Flight from Extinction
Alumnus David Luneau, MS EE 81, rocked the birding world when he captured the first digital video footage and the first recorded image of an ivory-billed woodpecker in nearly 70 years — proof that at least one ivory-bill exists in the Big Woods of Arkansas. The cover illustration is by John James Audubon.

A Green Revolution on Campus
This summer Tech rolls out a landscaping master plan to carpet the campus with green space and an eco-commons that includes a new water management system. Footpaths, flood-plains and ball fields all are part of Georgia Tech's green revolution.

Bold Vision
Since its launch in 1980, the Advanced Technology Development Center has helped entrepreneurs get 100 early-stage high-tech businesses off the ground. Those companies have generated more than $9 billion in revenue.

High Gear
After George McCowan's plans to become an electrical engineer hit the skids, he switched gears and started drawing automobiles, a passion that drove him to a career with American Specialty Cars.

United States needs to step up efforts to encourage students to pursue science, math, engineering and technology.

Feedback
InQuotes
InFocus
Tech Notes
NASA Trainer
Cindy Begley teaches how to space walk.

Viewpoint
Runabouts Hugh Saint builds classic wooden boats.

On Board Dean Alford heads IE 2 task force.

Interview Tech professor James Foley, chairman of the Computing Research Association, says the

Alumni Almanac Seventy-five years ago Bobby Jones made history on the links at St. Andrews.

Faculty Profile Nael McCarty: Never-ending Opportunity

Photo Finish Power Player
Compelling Concept

Discovery is a compelling idea. It’s so much more than “Columbus discovered America” or the television channel that I watch entirely too much.

Discovery is a driver of society. And it’s also one of the key concepts behind great research universities like Georgia Tech. The mission of Georgia Tech is “to provide the state of Georgia with the scientific and technological knowledge base, innovation and work force it needs to shape a prosperous and sustainable future and quality of life for its citizens. It is achieved through educational excellence, innovative research and outreach in selected areas of endeavor.”

Reading between the lines, you’ll see the pervasive theme of discovery. But it simply doesn’t stop there.

Discovery is at the very root of innovation. And innovation is the basis for adaptability and, ultimately, survival and success. If you spend any time reading our various publications you’ll notice a distinctive bent toward stories about discovery — stories that show how Tech’s alumni, faculty and students are on discovery missions in a myriad of different disciplines that help to shape and improve our lives. Certainly these missions include technology-driven challenges but it’s actually far broader than that.

Discovery is about trying and failing and learning from those failures in every endeavor in life. It’s about human beings and how we learn to know each other, our environment and ourselves — which is why it is such a compelling idea. And why we’re all engaged in the process.

Joseph P. Irwin, President
**Lobster Tale**

When I saw the headline for the article about Herren’s restaurant (ALUMNI MAGAZINE Spring 2005) I was reminded of a very funny incident that took place more than 46 years ago.

I took my future bride to Herren’s on our very first date, on Friday, Feb. 13, 1959. I had help getting her to go out with me. My Tech roommate told her that I would buy her the best dinner in town, so off we went to Herren’s for some boiled “live” Maine lobster and a great time.

After we were seated and the waiter asked what we wanted, my wife-to-be asked for the lobster and so did I, whereupon the waiter asked us to go and “pick one out” from the lobster tank for each of us. As I started to rise my future bride said, “You mean they’re alive?” That is when the waiter explained why they are called “live Maine lobster” but not to worry as the boiling doesn’t really “hurt” them.

With that my future bride (almost in tears at the thought of a lobster being boiled alive) changed her mind and ordered the fried shrimp and, so as not to make her any more upset, I had the same.

We were engaged in May 1959 and married in December of that same year. To this very day we tell people about our very first date at Herren’s and really get a chuckle out of it.

Stuart Slippem, IM 62
McKinney, Texas

**Remembering Herren’s**

My wife, Lorene, and I very much enjoyed Ed Negri’s article about Herren’s, “Around the Corner from Everywhere.” My wife is featured on page 53. She was a waitress at Herren’s before and, for a short time, after we were married. I was among the first World War II veterans to enter Georgia Tech. I started in October 1944 under what was to become the GI Bill and graduated in March 1948. We were married in May 1949.

The job offers were plentiful for Georgia Tech graduates and I got several. I went with Otis Elevator Co. and spent a career lasting 40 years with them.

R. Reagin Warren, EE 48
Signal Mountain, Tenn.

**Serious Fun**

I enjoyed reading John Portman’s comment (“In Quotes,” Spring ALUMNI MAGAZINE) upon being asked if he was going to retire now that he is 80. I too am at that stage and, like John, I also am having too much fun to quit.

Architecture is such a great profession, particularly when you have been taught to appreciate it by Paul Hefferman, Ed Moulthrop and Harold Bush-Brown — and how to put it on paper by “Doc” Gailey.

