Inside:

THE WHISTLE

FACULTY/STAFF NEWSPAPER VOLUME 29, NUMBER 10 • MARCH 8, 2004 THE GEORGIA INSTITUTE OF TECHNOLOGY

photo by Scott Meuleners

Last stand...

The Georgia Tech campus proved to be a popular stop for rallying support behind Democratic presidential hopefuls this election season. With both retired Gen. Wesley Clark and Rep. Dennis Kucinich already having stumped here, Sen. John Edwards met with hundreds of boosters at the Georgia Tech Hotel and Conference Center on the evening of the Super Tuesday primaries last week.

Edwards proved to be the party's second choice, however. He ended his campaign the following day, having accumulated a total of 506 delegates.

Recognizing speech: communicating with computers

John Toon
Research News

When the motion picture "2001: A Space Odyssey" opened in 1968, a conversation between an astronaut and a computer named HAL seemed plausible for the year 2001 — then more than three decades in the future.

But as any user of today's automatic speech recognition technology can attest, that future hasn't quite arrived yet.

As a scientist at AT&T Bell Labs, B.H. "Fred" Juang helped create the current generation of speech recognition technology that routinely handles "operator-assisted" calls and a host of other simple tasks, including accessing credit card information. Proud of that pioneering work, Juang today is working to help create the next generation of speech technology — one that would facilitate natural communication between humans and machines.

Now a professor in the School of Electrical and Computer Engineering, Juang presented his vision of next-generation speech systems last month at the annual meeting of the American Association for the Advancement of Science (AAAS).

"If we want to communicate with a machine as we would with a human, the basic assumptions underlying today's automated speech recognition

Speech continued, page 3

President Clough leads national economic growth initiative

Sarah Eby-Ebersole
Institute Communications and Public Affairs

The U.S. Council on Competitiveness launched its National Innovation Initiative (NII) on February 26-27 at Georgia Tech's Global Learning and Conference Center.

The goal of the NII, co-chaired by President Wayne Clough and IBM Chairman and CEO Sam Palmisano, is to develop a national action-oriented agenda designed to create a fertile economic environment for innovation.

"The United States has long enjoyed a competitive economic edge," Clough explained, "but we must now compete in a global economy in which competitors like China and India are emerging to challenge us. Our success will be based on our ability to create innovative products and services at the highest end of the economic spectrum."

The focus of innovation is on ideas, collaboration and expertise, according to Clough and Palmisano. Innovation produces the concepts and the context that put inventions to maximum use. It often emerges at the intersection of technology with business and the marketplace, applying insight to new technology to generate new solutions that address market needs.

photo by Nicole Cappello

As co-chair of the Principals Committee, President Clough offered a vision and structure for developing national policy recommendations.

History demonstrates that there are times, places and conditions in which innovation flourishes. The NII represents an effort to understand and harness the factors and dynamics that promote innovation, enabling the United States to move to the next rung on the economic ladder.

Despite snowfall that morning, the initial NII meeting drew 125 national experts from academia, industry, government and economic think tanks. They were organized into seven working groups, each of which was assigned a specific aspect of innovation, ranging from research to venture capital funding, from innovation markets to the skills that innovation requires. Provost Jean-Lou Chameau is chairing the working group on innovation frontiers, and a half-dozen Tech professors are participants in the groups.

During the remainder of 2004, the seven groups will meet both physically and virtually using collaborative web-based software developed by IBM to share data, conduct discussions and hammer out recommendations for action. Their collective efforts will be presented at a national summit on innovation in December, which will be followed by a written report.

"QUOTE-UNQUOTE"

"It doesn't sound as bad as SUVs, but we really should be going in the other direction. All these little things add up. How much is east Asia going to add? The rest of the world?"
—Robert Dickinson, professor in the School of Earth and Atmospheric Sciences, commenting on proposals to build almost 100 new coal-fired electric plants in the United States, which would boost the world's annual carbon-dioxide emissions one-tenth of 1 percent. (Christian Science Monitor)

"Knowing that the performers we admire still appear on stage, even though most of us do not attend their performances, allows us to believe that what we see and hear on television and recordings is the expression of a real person."
—Philip Auslander, a professor in the School of Literature, Communication and Culture, in an editorial on the role of media in modern politics. (Newsday)

Parent makes commitment to benefit women students

Marla Edwards
Institute Communications and Public Affairs

As the single parent of a Georgia Tech student, Beverly Kitaoka knows firsthand the importance of supporting women in technology fields. Recently, she made a $50,000 financial commitment to the Institute in support of the Women's Resource Center and to establish an endowed scholarship for women in the College of Computing.

