so that future researchers will still have access to the files created today.

"It's a registry of technical information about digital formats of any and all kinds," said Walters, associate director for Technology and Resource Services. "For example, you look on the Internet (today) and you view a jpeg (image). This archive would house all the methods of how to create that jpeg, so that 100 years from now, the knowledge won't be lost." Another example Walters used is a researcher trying to open a 2003 Word document 50 years from now. "Over time, the information on how to create these files and images could be lost. We're ensuring that what we're doing today can be replicat-ed and accessed tomorrow."

The Registry started in 2006 with a grant to the Harvard Library from the Andrew W. Mellon Foundation. This effort has grown considerably, as more than 10 countries are represented. November's meeting—sponsored by the National Archives and Records Administration—was the first in which governance was discussed.

"Because the digital world is different, it stands that governance would be different," Walters said. "How do we govern something like this, with a lot of different governments and institutions coming together? How do we come together with no partner more important than the other? All the stakeholders need to be equal in this. The key element is building trust."

While the GDFR was spearheaded by the Harvard Library, other organizations and countries have started archiving this information on their own, prompting the need for collabora-tion and governance. Walters and the other attendees—which included representatives from institutions such as the Library of Congress, National Archives, the Sweden Statens Arkiv, the National Library of New Zealand and NASA—are working to establish a model and legal agreements between the participating groups. "We're investigating structures that are similar, seeing how they work," Walters said, citing the International Internet Preservation Consortium as an example.

Walters is involved because of his previous work in establishing the eT/Archive Cooperative, an interna-tional, not-university digital preservation consortium, which has strategic relationships with the Library of Congress. "For the last four years, I've helped to organize cooperatives (such as this)."

Although no dates have been set, Walters said he will participate in future meetings.

For more information...

Library & Information Center
www.library.gatech.edu

COMM Mission

Position Georgia Tech as the defining technological research university of the 21st century and to strengthen its brand identity within the Institute, the state of Georgia, and worldwide." said Associate Vice President James Fetig. "We have the capacity to apply communications and marketing capabilities in ways that will make measurable contributions to the future success of the Institute."

Communications & Marketing is passionate about improving communications at Georgia Tech. Toward this end, the unit has added or strengthened its expertise and capacity in internal and student communications, public relations, event planning, marketing communications and community outreach. Its comprehensive capabilities include:

- Marketing and communications planning
- Market research
- Brand management
- Public relations
- Creative design services, including graphic design, photography, editorial services, video production and Web development
- Campaign communications
- Internal communications
- Event planning
- Trademark and licensing management
- Community relations

"We hope to help all units on campus integrate their communications efforts toward the common goal of differentiating the excellence of Georgia Tech from all others. We will measure our success by your success," Fetig said.
Traffic cont’d from page 1
purposes, mostly.” Reynolds said detours are already in place. Drivers traveling I-85 southbound should exit at 17th Street and travel to Spring Street, while those traveling southbound on I-75 should exit at Northside Drive, turning left on 10th Street to travel into Midtown.

“We are rebuilding the bridge, so it is going to have to come all the way down, unlike the Fifth Street Bridge,” Reynolds said. One new ramp will carry southbound traffic from the interstates to 10th Street while the other will exit northbound lanes at 17th. “These two new exit ramps will help relieve some of the congestion, when finished.”

By mid-summer, GDOT will close the 14th Street bridge. Besides reconstruction, some of the $88.5 million project’s improvements include pedestrian-friendly sidewalks and dedicated turning lanes. May 2010 is the projected completion date.

At the same time, GDOT plans to resurface nearly five miles of the Interstate 75/85 Connector, starting in March with a scheduled completion date of November 2008. Lane closures will be limited to evenings and weekends, extending from the University of Georgia campus.

All of this means commuters and travelers in Midtown will be vying for space on fewer available roads. Some tips offered to businesses and those working in the area include altering travel times to

Afternoon traffic stacks up at the intersection of Techwood Drive and 10th Street. Starting Feb. 9, these drivers will need to find another route.

the Midtown area, carpooling or finding alternate routes of transportation. Reynolds said the GDOT is working with the city of Atlanta to synchronize traffic signals for roads around the construction.

“It’s going to be an inconvenience,” Reynolds said. “But after the first two weeks, things will calm down as people get used to it.”