One doesn’t have to reach stardom like John Portman. There is the same pleasure designing churches and schools in small towns and cities as I have done for the last 50 years. Quit? How could I or John? It’s fun, serious fun.

Robert Stephens, Arch 48
New Bern, N.C.

**Well Done**

Congratulations, you did a great job on the magazine. Even we old fogies appreciate the modern look and the wide spread of articles.

John Gaines, ChE 40
Prairie Village, Kan.

**Nothing New**

The title to your article, “Robots and Ethics” (ALUMNI MAGAZINE Spring 2005), is misleading. The article has practically nothing to say on the subject and, depending upon your definition of a robot, nothing new. I can argue, for example, that a vending machine replaces a salesperson in taking your money, examining it to assure that it is genuine and sufficient and giving you the article you want to purchase plus the correct change. It is in that sense a robot unless you insist that a robot be anthropomorphic (which you obviously don’t).

The Navy pilot landing on a carrier under adverse conditions trusts an automatic landing system with his life and although he is prepared to take over manually I would guess that he often prefers to depend on the machine’s skills over his
own. Again, it is not a mechanical man in the co-pilot's seat but a robot in the sense you seem to define it. And the Navy can tell you a lot about convincing pilots to trust their lives to systems that “think” and act for them.

It may be easier to love a robot dog than a pet rock, and there are pilots whose hearts fill with emotion at the sight of an old B-17 like the one that brought them home safely during World War II, but if you seriously think the question of marrying a robot is anything other than a crude joke, you've been in the laboratory too long.

As for the issue of a robot employing lethal force in combat, that seems to me just a variation of the land mine controversy that has been raging for years.

If there are new questions about ethics and robots, I didn't see them.

William D. Clarke, AE 46
Hazel Green, Ala.
I think it’s incredibly important the University explore with people. Exploration is all about presence.

"There’s always danger associated when people start to bond with nonhumans or nonhuman artifacts. What the long-term effect on the social fabric will be is largely unknown and under-studied."

Ronald Arkin
Director of the Robot Mobile Laboratory at Georgia Tech, concerning people forming bonds with robotic pets, in Forbes Magazine

I don’t think (electric cars) will ever be a significant percentage of the vehicles out there.

Sam Shelton
School of Mechanical Engineering, discussing alternative energy vehicles in the June 13 issue of Time

"Thermodynamics isn’t for the timid. Georgia Tech students are interested in engineering, science and advanced-technological research — majors that demand intense studying from students at most colleges. The Princeton Review ranked our classes as the toughest in the country."

Ruth Malhotra, ’06, international affairs and prelaw, in the inaugural issue of Co-Ed Magazine

"This is a race between cooperation and catastrophe. This work must be at the top of the global security and diplomatic agendas."

Sam Nunn, Cls 60
Co-Chairman of the Nuclear Threat Initiative, speaking on keeping nuclear stockpiles out of the hands of terrorists, in the Atlanta Journal-Constitution
Astronaut John Young, AE 52
WHEN RECEIVING AN AWARD NAMED IN HIS HONOR AT THE ORANGE COUNTY REGIONAL HISTORY CENTER IN ORLANDO, FLA., IN THE ORLANDO SENTINEL

United States of America continue to explore space preserving the species and we’d better get on with it.

Will the United States own the technology of the future? Probably not all of it, and only if we compete harder to maintain our current position.
Diana Hicks, PROFESSOR AND CHAIR, TECH’S SCHOOL OF PUBLIC POLICY, AT THE AMERICAN CHEMISTRY SOCIETY’S NATIONAL MEETING IN SAN DIEGO

Can it be done?
Yes, definitely. The question is what’s to be done and why?
We’re better at designing technology than we are at understanding what technologies should be designed. So the challenge with creating a $100 useful Internet appliance is understanding how people will use it, how they will be empowered by it.

Michael Best
VISITING ASSISTANT PROFESSOR
IN INTERNATIONAL AFFAIRS,
ABOUT A PROGRAM TO EDUCATE THE WORLD’S KIDS WITH $100 PERSONAL COMPUTERS, IN THE CHRISTIAN SCIENCE MONITOR

No matter what you decide to do with your life, I want you to go for it.
Astronaut Sandra Magnus, PhD 96
SPEAKING TO GIRL SCOUTS AT SPACE DAY IN THE DAILY SENTINEL, GRAND JUNCTION, COLO.

You’re going to have a lot more NOs than YESes in this business. You’ve got to have a strong will and not be afraid of no.
Jim Bob Taylor, IM 82
FORMER GEORGIA TECH AND PRO QUARTERBACK,
MILLION DOLLAR CLUB IN COMMERCIAL REAL ESTATE AND SENIOR VICE PRESIDENT FOR TRAMMEL CROW, ON HAVING BEEN “THROWN OUT OF A COUPLE OF OFFICES ON COLD CALLS,” IN THE ATLANTA BUSINESS CHRONICLE

We are presented with a choice between proven, successful adult stem cell research and the current field of embryonic stem cell research, wrought with ethical concerns and medical uncertainties. If we cross a moral divide of this magnitude unnecessarily, the ends will not justify the means.
Phil Gingrey, Ch 65
OB-GYN PHYSICIAN AND REPUBLICAN U.S. REPRESENTATIVE, IN THE ATLANTA JOURNAL-CONSTITUTION

It will be a historic moment when, working together, the global community eradicates this 3,000-year-old disease.