Kitaoka is the mother of two daughters: Michelle, a junior in the College of Computing, and Tiffany, an engineering student at the University of Florida. A senior vice president with Science Applications International Corporation (SAIC), she was the first woman to become a senior executive in a corporation that produces simulation systems for the military.

She worked as an engineer before getting into management with SAIC and holds a bachelor's degree in mathematics and a master's in computers, information and control engineering from the University of Michigan.

"I think it's something that's so important for women," she said. "It's a challenging world because there are so few women in the field."

Yvette Upton, assistant dean of students and director of the Women's Resource Center, said Kitaoka's gift will be a great boost. "This will help us make an impact on the lives of women students and keep them here at Tech. Not only is Beverly Kitaoka a generous parent, but she's also a wonderful role model for young women in technology."

Kitaoka's commitment also will endow a scholarship for women in computing, and she will join the College's Diversity Advisory Board. "We were so pleased about Ms. Kitaoka's commitment to women's scholarships and about her decision to give her time to the College. Her expertise will be invaluable to our efforts to address the under-representation of females and try to discover ways that we can attract and retain women students," said Maureen Biggers, the College's assistant dean for diversity and special programs.

Beverly Kitaoka, center, with daughters Michelle and Tiffany

The professions are still more geared to men, who have help at home, a built-in network and plenty of mentors available, Kitaoka said. "We really need more women in these roles. I would like for things to be better for my daughters. I'd like them to not have some of the struggles and frustrations and feelings of being ignored and held back that I've had."

With all of her success in business and public service, Kitaoka said being a mother to her two daughters has been first priority. "That's probably the most important job I've ever done and the one that makes me the most proud," she said.

Meanwhile, she hopes her support of education for women in technology and her practice of mentoring many women in the field will clear the way for her daughters. "Today, we're actually losing a lot of women from technology and science," she said.

For more information...

Women @ College of Computing
www.cc.gatech.edu/people/women

Women's Resource Center
womenscenter.gatech.edu

Georgia Tech

THE WHISTLE

Editor: Michael Hagearty

Published by Institute Communications and Public Affairs.

Publication is weekly throughout the academic year and biweekly throughout the summer.

Archived issues of The Whistle can be accessed electronically through the Georgia Tech Web page, or directly at **www.whistle.gatech.edu**.

Calendar submissions e-mailed to michael.hagearty@icpa.gatech.edu, or faxed to Michael at 404-894-7214 must be sent at least 10 days prior to desired publication date. Classified submissions are on a first come, first serve basis. For more information, call 404-894-8324.

Copies/5,900

Institute Communications and Public Affairs
Wardlaw Center
177 North Avenue
Atlanta, Georgia 30332-0181

Georgia Tech is a unit of the University System of Georgia.

From dorms to Daytona: Tech joins the pro racing circuit

David Terraso
Institute Communications and Public Affairs

photos by Nancy Huang

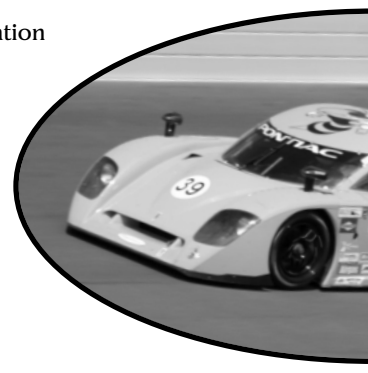
Silverstone Racing unveiled a new car and a new partnership with Georgia Tech at the Grand Prix of Miami at Homestead-Miami Speedway last month. The car, a number 39 Crawford-manufactured Daytona Prototype, will be painted Georgia Tech colors — gold, white and blue — and will sport the logo of the Georgia Institute of Technology, alma mater of car owner Lawrence P. Huang.

Joining Silverstone Racing will be three new members from GT Motorsports, Tech's student racing team, and a marketing team made up of students from the College of Management, the business school at Georgia Tech.

"I'm amazed at the level of sophistication the GT Motorsports cars achieve, especially in the area of software systems. The students from GT Motorsports bring a tremendous amount of technological expertise to the team," said Huang.