China: cont’d from page 1
Georgia Tech has been gathering the high-tech indicators since the mid-1990s, when the concern was which country would be the “next Japan” as a competitor to the United States of America in the manufacturing sector. The current “HTI-2007” information was gathered for use in the NSF’s biennial report, “Science and Engineering Indicators,” the most recent of which was released Jan. 15.

Georgia Tech’s “High Tech Indicators” study ranks 33 nations relative to one another on “technological standing,” an output factor that indicates each nation’s presence in exporting high-tech products. Four major input factors help build future technological standing: national orientation; technological orientation; sociocultural infra-structure, productive capacity, and technological leadership. Each of the indicators is based on a combination of statistical data and expert opinions.

A chart showing change in the technological standing of the 33 nations is dominated by one feature—a long and continuous upward line representing China’s move to world technological leadership over the past 15 years. The 2007 statistics show China with a technological standing of 82.8, compared to 76.1 for the United States, 66.8 for Germany and 66.0 for Japan. Just 11 years ago, China’s score was only 22.5. The United States peaked in 1999 with a score of 95.4.

“China has really changed the world economic landscape in a real sense that any kind of level- ing off is occurring.”

For more information...
Georgia Department of Transportation
www.dot.state.ga.us
Commuting solutions
www.CleanAirCampaign.com
Midtown Alliance
www.14thStreetBridge.com

WWW.WHISTLE.GATECH.EDU
February 4, 2008 | 3

IN BRIEF:

Four named AIMBE Fellows

The American Institute for Medical and Biological Engineering (AIMBE) named four College of Engineering faculty members as fellows. AIMBE Fellows are chosen for their contributions to teaching, research and innovation.

Biomedical Engineering Assistant Professor Julia E. Babensee, Chemical and Biomolecular Engineering Professor Andreas Bommarcino, Electrical and Computer Engineering Associate Professor Robert J. Butera and Biomedical Engineering Regents’ Professor Cheng Zhu will be inducted at The Global Impact of Medical and Biological Engineering Feb. 20–22.

Coyle joins ECE faculty

Ed Coyle, a 25-year faculty member at Purdue University, was named the Arbutus Chair in Distributed Engineering Education in the School of Electrical and Computer Engineering.

He received his bachelor’s in electrical engineering from Princeton University in 1980 and 1982, respectively. His research interests include computer and sensor networks, signal and image processing, and engineering education.

Coyle is the director of the Arbutus Center for Distributed Engineering Education and a Georgia Research Alliance Eminent Scholar. For more information, visit www.ece.gatech.edu.

Management makes ‘Global 100’

Tech’s College of Management placed 69th on the list of “Global 100” MBA programs that effectively incorporate social issues and sustain-ability into both class and research initiatives.

The Aspen Institute Center for Business Education compiles the Beyond Grey Pinstripes “Global 100,” a biennial ranking of business schools. For more information, visit www.mgt.gatech.edu.

Never too late to plan

During February and March, individual counsel- ing sessions will be open for faculty and staff members to meet with TUA-CREF consultants.

In March, the Office of Human Resources presents a series of retirement presentations to address Social Security, Institute retirement plans, Teachers Retirement System benefits, and Optional Retirement Plans.

For more information and appointment dates, visit www.ohr.gatech.edu.

Proposals sought

The National Science Foundation seeks propos- als for its Integrative Graduate Education and Research Traineeship (IGERT) program, which seeks to enhance the interdisciplinary back- grounds of U.S. doctorate-holding scientists and engineers who pursue careers in research and education.

Both IGERT Traineeship and IGERT Resource Center proposals are sought, with a deadline of Feb. 29 to the Tech faculty committee. For more information, visit www.nsf.gov. Submit proposals to kathy.garcia@carnegie.gatech.edu.

ILRC update

The Institute has amended its request of $50 million from the state Legislature for the Innovative Learning Resource Center to $10 million for Fiscal Year 2009. During the week of Jan. 28, President Wayne Clough met with lead- ers of the State House of Representatives to discuss the request and ask for their support.
C A M P U S E V E N T S

Arts & Culture
Feb. 5 The School of Literature, Communication, and Culture’s Science Fiction Film Series continues, with "THX 1138" (1971), a dystopian futuristic tale from "Star Wars" creator George Lucas. For more information, visit www.lcc.gatech.edu.