Jimmy Carter, Cls 46
ON THE CARTER CENTER RECEIVING A $54 MILLION GRANT FROM THE BILL AND MELINDA GATES FOUNDATION IN THE QUEST TO ERADICATE GUINEA WORM DISEASE, IN THE ATLANTA JOURNAL-CONSTITUTION
Georgia Tech’s men’s light four-plus crew scored a gold medal in the Dad Vail regatta — the national championships of collegiate rowing — held May 13-14 on the Schuylkill River in Philadelphia. This is the third consecutive year that a Tech team has brought home a gold medal. Tech rowers Cameron Troxel, Brian Waters, Shane Bechler, John Kaptyn and coxswain Theresa Mara jumped out to an early lead over Fordham, University of California-Santa Barbara and Army, then pulled away to defeat Fordham by two full seconds. Tech rowers just missed winning gold in the men’s novice light eight race, falling to a strong St. Joseph University team by a boat length. “This is a great result for these guys,” head coach Rob Canavan said. “We’re looking forward to rolling that talent into a fast light eight team next year.” The Tech women defeated 20 other teams to qualify two boats, light four and pair, in the finals. Both teams finished fifth in the finals.

Photos: Laura Sikes
Georgia Tech is collaborating with the Southern Co. on the Southeast’s first ocean-based wind power project off the coast of Savannah, Ga. The project hopes to determine if offshore wind power is a feasible and efficient renewable energy option for power generation. Plans call for three to five wind turbines that could generate 10 megawatts of power, enough to supply about 2,500 homes. “To win in the competitive marketplace of the 21st century, our energy solutions must offer value that makes them worth the cost,” says Tech President Wayne Clough. By analyzing wind data from Navy platforms, a Tech research group led by Sam Shelton estimates there may be enough wind off the Georgia coast for power generation. The first phase of the project, expected to get off the ground in July, will evaluate technology options for wind turbines, platforms/foundations, submarine cabling and grid interconnection.
A six-member Georgia Tech aerospace engineering crew spent two weeks in April exploring a Martian landscape without ever leaving Mother Earth. Outfitted in space suits and bubble helmets to stalk a barren Utah desert that looked strikingly similar to the red planet were mission commander Jan Osburg, MS AE 96, a research engineer in aerospace engineering; Heidi Anderson, AE 05; Kyle Brewer, AE 05; John Christian, AE 05; Rebecca Fink, AE 05; and senior aerospace major Douglas Martin. Explains Osburg, “We lived in an 8-by-8-yard space pod and wore space suits with the bubble helmets whenever we entered or exited through a simulated air lock.” The project was sponsored by the Mars Society, an international association that seeks to advance human exploration of Mars. “We were the first crew ever chosen from one organization,” Osburg says. “That allowed us to train together for seven months.” Reports detailing equipment success or failure were transmitted to mission control on the Tech campus and made available to the Johnson Space Center in Houston for use in future mission planning. Several of the earthbound space explorers say they would like to be part of the real thing. On May 1, Brewer took a step toward his goal of becoming a flight director when he began working at the Johnson Space Center. “Maybe I’ll get the first flight to Mars,” he says.

Photo Courtesy Mars Society
Georgia Tech high jumper Chaunte Howard, a six-time All-American, announced that she would forgo her senior season of collegiate competition to sign a professional contract with Nike. She ended her Yellow Jacket track career with three NCAA national titles, six Atlantic Coast Conference titles, three ACC MVP awards and 13 All-ACC honors. Howard set the current outdoor ACC record in April 2004, leaping 6 feet, 4 and three-fourths inches, then two months later won NCAA high jump titles at the indoor and outdoor meets. She duplicated her ACC mark at the 2004 U.S. Olympic Trials to qualify for the Athens Olympics, where she finished in a tie for 28th place. Howard plans to remain enrolled at Tech to earn an economics degree. GT

Photo: Christopher Gooley
In addition to the news, the first BUZZwords included this item:

George III of England was having difficulty collecting taxes, especially from the provinces. So he took one of those old English torture racks, put it on wheels and had horses pull it out to the provinces as a warning. But the rack was too heavy for horses to pull, so an elephant was provided. Of course, the elephant had to be escorted by a special keeper. As the strange vehicle moved through the streets of London, one peasant asked another, “What on Earth is that?”

“Don’t you know?” the other replied.

“That’s a ramblin’ rack for George’s tax and an elephant engineer.”

