Board of Regents Chair Richard Tucker and University System of Georgia Chancellor Erroll B. Davis Jr. have announced the name of the finalist for the Georgia Institute of Technology presidency, G.P. “Bud” Peterson.

Peterson currently serves as chancellor of the University of Colorado at Boulder, a position he has held since 2006. The university has 30,000 students, annual sponsored research of approximately $280 million, and an annual operating budget in excess of $1 billion.

He is credited with stepping into the University of Colorado at Boulder chancellorship at a crucial time in the institution’s history and positively correcting its course. The university had endured a reputation-damaging football scandal and the Ward Churchill research misconduct controversy prior to Peterson’s arrival in mid-2006. He has been lauded for successfully leading the university beyond these harmful episodes and developing a shared vision—the university’s “Flagship 2030 Strategic Plan”—that will carry the university forward into the next two decades.

Peterson earned bachelor of science degrees in mechanical engineering and mathematics from Kansas State University, Manhattan. He earned a master of science degree in mechanical engineering from Kansas State University and a Ph.D. in the same discipline from Texas A&M University, College Station. He was a “walk on” receiver on the Kansas State football team who earned a scholarship and started at the position for three varsity seasons.

Peterson’s post-Ph.D. academic career has been spent at three institutions, counting a one-year assignment with the National Science Foundation in 1993-94. He worked for 19 years at Texas A&M, where he served as head of the Department of Mechanical Engineering for three years (1993-96) and executive associate dean of engineering for four years (1996-2000). Peterson also had the title of associate vice chancellor for the Texas A&M University System from 1996-2000.

He was recruited to Rensselaer Polytechnic Institute in Troy, New York, as provost in July 2000. Peterson served in this capacity until 2006 when he accepted the position of chancellor at the University of Colorado at Boulder.

Peterson also has worked as a research scientist for the NASA Johnson Space Center in Houston, and in the private sector for Black & Veatch Consulting Engineers in Kansas City, Mo. He taught mathematics and science in several Kansas high schools early in his career.

Peterson is widely published in the field of phase change heat transfer and is a fellow of both the American Society of Mechanical Engineers (ASME) and the American Institute of Aeronautics and Astronautics (AIAA). He was recently appointed to the National Science Board.

Peterson and his wife, Val, have four adult children.

The Board of Regents expects to name the next president of Georgia Tech at a future meeting.

For more information:
Board of Regents
www.usg.edu
Presidential Search Web site
www.gatech.edu/president/search
In this poppy seed-filled trackway, Georgia Tech researchers conducted controlled experiments to study why robots have difficulty traversing sand and other granular media like dirt, rubble or slippery piles of leaves.

Chen Li built a trackway for SandBot to run along. The trackway consists of an 8-foot-long poppy seed-filled container with tiny holes in the bottom through which air can be blown. The air pulses elevate the granules and cause them to settle into a loosely packed solid state, allowing the researchers to closely control the density of the material.

“We used poppy seeds as the granular material because they were large enough not to get into the SandBot motors but light enough to be manipulated with our air blowers,” explained Goldman.

The researchers discovered that the problem was the rotational motion of the robot’s limbs. The SandBot moves its limbs in an alternating tripod gait and during a rotation, each limb moves fast while it is in the air and slowly while it is in the ground. The researchers found that the robot could walk across the sand quickly—at a speed of one body length per second—if the rotation frequency was fixed and three parameters were adjusted: the durations of the slow and fast phases and the angle at which the limb changed from slow to fast.

“A systematic study of the motion then revealed that changes in volume fraction of less than 1 percent resulted in either rapid motion or slower swimming,” added Goldman. “We saw similar sensitivity when we changed the limb rotation frequency.”

For more information:
School of Physics
www.physics.gatech.edu

Research

New study helps robots move on sandy landscapes

ABBY VOGEL
RESEARCH NEWS

Today’s advanced mobile robots explore complex terrains across the globe and even on Mars, but have difficulty traversing sand and other granular media like dirt, rubble or slippery piles of leaves.

Tickets are $15 and $25, $12 and $20 with a subscription.
www.ferscenter.gatech.edu

EVENTS

CONFERENCES/ LECTURES

February 18
College of Architecture Professors Betty Dowling, Robert M. Craig, George B. Johnston and Dean Alan Balfour present “A Century of Architectural Education at Georgia Tech,” from 6 to 8 p.m., in the College of Architecture Auditorium. www.coa.gatech.edu

February 19
School of Public Policy Associate Professor Douglas Zibin and Senior Research Scientist Paul M.A. Baker present the ICT Research Roundtable “Country-Level Variation in Open Source Software Policy and Environment,” from 12:30 to 1:30 p.m. in the Piedmont Room of the Student Center Commons. www.caep.gatech.edu

University of California, Santa Barbara, Professor Joan-Emma Shea presents “Simulations of Protein Aggregation,” starting at 11 a.m. in room G011 of the Molecular Science and Engineering building. www.chemistry.gatech.edu

February 19–20
The 2009 Humanitarian Logistics Conference, dedicated to planning, preparing and responding to disasters, will be held at the Global Learning and Conference Center. www2.isye.gatech.edu/humlog09

February 23
Alumni and astronaut Eric Boe will speak at 11 a.m. in the Student Center Theater. Boe was among seven astronauts selected by NASA in 2007. He flew on STS-126, serving as a flight engineer and commander of the Space Shuttle Atlantis on mission 133.