Feb. 7 Associate Director of Poetry@Tech Travis Denton introduces the McEvoy Poets, Laure-Ann Bosseelaar, Bruce McEvoy and Opal Moore, from 4:30 to 6 p.m. in the Clayé Theatre, at the Student Success Center. For more information, visit www.poetry.gatech.edu.

Feb. 12 Sonic Generator, the Institute’s resident chamber music ensemble, will hold a performance at the Georgia Tech Alumni House at 8 p.m. For more information, visit www.sonicgenerator.gatech.edu.

Feb. 15 The Ferst Center for the Arts presents blues-based pianist McCoy Tyner and his trio with choreographer and tap dancer Savion Glover. Tickets are $40 and $50, and subscription-based tickets are $52 and $40. For more information, visit www.ferstcenter.gatech.edu.

Feb. 16 Chemical and Biomolecular Engineering Associate Professor Pete Ludovice hosts “Pocket Protectors and Other Fashion Statements,” at 8:30 p.m. at the Relapse Theatre on 14th Street. The event is sponsored by the PMT Alumni Club of Atlanta. For more information, visit www.drpetecomedy.com.

Conferences & Lectures
Feb. 6 The Innovations in Economic Development Forum welcomes Macquarie Intelligent Communications’ Jarrett Ring, who presents “Treasure Hunting through Geocaching—is There an Economic Development Opportunity?” from noon to 2 p.m. in the Hodges Conference Room, at the Centennial Buildings@Tech Square. For more information, visit www.cherry.gatech.edu.

Jeff Mango, president of the Georgia/Alabama region of the Georgia Tech Alumni Wireless, will be featured at the College of Management’s IMPACT Speaker Series, from 4:30 to 5:30 p.m. in the LeCraw Auditorium of the Management Building. For more information, visit www.mgt.gatech.edu.

University of California-Berkeley researcher Ignacio Taboada presents "High Energy Neutrinos from Gamma-Ray Bursts with IceCube," at 3 p.m. in Howey Physics Lecture Room 5. For more information, visit www.particles.gatech.edu.

Feb. 7 Dennis Bushnell, chief scientist at NASA’s Langley Research Center, presents “Future of Energetics,” at 11 a.m. in room 442 of the Guggenheim Building. For more information, visit www.ac.ece.gatech.edu.

Feb. 9 The College of Architecture presents its 2008 Dean’s Symposium, “The Duomo of Santa Maria Del Fiore: The Legacy of Its Construction,” from 8:30 a.m. to 5 p.m. in the Architecture Auditorium. The symposium will be moderated by Associate Dean Sabir Shah. For more information, visit www.coa.gatech.edu.

Faculty/Staff Development Ongoing The Office of Organizational Development offers a Web-based tutorial on the basics of using a state purchasing card (p-card). To register, visit www.trainsweb.gatech.edu.

Technomasters—Tech’s chapter of Toastmasters International—meets every Thursday at 7:30 a.m. in room 102 of the MRC. For more information, visit www.technomasters.gatech.edu.

The Georgia Tech Faculty Women’s Club offers scholarships for undergraduate students who are children of faculty members. Scholarship amounts range from $500 to $1,500. Applications are due by March 1. For more information, visit www.gtfcw.gatech.edu.

The Office of Organizational Development is offering the Emergency Preparedness Certificate, which consists of several smaller courses, including “Fire Safety,” “Facilities Hazard Training” and “Basic First Aid/CPR/AED.” For more information on scheduling, visit www.orgdev.gatech.edu.

The Center for the Enhancement of Teaching and Learning is accepting nominations for three awards: The CETL/BP Junior Faculty Teaching Excellence Award, the CETL/BP Outstanding TA Award and the Education Faculty Award. Nominations are due Feb. 4. For more information, visit www.cetl.gatech.edu.

Through Feb. 5 The Honors Program is seeking both faculty members and proposals for Special Topics courses to be offered for the fall 2008 semester. Courses will engage students in exploring fresh questions with an out a specific set of requirements. Interested faculty members should secure tentative departmental approval. For more information, visit www.honorsprogram.gatech.edu.

Feb. 7 The Office of Organizational Development offers the Brown Bag course: “An Introduction to Intercultural Communication,” from 11:30 a.m. to 1 p.m. in room 308 of the Savant Building. For more information, visit www.orgdev.gatech.edu.