— Daniel H. Tarkington
ME 67, of Loveland, Ohio

BUZZwords Celebrates Milestone Anniversary

BUZZwords, the Georgia Tech Alumni Association’s electronic newsletter, is 10 years old. During the decade, it has undergone several revisions and a name change. Novel for its day, it’s ancient for a continuously published online newsletter.

Its April 24, 1995, launch carried a “welcome from cyberspace” message by Georgia Tech President Wayne Clough to the initial 2,700 e-mail readers, but no graphics — although there was a promise that graphics would be added as soon as the technology was available.

“When I started at Georgia Tech way back in 1959, one of the first courses I had to take was how to operate a slide rule,” Clough wrote in that first BUZZwords. “In my senior year, I got to take one of Tech’s first formal courses in using a computer. It was a good thing that I was a co-op student or I would have graduated a year too early.

“I still have my slide rule, but it was one of the first road-kills on the information highway,” Clough said. “As a longtime e-mail user, I appreciate the power of today’s technology and I am glad we are one of the first institutions to use it to connect our alumni to Georgia Tech.”

The electronic newsletter started off as Bee-Mail since it was sent via e-mail, but later during the year the name was changed to BUZZwords. It began as a weekly update of news on campus and at the Alumni Association, but as electronic communication proliferated in recent years, the publication scaled back to a monthly schedule and is distributed on the first day of each month.

BUZZwords now goes to 56,000 alumni and friends.

Gettin’ Out

More than 2,400 graduate and undergraduate students officially “got out” of Georgia Tech on May 7 in a commencement ceremony held at the Georgia Dome. Georgia Tech Alumni Association Chairman Carey Brown welcomed the graduates as the Institute’s newest alumni.

U.S. Secretary of Energy Samuel
challenges facing every nation on Earth.

“Georgia Tech already leads the way in many important areas of research that are addressing some of our most critical issues — including our energy problems,” Bodman said. “Energy is the lifeblood of our economy and our modern way of life.”

Bodman passed along to Tech students advice he received on the day he graduated. “Work hard, but save some time for some fun,” he told them, “because before you know it, you will be standing in my place.”
Georgia Tech President Wayne Clough launched the summer with a series of back-to-back high-tech presentations in June before a congressional sub-committee and also a conference of Federal Reserve Banks chairmen in Washington, D.C., and engineering educators in Portland, Ore.

In testimony to the Senate Subcommittee on Technology, Innovation and Competitiveness and also in a speech to the chairmen of the Federal Reserve Banks, Clough said development of an economy based on innovation is critical to the nation’s well-being.

Clough, who was co-chair of the National Innovation Initiative sponsored by the U.S. Council on Competitiveness, said more than 400 of the nation’s best minds from academia, industry and the government developed an action agenda to help the United States create an economy based on innovation.

Clough told the congressional committee, “American manufacturing of the future will need to be focused on the high end of the economic spectrum if we want to maintain our standard of living. We will need to pioneer new manufacturing techniques and focus on the highest possible leading-edge precision technological work that it is not possible to do in other parts of the world.

“The strategies even of the latter part of the last century — cost control, total quality and continuous productivity improvement — will not be enough. To win in the 21st century will require flexibility, collaboration, customization, precision, global market savvy and speed.”

A Georgia Tech survey of manufacturers in the state identified human resource problems as a foremost concern, Clough said. “Yet, the United States is falling behind in the education of technology workers. China, India and the European Union each gradu-
Nano-manufacturing has the potential to impact virtually every human-made object, from automobiles to electronics, from advanced medicine to energy production.

— Wayne Clough
action against a spammer. The legislation will work in tandem with the federal CAN-SPAM Act of 2003 that went into effect last year.

GTISC, a National Security Agency Center of Excellence in Information Assurance Education, is an interdisciplinary center involving faculty from the College of Computing, the Georgia Tech Research Institute, the School of Electrical and Computer Engineering, the Sam Nunn School of International Affairs and the School of Public Policy.

Pete Wellborn, ICS 86, an Atlanta attorney and EarthLink’s outside counsel, says, “The Slam Spam E-mail Act is a fantastic new weapon that will further enable us to keep all Georgians safe from spam. The state of Georgia is very fortunate to have organizations such as GTISC who work tirelessly to raise awareness about and explore solutions to Internet-based threats.”

Robot Dogs Score at RoboCup Open

Humans riding Segways paired with robotic Segway teammates competed in two-on-two teams in the ultimate human/robot soccer team competition, but of the five events at the 2005 RoboCup U.S. Open at Georgia Tech in May, soccer matches featuring teams of robotic dogs scored the most points with the fans.

The Sony AIBO computerized canines played on a 19-foot field. Two teams of four robotic dogs, including a goalie, searched for an apple-sized ball through the cameras in their noses. There are no remote controls. The dogs hit the ball with their noses and then communicated over a wireless network as they tried to outmaneuver the goalie and then knock the ball in for a score.

The reigning European champion is Dortmund University in Germany, which only played exhibition matches until Texas emerged the U.S. winner. Dortmund then played Texas, winning the match 2-0.