February 24
George Mason University Professor David M. Hart presents “Immigration and High-tech Entrepreneurship in the U.S.,” starting at 11 a.m. in the Piedmont Room of the Student Center Commons. www.caep.gatech.edu

University of Michigan Professor Brian Dowling presents “Keeping the Banana Suspended in the Jell-O,” from 3 to 4 p.m. in room 163 of the J. Enske Love Manufacturing building. www.matecouncil.gatech.edu

February 25
Spelman College Professor Johnella Butler and Beverly Guy-Shelford, director of the Women’s Research and Resource Center at Spelman, present “Transforming the Curriculum: 20th Century Imperatives,” from 3 to 4 p.m. in the Clary Theatre at the Student Center Commons. The lecture is sponsored by the Ivan Allen College, as part of Black History Month. www.ian.gatech.edu

February 26
The 2009 Korea Conference will be held from 1 to 4:45 p.m. in room 1116 of the Klaus Advanced Computing Institute.

EVENTS continues on page 3

GEORGIA TECH ONLINE

Visit www.gatech.edu for the latest information involving the campus community. Learn about exciting research at Tech, and read economic reports from Institute experts. The Georgia Tech homepage and the News Room will keep you up-to-date regarding the latest stories, events and speakers on campus.

View the latest Institute photos and videos in Photos@Tech and Videos@Tech, and read the varied voices of Tech’s diverse students, faculty and staff featured in Blogs@Tech. A host of other resources also are available online, including an updated campus calendar and dedicated faculty and staff resources available within Tech For You.

Nanogenerators produce electricity from running rodents

Could hamsters help solve the world’s energy crisis? Probably not, but a hamster wearing a power-generating jacket is doing its own small part to provide a new and renewable source of electricity.

And using the same nanotechnology, Georgia Tech researchers have also generated electrical current from a tapping finger—moving the users of BlackBerry devices, cell phones and other handhelds one step closer to powering them with their own typing.

www.mse.gatech.edu

Biologists find genes in fish responsible for formation of teeth

Georgia Tech scientists have identified a set of genes that they believe were responsible for the formation of teeth in the throat of the first jawless fish half a billion years ago and are still responsible for the development of teeth in the jaws of all animals today.

The research appears online in the journal PLoS Biology.

“We have identified a core set of genes that probably made the first tooth in these ancient vertebrates and still governs the formation of teeth in modern vertebrates including humans. So it’s likely that every tooth made throughout the evolution of vertebrates has used this core set of genes,” said Gareth Fraser, postdoctoral fellow in the School of Biology.

www.biology.gatech.edu

New technique predicts breast cancer chemotherapy effectiveness

Chemotherapy is an integral part of modern cancer treatment, but it’s not always effective. Successful chemotherapy depends on the ability of anticancer drugs to escape from the bloodstream through the leaky blood vessels that often surround tumors.

“We developed a quantitative way to measure the leakiness of the blood vessels, which is directly linked to the amount of drug that gets to the cancer and in turn determines effectiveness,” said Ravi Bellamkonda, a professor in the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University.
Global cooperation
American and Chinese universities announce groundbreaking joint Ph.D.

Two highly respected biomedical engineering programs in the United States and China are breaking new ground in international academia as they begin to enroll the inaugural class of a new joint doctoral program.

Members of the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University traveled to Beijing last fall to finalize the program details with the Department of Biomedical Engineering at Peking University (PKU).

“To my knowledge, this joint program is the first of its type showcasing international cooperation in education between China and the [United States]. Forming a partnership will enhance our research and education in general and will provide a great opportunity for our BME students,” said Jianhua Lin, PKU Provost. Representatives from Georgia Tech, Emory and PKU have been laying the groundwork for this program during the past five years. Faculty collaborations have been funded by seed grants from the Coulter Foundation and, as a result, several new research projects are already under way.

“Our partnership with PKU is a once-in-a-lifetime opportunity for us to create a new paradigm for international biomedical engineering education and research,” said Professor Larry McIntire, Coulter Department chair. “The infrastructure being created within our departments will allow our students and faculty to learn how to conduct research and business in a global arena and will prepare them to become international leaders in 21st century biomedical engineering industry and academia.”

Students can apply to the program through either PKU or the Department of Biomedical Engineering at Tech and Emory. Primary classes and research will take place on the home campus. Students will also spend at least one year taking classes and participating in research on the secondary campus. Classes will be taught in English, and a single dissertation will satisfy the thesis requirements of all three institutions.