The Georgia Tech car will compete in each of the races of the 2004 Grand American Rolex Sports Car Series, appearing at speedways such as Watkins Glen, Daytona International Speedway and Californ
speeds up to 190 mile
flat-bottomed, closed-c
500-horsepower, V-8 e
driving with Chris Hall,
car driver who is also t
Silverstone Racing. The
place in Miami. The ne
International Raceway

GT Motorsports vete



2004 Black Leadership Conference

photos by Nicole Cappello

The first annual Black Leadership Conference, held last month in the Georgia Tech Student Center, brought together students, faculty and staff in a focused effort to identify and develop skill sets for lifelong success.

Sponsored by the African American Student Union, the two-day event featured workshops on topics ranging from graduate school to community service to advancing in the corporate world.

Above left, keynote speaker Michael Russell, CEO of H.J. Russell & Company — one of the country's largest minority-owned enterprises — gave a personal history of how his father started a business 50 years ago that is now helping to shape city skylines.

Later in the day, Kasi David, a graduate student in materials science and engineering, and Esinam Glakpe, an undergraduate in chemical engineering, led a panel discussion consisting of former and current campus leaders, discussing the importance of getting involved on campus and offering strategies for succeeding in non-black student organizations.

Miya Smith, right, an industrial engineering undergraduate, also participated in the campus involvement panel discussion.

Speech, cont'd from page 1

systems are wrong," he said. "To have real human-machine communication, the machine must be able to detect the intention of the speaker. That's much more difficult than what the existing technology was designed to do: convert speech to text."

To make the speech recognition problem solvable in the 1970s, researchers made certain assumptions. For instance, they assumed that all the sounds coming to the recognizer would be human speech — from just one speaker. They also assumed the output would be text, and that recognizer algorithms could acceptably match speech signals to the "closest" word in a stored database.

But in the real world, human speech mixes with noise — which may include the speech of another person. Speaking pace varies, and people group words in unpredictable ways while peppering their conversations with "ums" and "ahs."

The next generation of speech recognizers, he says, will have to go beyond conversion to text.

"Unlike the existing technology, which gives you the closest word in a database, the new framework will consist of information detectors that provide information the machine can digest," he said. "This will involve a fusion of information, beyond the simple words."

And like humans, it will occasionally have to say "I don't understand" if it has doubts about what it's heard. Like humans, it will also be able to learn from its experiences to communicate better in the future.

"We need to reformulate the problem in a different way and we will need some new mathematical tools to tackle the much broader problem of human-to-machine and machine-to-human speech," Juang said. "We are just at the beginning of developing this new paradigm, but I would say that we have perhaps 60 percent of the framework we need. There are some interesting steps and challenges ahead, but this is not an insurmountable problem."

Development of the new system will proceed in parallel at multiple institutions, each contributing its own skills and fitting them into the overall framework. Researchers will also benefit from new understanding of human cognition and linguistics that will allow machines to act more like humans.

Juang senses increasing agreement among researchers about the need to produce a new generation of speech communications able to do more than help route long-distance calls and accept credit card numbers.

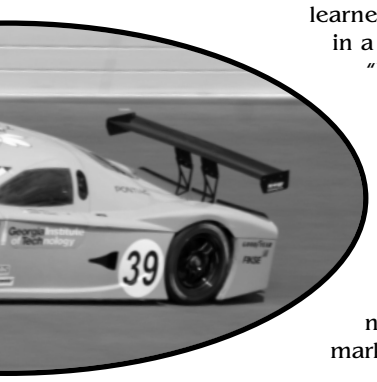
"With a new system, we will be able to automate many things," he said. "We are now talking about realizing the original dream of automatic speech recognition."

photo by Billy Howard

Professor B.H. "Fred" Huang says the difficulty in reliable speech recognition lies in detecting the intention of the speaker.

---

ia Speedway. Racing at
s per hour, the car is a
ockpit with a 5.4-liter,
ngine. Huang splits the
a former champion race-
he co-founder of
e car finished in 10th
xt race is at Phoenix
April 8-10.
erans Matt Stephens,



Scott Flanagan and Kevin Bray will join Silverstone as trackside engineers and members of the pit crew. They'll be responsible for further developing software to control various functions. Each year, the members of GT Motorsports design, build and race their own open-wheel formula racecar in competitions around the world.

"We're all really excited. Most of us want to work in professional racing, so this is a great opportunity for us." said Stephens.

"Our partnership with Tech gives the students an opportunity to use the skills they've learned at Tech and as part of GT Motorsports in a real-world environment," Huang said.

"We hope this lasts well beyond this year's racing series."