Six Georgia Tech students squeezed in a few hours a week to work on their robot dog software while maintaining classes as usual. Dortmund University had about 20 students working 20 hours or more a week and was sponsored by Microsoft.

RoboCup U.S. Open chairman Tucker Balch, an assistant professor of computing at Tech, says the annual event “is primarily organized to drive software that will make really aware robots possible. Soccer provides a really nice testing environment. Everyone understands soccer so we don’t have to explain what they’re trying to do.”

In addition to four soccer-based competitive events, there is a search-and-rescue event at a simulated disaster scene. Teams of remotely controlled robots seek victims in the fake rubble of a collapsed building.
Blum Stepping Down as Dean

Terry C. Blum, dean and Tedd Munchak chair of the College of Management at Georgia Tech, announced in June that she will step down effective June 30, 2006, to return to the faculty.

Blum has led the College of Management since the summer of 1999. Her accomplishments include changing the MSM degree to a MBA degree, leading the college’s move to Technology Square, hiring 60 percent of the college’s faculty and improving the college’s ratings in such publications as Forbes, BusinessWeek, U.S. News & World Report and the Financial Times of London.

“Terry provided leadership at a very important time for the college,” says Tech President Wayne Clough. “Among a number of notable accomplishments, I think that she did an excellent job in leading the college across the Connector and into a more visible profile at Technology Square. The quality and >>>

Tech hosted the RoboCup U.S. Open in May, when teams of Sony AIBO computerized canines battled it out in soccer matches played on a 19-foot field.
Unrivaled Support

About 600 Georgia Tech alumni who have made contributions of $1,000 or more attended the annual Presidents’ Dinner on May 20, celebrating the 58th Roll Call campaign, a major source of unrestricted funds for the Institute. Hosting the dinner are, below left to right, Foundation Chairman A.J. Land, IM 60; President Wayne Clough, CE 64, MS CE 65; and Alumni Association Chairman Carey Brown, IE 69. Noting that of the nine public universities that rank with Tech among the nation’s top 10, none matches the level of financial support given by Tech alumni, Clough told the group, “Georgia Tech alumni are number one.” The Roll Call’s unrestricted funds are extremely important, Brown said. While all state funds and major contributions are earmarked, the unrestricted contributions enable President Clough to meet the Institute’s greatest needs, he said.
Detecting Concussions

Virtual reality could be called into play at football games when an athlete takes a hard hit to the head thanks to a portable device that can quickly test for concussions.

Michelle LaPlaca, an assistant professor in the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University, and David Wright, assistant director of Emory’s Emergency Medicine Research Center, have co-developed DETECT — display-enhanced testing for concussions and mild traumatic brain injuries.

While typical brain injury testing requires a quiet room and a couple of hours at a hospital, DETECT performs neuropsychological exams in about seven minutes regardless of surrounding noise and movement.

DETECT runs the patient through three types of tests that measure the function of several parts of the brain. The system includes a laptop to run the software, a headset, earmuffs that act as headphones and an input controller. Impairment is indicated when the response time is too slow or incorrect answers are provided. In addition to the advantages of speed and portability, the testing could be administered by nonmedical personnel.

DETECT already has been tested in a hospital emergency room. Next up is a gridiron test. Tech plans to try it out on the football sidelines this year. The device could be commercially available in about three years.
Tracking Down the Witty Worm

A Georgia Tech PhD candidate was one of three researchers who used an innovative technique to trace the spread of the Witty worm, which infected more than 12,000 computers in a little more than an hour in March 2004.

A report co-authored by Tech student Abishek Kumar said the researchers located a computer in Europe that was the first infected by the worm, which targeted vulnerable products from Internet Security Systems Inc.

United Press International reported that the researchers also found a set of 135 hosts at a U.S. military installation were infected by Witty and were critical to the worm’s spread and that the computers were likely on a “hit list” of targeted systems.

Kumar led the study while working as a summer intern at the International Computer Science Institute at the University of California at Berkeley last year. The researchers used network telescopes to analyze Witty’s spread.

Telescopes collect traffic sent to unused portions of the Internet’s machine address space that inadvertently collect traffic generated by fast-moving worms.

According to the report, the researchers found they could develop a more accurate picture of a worm’s spread by analyzing the machines sending traffic to telescopes.

The paper’s authors disassembled the worm’s code and reverse engineered the pseudo-random number generator used to compile a list of computers to attack. Once they cracked the number generator, they were able to get a detailed picture of Witty’s spread.

That picture allowed the researchers to spot an infected computer connected to the Internet through a European service provider. The Internet address connected to that computer was passed on to law enforcement officials, according to UPI.

The amount of information gleaned from the analysis of the worm reportedly surprised even the researchers.

“I did not expect to find such precise details,” Kumar says.
Tech Teams Flex ACC Muscles

Georgia Tech teams celebrated the 2005 spring sports season by winning three ACC championships and two conference individual titles.