Marketing Director Katherine Bows, Student Communications Officer Sarah Mallory, and Event Planner Laura Staub of Communications & Marketing present “The Georgia Tech Image and Marketing the Institute,” from 6 to 8 p.m. in the Stein House study lounge of the 4th Street Apartments. For more information, visit www.wst.gatech.edu.

Miscellaneous
Feb. 11 Playwright and “The Vagina Monologues” co-founder Eve Ensler will read from her new book “The Good Body,” at 3:30 and 7 p.m. in the Richards Gallery of the Ferst Center for the Arts. For more information, visit www.womenscenter.gatech.edu.

Feb. 12 School of Public Policy Assistant Professor Jennifer Clark will sign copies of her latest book, “Remaking Regional Economies: Power, Labor and Firm Strategies in the Knowledge Economy,” from 5:30 to 7:30 p.m., at the Tech Bookstore. For more information, visit www.gatech.bncollege.com.

Classifieds

AUTOMOBILES
2005 Toyota Highlander V6 LE, 4WD, leather seats, moon roof, tow pkg., 6-disc CD player, running boards, good condition, 62,000 miles. $18,500.OBO. 404-510-6085.

1999 Toyota Camry LE. Leather seats, good condition, 63,000 miles. $6,000.OBO. Call 404-510-6085.

93 Jeep Cherokee, 2.5L, automatic, 4-cyl. Alpine stereo, exc. cond. All records since new. $1,950. E-mail rusty@embry@gt.gatech.edu or call 404-948-2167.

REAL ESTATE/Rental
3BR/1.5BA house for rent in Decatur area. 3 minutes to Decatur Square. W/D hook ups. Quiet, private neighborhood. Recently rehabbed. $600/month. E-mail thania.cante@carnegie.gatech.edu or call (404) 385-4027.

3BR/1.5BA house in East Atlanta for rent. Newly renovated in quiet neighborhood with fenced back yard. $1,150 + deposit. Call 404-419-6674.

3BR/2BA peaceful, furnished, water-front cottage along the southern Outer Banks, NC. $150/day, 3-day min. Pets OK. Boat slip. More info: www.readytoescape.com. E-mail just.ready@gatech.edu.

2BR/2.5BA townhome for rent. Cross Creek colonies. Small enclosed patio, swim, golf and tennis privileges. Great location for Tech. $1,150/month. Call Caroline at 898-2394.

1BR/1BA condo overlooking the Smokies, kitchen, living room w/ stone fireplace and balcony. 24-hour security, hiking trails, outdoor grills, pool & spa. Near Figen Forge, Dollywood & Sevierville. $48,900. All appliances, furniture, appliances incl. E-mail realtorjackie@comcast.net for pics or call 678-489-4149.

1BR/1BA apt. in Home Park neighborhood available for Feb. 1. Off-street parking. APT security, lots of storage space, washer/dryer. central heat/AC. Perfect for one or a couple. No pets. $675 + deposit. 404-542-4618.

3BR/2BA renovated ranch. New bathrooms, appliances, includes W/D. $1,200/month, utilities and yard maintenance included. 2 fenced back yard with a slate patio. Carport. Pets OK. $4525.

5 minutes from East Atlanta Village and Decatur. E-mail amber.johnson0965@yahoo.com or call 404-822-9618. Flex avail.

Sports/Fitness/Recreation

2003 Honda CDR 954. Low miles, exc. cond. Includes 2 helmets, jacket, gloves, security chain and cover. $7,500.OBO. Pics available. E-mail marluri.suarez@iata.gatech.edu.

Furniture/Appliances
Futon w/ wood frame and black cushion. Converts to full-size bed. Good cond. $150. E-mail mora.hanlon@alumni.gatech.edu.

Brayhill solid pine entertainment center, $150; 1 crib, ex. condition, $75; 2 FOS systems, $250 each; Mitsubishi 61-in. HDTV, $700. Pic avail. E-mail cathy@sunflower.com.

MISCELLANEOUS
In-home childcare available in Marietta for children 6 wks. to 3 yrs. Ex. references available. Call Rym, 678-560-4459.

Submissions appear in the order in which they are received. E-mail ads to edit@optic.gatech.edu.