Huang graduated from Tech in 1973 with a degree in industrial management and has been a strong supporter ever since. In addition to providing engineering students with valuable experience, Silverstone Racing is sponsoring a competition at the business school for students to develop a marketing plan for the Georgia Tech car. The winning team will then implement its plan throughout the 2004 Grand American Rolex Sports Car Series.

"Our students' technologically focused business education gives them the perfect preparation to successfully market the Georgia Tech car to potential sponsors. Working with Silverstone Racing will be a great forum for our students to market their skills," said Terry Blum, dean of the business school.

The car will be on campus as part of the Georgia Tech Autoshow, to be held Mar. 27. All races in the 2004 Grand American Rolex Sports Car Series are scheduled to be broadcast on the Speed Channel.

For more information...

GT Motorsports
www.me.gatech.edu/gtmotorsports

Georgia Tech Autoshow
www.me.gatech.edu/autoshow

Grand American Road Racing
www.grandamerican.com

CAMPUS EVENTS

Arts & Culture

Mar. 11

The American Museum of Papermaking hosts an opening reception for its latest installation, a juried exhibition entitled "Innovative Printmaking on Handmade Paper," at 5 p.m. at the Institute of Paper Science and Technology. For more information, visit **www.ipst.gatech.edu/amp**.

Mar. 13

The Ferst Center for the Arts welcomes Rockapella for an 8 p.m. performance. Faculty and staff receive a 10 percent discount on advance tickets. For more information, visit **www.ferstcenter.org**.

Mar. 16

The bookstore welcomes William Taubman, who will be signing copies of his new book, "Khrushchev: The Man and His Era," at 7 p.m. For more information, visit **www.bookstore.gatech.edu**.

Brown Bags/Conferences/Lectures

Mar. 15

The Architecture Program's Spring Lecture Series welcomes James Glymph, CEO of Gehry Technologies, at 5:30 p.m. in the College of Architecture Auditorium. For more information, e-mail wanda.dye@arch.gatech.edu.

Mar. 17

The School of Industrial and Systems Engineering's Natural Systems Speaker Series welcomes Amory Lovins, CEO and co-founder of the Rocky Mountain Institute, at 4 p.m. in the Tennenbaum Auditorium. For more information, visit **www.sustainable.gatech.edu** or call 894-7895.

Mar. 17

The School of Psychology's Colloquium Series continues with Laura Carstensen, professor of psychology at Stanford University, on "Aging, Motivation and Emotion," at 3:30 p.m. in room 250, Coon Building. For more information, e-mail christopher.herzog@psych.gatech.edu.

Mar. 17

The College of Management's IMPACT Speaker Series welcomes John Huntz, managing director of Fuqua Ventures, at 4:30 p.m. in the LeCraw Auditorium.

Mar. 18

The School of Chemistry and Biochemistry welcomes Alan Heeger, a professor of physics at the University of California at Santa Barbara and Nobel laureate, delivering the Dean's Special Lecture in Chemistry on "Gene Sensors: Detection of Specific Targeted Sequences on DNA," at 4 p.m. in Room B6, Boggs Building.

Faculty and staff should send calendar items to ***editor@icpa.gatech.edu*** when available.

Faculty/Staff Development

Mar. 17

The Office of Sponsored Programs hosts a workshop on "The Federal Circulars and the FAR," from 1 - 4 p.m. in the Research Administration Building. For more information, call 894-6944 or e-mail nadia.zitman@osp.gatech.edu.

Mar. 18

The Center for the Enhancement of Teaching and Learning hosts its annual "Celebrating Teaching Day," featuring the Spring 2003 Hesburgh Award Teaching Fellows, the Fall 2003 Class of 1969 Teaching Fellows and the 2003 STEP Fellows, from 10 a.m. - 2 p.m. in the Library, First Floor West. For more information, e-mail cindy.gallion@cetl.gatech.edu.

Miscellaneous

Mar. 16

The Wellness Center and the Office of Success Programs will host a fair in conjunction with Women's Awareness Month, from 10 a.m. - 2 p.m. on the Skiles Walkway.

Mar. 17

The Georgia Tech Women's Forum 2004 scholarship recipients will discuss their essays on "What is the most important decision you ever had to make?" at the GTWF lunch meeting at noon in room 319, Student Center. To RSVP, e-mail suwana.murchison@gtri.gatech.edu.

CLASSIFIEDS

Appliances

Refrigerator, $140; range, $140; dishwasher, $90; over-range microwave, $90. All white, GE, excellent condition. Call Jon, 385-2395 or e-mail igetstuff@hotmail.com.