**Women’s Tennis:** The team was ranked No. 6 in the nation after winning the first ACC championship in Tech tennis history and advancing to the third round of the national tournament. All-American freshman Kristi Miller made it to the Sweet 16 of the NCAA individual tournament.

Head coach Bryan Shelton was named the ACC coach of the year and three players — senior Dasha Potapova, sophomore Alison Silverio and Miller — were named to the All-ACC team. Miller was also named the ACC rookie of the year. “It was truly a team effort,” Shelton says.

**Men’s Baseball:** Tech won its second conference championship in the past three seasons, edging Virginia 4-3 in the championship game. In NCAA postseason play, the Jackets defeated South Carolina in the regional tournament but fell to Tennessee in the super regional.

**Women’s Softball:** The Jackets finished the season with a 51-14 record, winning 50 games for the second time in school history. The Jackets won the regular-season championship and the tournament title and were ranked No. 17 in the USA Today/NFCA Top 25 final poll. The team defeated Kansas in the first round of the NCAA regional but lost the regional championship game to arch rival and top-seeded Georgia.

“I’m very proud of the girls for all they accomplished this year,” says head coach Ehren Earleywine. “We reached so many of our goals. I just can’t say enough about this team.”

**Swimming:** Vesna Stojanovska of Skopje, Macedonia, broke five school records at the ACC championships to become Tech’s first ACC women’s champion in the 200-meter fly. Junior Sam Morgan won the ACC individual title in the 1,650-yard freestyle, the second Tech athlete to win that event — All-American Shilo Ayalon won it in 2003.

“Having an ACC champion is always special,” says head coach Seth Baron. “For a program that is only four years old, having an ACC champion brings lots of recognition.”

**Golf:** The Tech golf team, ranked No. 3 in the nation, finished 11 shots behind second-ranked Georgia at the NCAA Golf Championship in Maryland. GT
“We all have a second chance to save this magnificent woodpecker from extinction. As it inspires our hopes, this resilient ivory-billed woodpecker must also inspire our commitment to protect the habitat it needs for survival.”

John Flicker
President, National Audubon Society

By Kimberly Link-Wills
Photographs: Mark Godfrey

The search for the ivory-billed woodpecker has been likened to the quest for nature’s Holy Grail. When proof of the bird’s existence was shared with the world in late April, a spokesman for the National Audubon Society was quoted as saying it was “like finding Elvis.”

The ivory-billed woodpecker is not extinct, and the key evidence of the bird’s survival was collected by a Georgia Tech alumnus.

The stunning news sent bird-watchers flocking to Web message boards and conservation groups flying to microphones to hail what could be one of the biggest events in ornithological history.

The wings seen round the world were captured on four seconds of video filmed in an Arkansas swamp by M. David Luneau, MS EE 81, the first person to record an image of the bird in nearly 70 years.

“It’s a story of hope, a story of recovery,” says Luneau.  >>>
The ivory-bill once thrived in swamps from Texas to North Carolina, from southern Illinois to Florida. Ornithologists believe an ivory-billed woodpecker needs at least six square miles of virgin bottomland forest, mostly in the floodplains along the Mississippi River and its tributaries, to live. The birds eat beetle larvae and rely on dead and dying trees to supply much of their food.

By the 1940s, much of the bird’s habitat was gone. The forests of the South were decimated through the intensive clearing of land and the logging of millions of acres of trees. The Mississippi River alluvial plain had shrunk to one-fifth its former 24 million acres.

The U.S. Fish & Wildlife Service added the ivory-billed woodpecker to the endangered species list in 1967. As recently as 1997, petitions circulated pushing for a declaration of extinction. Simply too much time had passed since a confirmed sighting.

Luneau’s digital video changed everything. When it was unveiled at an April 28 press conference in Washington, D.C., John Fitzpatrick, director of the Cornell Laboratory of Ornithology, was quoted as saying, “Amazingly, America may have another chance to protect the future of this spectacular bird and the awesome forests in which it lives.”

Luneau has been a bird-watcher since his childhood in Pine Bluff, Ark. “Seventy million Americans list bird-watching as at least a part-time hobby,” he notes.

Still, there was little time to follow birds as he pursued his undergraduate degree at Rice University, married and moved to Atlanta to earn his master’s at Georgia Tech. He worked at the Johnson Space Center for five years before returning to Arkansas to work as an engineer for AT&T. In 1991, he accepted a teaching post at the University of Arkansas in Little Rock, where he is an associate professor of electronics and computers.

Luneau took note of the birds he saw in his back yard and on camping and fishing trips. From time to time he picked up a book on birding.

“If you read any bird book, it said the ivory-billed woodpecker was ‘probably extinct’ or ‘possibly extinct.’ It was like throwing down a challenge,” he says. “I had heard that the last sighting was in Cuba in 1986 or ’87. I thought, ‘Maybe I’ll go to Cuba someday.’ But I didn’t give it a whole lot of thought.”