For more information:
Department of Biomedical Engineering at Georgia Tech and Emory University
www.bme.gatech.edu

In Brief . . .

Crawford memorial service to be held on campus
A memorial service celebrating the life of Helen D. Crawford will be held at 2 p.m. in the H2O Cafe of the Campus Recreational Center. The widow of Vernon D. Crawford, she was named an honorary alumna in 1984. For more information, contact Lynn Durham (lynn.durham@caregine.gatech.edu).

Green, Bair recognized by STLE
The Society of Tribologists and Lubrication Engineers (STLE) named Woodruff School of Mechanical Engineering Professor Ithzak Green the recipient of the 2009 Alfred E. Hunt Memorial Award for his paper “The Thermelastic Behavior of Thrust Washer Bearings Considering Mixed Lubrication.”

Principal Research Engineer Scott Bair was awarded the 2009 International Award from STLE, the Society’s highest technical honor. Bair recognized by STLE

Honors proposals due
The Honors Program requests proposals for Special Topics courses to be offered fall semester 2009. Topics carry no specific requirements, but the program seeks to challenge a small group of students to explore questions in partnership with instructors. Faculty members interested in submitting a proposal should receive tentative departmental approval and then submit proposals to Monica Halla (monica.halka@gatech.edu) by Feb. 20.

www.honorsprogram.gatech.edu

Labor for a good cause
The GT Crew is offering Rent-a-Rower. Its members will perform manual labor to raise money to restore the trailer and fleet of boats that were damaged in an accident last semester. Volunteers are available all day Feb. 21 and 22. Other dates are available upon request. E-mail fundraising@gtechrew.com for more information or to register.

www.gtechrew.com/fundraising

Excellence observed
Tech celebrates engineering
The Institute celebrates National Engineers Week Feb. 15–21 followed by Georgia Engineers Week Feb. 22–28.

With the largest engineering program in the nation, Georgia Tech has remained a leader in the discipline. U.S. News & World Report recently ranked both the undergraduate and graduate engineering programs fourth in the nation. In addition, most of Tech’s graduate and undergraduate programs rank in the top 10 with Industrial and Systems Engineering ranking number one.

Georgia Tech also plays a major role in diversifying engineering. Diverse Issues in Higher Education ranks the Institute as the No. 1 producer of African American engineers while Hispanic Business ranks the Institute as the top engineering school for Hispanics. In addition, Tech was the first in the nation to enroll and graduate female engineers.

The annual observance was initiated in 1951 by the National Society of Professional Engineers.

For more information:
College of Engineering
www.coe.gatech.edu
National Engineers Week Foundation
www.eeweek.org
Georgia Engineers Week
www.engineersweek.com

Brian Stone discusses his research on climate change, hybrid vehicles and smart growth with CNN on the roof of the High Museum of Art in Atlanta.

Stone says he believes it would be possible for virtually all cars on the roads by 2050 to be hybrid electric vehicles, assuming the costs of these vehicles become more competitive with conventional engine technologies. Today’s hybrid electric vehicles can achieve 40 miles to the gallon and higher.

However, even the full hybridization of the national vehicle fleet by 2050 would not meet the carbon dioxide targets identified through the Kyoto Protocol, an international climate change agreement that the United States has signed but not yet ratified. To meet these global targets, carbon emissions from all sectors in the country would need to return to 1990 levels or lower. According to Stone’s work, meeting this goal in the transportation sector would require a combination of technological improvements and higher density land use patterns in cities.

“If we can help cities to grow in more compact ways, what we call smart growth, it will help reduce emissions even further by allowing people to travel less often, travel shorter distances when they do travel and take advantage of public transit,” said Stone.

The 11 metropolitan regions that were studied include Madison, Wis.; Columbus, Ohio; Indianapolis, Ind.; Minneapolis-St. Paul, Minn.; Cincinnati, Ohio; Grand Rapids, Mich.; Chicago, Ill.; Detroit, Mich.; and Dayton, Ohio. Additionally, Stone, Tracey Holloway, Scot Spak and Adam Mednick also authored the study.

For more information:
City and Regional Planning
www.planning.gatech.edu

GROWTH, continued from page 1

www.whistle.gatech.edu
Loose composure
Piano Etudes Web application allows for audience participation

MATTHEW NAGEL
COMMUNICATIONS & MARKETING

Music Professor Jason Freeman created Piano Etudes, a Web-based application that allows audiences to participate in the composition process.

According to Freeman, his Piano Etudes are not like traditional etudes that you might hear a musician play in a concert. In Freeman’s Piano Etudes, everyone is involved in the process of composing the musical piece.

“You can go and listen to a musician play at the concert, but you can also get involved by going to the companion Web site,” said Freeman. “On the Web site you’re able to look at musical fragments, the little building blocks that make up the Etudes, and rearrange them however you want.”

According to Freeman, by rearranging the fragments you’re able to create your own unique version of the piece. Once you’ve created your own version, the Web site allows you to share the piece with friends on many social networking sites.

Piano Etudes Web application allows for audience participation

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