Whirlpool washer and dryer. Still under warranty; both bought in September 2003. $500 for both. Call 385-6042 or e-mail angelo.bongiorno@physics.gatech.edu.

Automobiles

1982 Volkswagen Rabbit. Convertible, 94K miles, good shape, owner since 10K, manual, $900. Call Jon, 770-565-3242 or e-mail dhoff86@att.net.

1984 Toyota Corolla. Diesel, 49 mpg, 161K miles, several new parts, 5-speed, manual, $950. Call Jon, 770-565-3242 or e-mail dhoff86@att.net.

1992 Honda Prelude. 5-speed, 119K miles, silver, clean condition, 120K-mile major service done, needs 2 tires, $3,987. Call Glen at 894-3418.

1994 Lincoln Towncar, signature series. Completely loaded. Excellent condition. 143K miles, $3,500. Call Theresa Lummus, 706-663-2306.

1996 Nissan Maxima SE. Excellent condition, 4-speed auto transmission. a/c, extra clean, CD player, power moon roof, white 4-door, keyless entry, alarm, cruise, $6,500 OBO. E-mail amananu@bellsouth.net or call 678-291-0928.

1997 Subaru Legacy L sedan. White, 74K miles, gray interior, AWD, automatic, cassette, new tires. Runs great, fun to drive. $5,000. E-mail roger.narayan@mse.gatech.edu.

1998 BMW 528i. All options including automatic, leather, premium sound with 6-CD changer, moonroof, just serviced, 88K miles. $16,000. Call 894-3098.

2001 Ford F150 SD, 5.4 liter V8, 4-door, hunter green, lariat, loaded, K&N filter, Flowmaster, 6CD changer, 23K miles, warranty expires 7/04. $20,000 firm. E-mail d.senn@gtri.gatech.edu or call 770-528-7011.

Computers

Dell Axim X5 (300Mhz) PDA with Windows Mobile 2003, cradle, charger, extra battery, foldable keyboard, NetGear 802.11b CF card, 28MB CF card and case. $100. E-mail eric.logan@ce.gatech.edu.

Palm m130 with cradle/charger, Palm Bluetooth card, DataViz Desktop To Go software, and USB sync cable, $75. E-mail eric.logan@ce.gatech.edu.

Furniture

Wrought iron coffee table and two end tables. Charcoal gray/black with some silver accent, $75. Antique footstool, burgundy needle point, 1920s, $50 firm. call 894-1711 or e-mail nicole.pamplin@facilities.gatech.edu.

Real Estate/Roommates

2-story Victorian home for rent in Candler Park. Fully furnished (see www.ct02.gatech.edu/home). Walk to restaurants, park/tennis/pool, MARTA. Available in May, $1,500/mo. + utils. Call 404-223-6227 or e-mail jb130@mail.gatech.edu.

Mountain home 60 miles north of Tech. 3-4BR/2.5BA, private 1 acre of forest. Oak floors, vaulted ceilings, stone and wood accents, decks. Tour at www.estesvr.com/residential/benttree/3777-8bellevista.htm. Listed at $395K, eager to sell. E-mail roessner@mindspring.com.

3BR/1BA for lease. Dining room, living room and basement. Large carport. Totally remodeled. Located in the city of Atlanta, near Collier Heights. Call 404-271-9994 or e-mail hadant333@yahoo.com.

3BR/2BA home for sale. Clairmont/Briarcliff area. Brick ranch home with finished basement, work bench area, screened porch, expansive decks around inground pool. Call 894-9945 or e-mail karen.fore@oit.gatech.edu.

Sports/Fitness/Recreation

Health Rider, with timer and spot to add on weights, $75. Ab Doer, in the box, never opened, $50. E-mail nicole.pamplin@facilities.gatech.edu or call 894-1711.

Miscellaneous

Gibson RB250 Mastertone 5-string banjo, excellent condition, beautiful tone, $1,500. Call Dave, 770-491-6395.

Wanted: dirt bike or trail bike, year does not matter. Call Daniel at 770-565-3242 or e-mail dhoff86@att.net.

Wedding veil. White, edged with diamonds, paid $200, will sell for $100. Call 894-1711 or e-mail nicole.pamplin@facilities.gatech.edu

Knight in shining armor! Six-feet tall, free standing, made of gold brushed tin. Eclectic must-have for creative decor or unique collectors. $350 OBO. E-mail lp109@mail.gatech.edu or call 404-271-4266.

Ads will run for a maximum of three weeks in the order in which they are received. The Whistle reserves the right to edit ads longer than 30 words.