Luneau got his first lucky break at a book sale to clear the University of Arkansas library’s shelves of unwanted tomes. “I got ‘Research Report 1 of the National Audubon Society’ by James Tanner (published in 1942). I got it for 50 cents. It’s quite valuable now. It was the only detailed study of the ivory-billed woodpecker.”

Then in January 2000 a report hit a birding list that a pair of ivory-billed woodpeckers may have been spotted in the Pearl River Wildlife Management Area in Louisiana.

“I knew immediately I had to go,” says Luneau, who enlisted his brother to accompany him to the Pearl River for a long weekend in February 2000. A few weeks later he returned with three other people. “In the winter of 2001, four of us again went for a week — all to no avail.”

“I thought, ‘I need to find a way to make this my job.’ But engineering and birding don’t necessarily go together. Then I came up with the idea of audio-recording devices out in the woods as a constant presence to detect ivory-billed sounds,” Luneau says.

The sounds of the ivory-billed woodpecker are different from other varieties of woodpeckers in that their display drumming consists of loud double raps. Their calls have been compared to the sounds of a tin horn or, as Audubon put it, “a high, false note on a clarinet.” Bioacoustic scientists do have good vocalization recordings from a 1935 Louisiana expedition of an adult pair of ivory-bills and their young for comparison.

“In spring 2002 I applied for a sabbatical for the purpose of working toward an audio-recording system. The very next day I saw an ad on a bird list for two researchers needed for a 30-day trip to the Pearl River to look for the ivory-billed woodpecker,” he says.

Luneau was selected to participate in the expedition and place autonomous sound-recording devices on trees there. Zeiss Sports Optics sponsored the trip — and publicized it, resulting in what Luneau calls “huge amounts of media attention.”

The researchers came away with no proof that the shy ivory-billed woodpecker still existed in Louisiana. When he returned to Little Rock, Luneau had 100 hours of recordings from the Pearl River. He listened to all 100 hours. It was an act of futility.

The media interest waned after the researchers left the Pearl River without a single sighting. “But I was still very interested,” Luneau says.

He next decided to search the White River National Wildlife

Mark Catesby sailed to America from England in 1712 to study the plants and animals of the colonies. He wrote of the ivory-billed woodpecker: “The bills of these Birds are much valued by the Cannola Indians, who made Coronets of ’em for their Princes and great warriors, by fixing them round a Wreath, with their points outward. The Northern Indians having none of these birds in their cold country purchase them off the Southern people at the price of two, and sometimes three, Buckskins a bill.”

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Luneau attaches monitoring equipment to a tree in the Big Woods of Arkansas.
Few remaining examples of the Missippi Delta wetland ecosystem, a 550,000-acre corridor of floodplain forest in eastern Arkansas known as the Big Woods. Sparling wrote about the bird he saw on the Arkansas Canoe Club Web site.

Tim Gallagher, editor-in-chief of the Cornell Laboratory of Ornithology’s Living Bird magazine, got wind of the sighting.

“Ironically, three weeks earlier Tim had been in my office interviewing me for a book he was writing about the ivory-billed woodpecker,” Luneau says.

Gallagher and a birding friend, Bobby Harrison, an associate professor of art history at Oakwood College in Huntsville, Ala., met in Arkansas. On their second day in the Big Woods, at 1:15 p.m. on Feb. 27, 2004, an ivory-billed woodpecker flew directly in front of their canoe and fully revealed its dorsal wing pattern.

“Just to think this bird made it into the 21st century gives me chills. It’s like a funeral shroud has been pulled back, giving us a glimpse of a living bird, rising Lazarus-like from the grave,” Gallagher says on the Cornell Lab’s Web site.

Luneau says it’s true that after seeing the woodpecker, Harrison buried his face in his hands and cried. Luneau, who also had spent years looking for the bird, was only an hour and 15 minutes away, at home in Little Rock.

A search team, including Luneau representing the University of Arkansas at Little Rock, formed the Big Woods Conservation Partnership, led by the Cornell Laboratory of Ornithology and The Nature Conservancy. They set to work raising money, buying 18,500 acres of land in the Big Woods and putting searchers and equipment in the swamps. Confidentiality agreements were signed to prevent the media and amateur birders from descending on the forest.

Luneau was tasked with rigging cameras with integrated infrared heat and motion sensors within a two-mile radius in the “hot zone” near Brinkley, Ark., the closest town to the Bayou DeView swamps where the bird had been spotted. The cameras were strategically placed to point at trees with significant bark scaling indicative of the ivory-bill’s presence.

“On April 25, 2004, I went out with my brother-in-law to check the still cameras. I kept my video camera mounted in the canoe rolling the whole time,” he says. “We were just starting to turn off the channel and I turned to lift the trolling motor out of the water. It locked into place and flushed a bird off a tupelo tree. It was about five or six feet off the water.”

Henderson saw red on the bird’s head as it flew away from the canoe. Luneau had been picking up his paddle, but he caught a glimpse of a black-and-white pattern. Had they finally seen an ivory-billed woodpecker?

“It flashed a lot of white, but we were not sure. We listened for a while. Then we decided to check the video camera to see if we got it on tape, and we did. I said, ‘At least we’ve got something to look at when we get home’,” Luneau recalls.

The digital images he downloaded to his computer were small, in the
corner of the screen and blurry. “There was so much white on the bird, but I was not confident. You get one chance to destroy your credibility,” he says.

Luneau studied the digital footage over and over. He finally noticed “black, white, black, a speck on a tree. I couldn’t believe I was seeing that. But it was very, very small, a 6-pixel bird. If I couldn’t convince myself, I couldn’t convince anyone else,” he says.

He looked for help enhancing the video. An agency in Huntsville, Ala., that works with police surveillance videos was enlisted. “They couldn’t do anything with it. It was too blurry.”

The following week Luneau told Cornell’s Fitzpatrick he might — or might not — have something. The Cornell Lab director flew to Little Rock for a “video-watching party” at Luneau’s home in early May 2004. About 20 people were there to watch 42 seconds of film, including a four-second flight of 11 wing beats revealing extensive white on the trailing edges of the wings.

After watching the footage, Fitzpatrick turned to Luneau and shook his hand. “He said, ‘You got it, man.’ He was the fastest one to be convinced.”

Luneau was told the footage’s fund-raising potential made it a “$100 million video.” He already had the original locked in a safe and made a limited number of copies. Cornell got one and began sharpening the images by deinterlacing the video, zooming in on the bird and slowing the speed of its flight.

“I went up there in the early summer. It looked a lot better just because it was bigger. But I still wasn’t convinced until March of this year,” he says.

While Cornell worked on a frame-by-frame analysis of the video, Luneau returned to the Big Woods to measure the trees shown on the footage to determine the exact size of the bird. “We had to process it scientifically. It took five trips to prove it indisputable. The bird was too big to be a pileated.”

Luneau was finally convinced that what he had recorded a year earlier was in fact an ivory-billed woodpecker.

The research team planned to report the astounding rediscovery of the ivory-billed woodpecker in the May 19 issue of Science, with Fitzpatrick as the lead author and Luneau as one of the contributing writers. Luneau took a leave of absence for the spring semester to devote all his time to the Big Woods Partnership. But what he calls an “e-mail leak” derailed the plan to break the story in the scientific journal.

Luneau was among the team members who met with representatives from the U.S. Fish & Wildlife Service and scheduled a press conference in Washington, D.C., for April 28, the same day the paper was rushed to online publication on the Scienceexpress Web site.

The federal government made an announcement of its own that day: The Interior and Agriculture departments would set aside $10 million this year for the Corridor of Hope conservation plan to help save the ivory-billed woodpecker. The Fish & Wildlife Service established a 5,000-acre managed access area within the Big Woods that would be limited to researchers.

“Life got a lot busier” after the story broke, says Luneau, who has fielded interview requests from around the globe. “Someone told me we even made the news in Calcutta, India.”

Luneau receives dozens of e-mails daily, many from amateur bird-watchers who believe they have seen ivory-bills in their back yards. One such e-mail came from Ontario, Canada, where one would be more likely to find Elvis than an ivory-billed woodpecker.

Appreciation of the magnificent bird is contagious. Luneau’s wife, Terri, who supported him throughout his search for the woodpecker, has written a children’s book called “Big Woods Bird,” published in May.

And the search for the ivory-billed woodpecker continues. No one is certain whether seven documented sightings in the Big Woods in 2004 were all of the same bird. Luneau says the bird he recorded “was probably born in the ‘90s, but it could have been born in the 21st century.”

This gives scientists hope that a mating pair could exist, although searches for cavity nests that the ivory-billed woodpecker favors haven’t turned up anything yet.

Luneau laughs when told that a Google search of his name brings up scores of hits trumpeting his video. On this day he is at home trying to bring his air conditioner back to life. He’s not dwelling on the fact that his name forever will be linked to an ornithological breakthrough.

“I am very lucky to be part of it,” he says. “It’s a bird for the world.”

To see Luneau’s video of the ivory-billed woodpecker, visit www.birds.cornell.edu/ivory/.

Once, the ivory-billed woodpecker’s habitat stretched across the southern United States and included Cuba. But human settlement changed that. In 1935, Arthur A. Allen, founder of the Cornell Laboratory of Ornithology, made the only motion picture and audio recordings of the bird. By the end of the decade, only an estimated 25 ivory-bills remained in the United States. The last fully documented sighting — like Allen’s, also in Louisiana — occurred in April 1944. The ivory-bill — the third-largest woodpecker in the world and the largest north of Mexico — stands about 20 inches tall and flies with an impressive 30-inch wingspan. The bill is not ivory, by the way, but keratin-covered bone.