

SPECTRUM

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Tech
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

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TODAY'S EDITION

See page 2 for
information on
nominations for
university awards.

Dingus named interim head of new critical-technologies institutes

By Clara B. Cox

Thomas A. Dingus, director of the Virginia Tech Transportation Institute (VTI) and the Newport News Shipbuilding/Tenneco professor in the Via Department of Civil and Environmental Engineering, has received a one-year interim director appointment to guide the newly created Virginia Tech Institutes for Critical Technologies (VTICT) through its formative stages.

"Tom's work as head of the transportation institute speaks volumes about his abilities to manage a large-scale research initiative. In a short period under his leadership, VTI has grown tenfold and has overcome challenges similar to ones VTICT will face as it matures from concept to reality.

We believe he is the one person who can quickly move the critical technologies institutes into high gear," said Mark McNamee, university provost and vice president for academic affairs, in making the appointment.

VTICT will unify collaborating research units under an innovative organizational and financial structure that fosters substantial growth in sponsored research activities for such disciplines as biomedical engineering, nanotechnology and other advanced materials, information technology, transportation technology, and innovative energy and environmental solutions, McNamee said. It is a university-wide effort that, over time, could include research in all of Virginia Tech's schools and colleges, he added.

Dingus called the new entity "one of the

most important initiatives" for supporting Tech's goal of rising into the ranks of the nation's top 30. "VTICT will provide the tools to rapidly increase research productivity in critical areas of engineering and the physical sciences," he said. "These tools will include resources to strategically invest in state-of-art research laboratories and equipment as well as to invest in outstanding new and existing faculty members and students. We expect to develop both new programs as well as to invest in outstanding research faculty members and their programs currently at Virginia Tech."

According to Lay Nam Chang, interim dean, whose College of Arts and Sciences figures to be a major player in the new initiative, "VTICT is the university's means to come up with the

(See DINGUS on 3)

University Outreach announces restructuring

By Clara B. Cox

Creating a new and broader vision for its outreach mission, Virginia Tech has reorganized University Outreach and changed its name to University Outreach and International Affairs.

The University Office of International Programs (UOIP); the Center for European Studies and Architecture; and Virginia Tech's extended campuses in Abingdon, Roanoke, Richmond, and Virginia Beach have been moved into the newly named division, while several of its existing units have been restructured.

"This re-organization streamlines the administrative structure, facilitates greater focus, and provides the resources and leadership that will result in more effective programs that span all mission areas of the university," Provost Mark G. McNamee said in announcing the changes.

The study-abroad facility, which is located in Riva San Vitale, Switzerland, previously reported to the director of UOIP, who had answered directly to the provost. The Office of International Research and Development (OIRD) was already part of University Outreach.

"Coupling the international program units will provide greater opportunity for all members of the university community to participate in learning experiences designed to encourage intellectual growth and the appreciation for international cultures and economics," said Vice Provost C. Clark Jones, who has headed University Outreach since Jan. 1, 1999.

According to Jones, the new structure "will better facilitate the inclusion of students into international research-and-development activities that will provide them a greater understanding of the complexities of the global marketplace and give them a competitive advantage in their professional careers."

The four extended campuses added to outreach will comprise the Commonwealth Campus Centers unit in outreach and will report to John Dooley, associate provost of University Outreach and International Affairs.

"These centers will be redesigned to become the hallmark of the full-service centers concept representing all three missions of the university: teaching, research, and outreach. They will connect the full scope of resources represented by the university to provide timely response and leadership to regional needs and opportunities, and their offerings will include both credit and non-credit courses, as well as venues for new research endeavors," Jones said. The university's center in Falls Church, which administratively reports to the provost, will

(See UNIVERSITY on 3)

Engineering dean finalists to be on campus

The Dean of Engineering Search Committee has announced that two finalists will be on campus to interview during the week of September 30.

Hassan Aref, who is currently professor and head of theoretical and applied mechanics at the University of Illinois at Urbana-Champaign, will be on campus September 30 through October 2.

Esin Gulari, who is currently serving as acting assistant director for engineering at the National Science Foundation (NSF), will be on campus October 2 through 4. Both candidates will meet with a wide variety of college and university faculty and staff members, students, and administrators. All interested parties are invited to attend the open forums and receptions that follow.

Aref's open forum and presentation will be Tuesday, Oct. 1, from 4:30 to 5:30 p.m. in Donaldson Brown Hotel and Conference Center (DBHCC) rooms D and E. The reception for Aref will be Tuesday, Oct. 1, from 5:30 to 6 p.m. in DBHCC's Appalachian/Blue Ridge Room.

Gulari's open forum and presentation will be Thursday, Oct. 3, from 4:30 to 5:30 p.m. in DBHCC rooms D and E. The open forum and presentation will be video-recorded for later posting on the Provost's Homepage. The reception for Gulari will be Thursday, Oct. 3, from 5:30 to 6 p.m. in DBHCC Alumni Hall.

Brief profiles of Aref and Gulari follow. Their curriculum vitas are at www.provost.vt.edu.

Aref was educated at the University of Copenhagen and completed his Ph.D. in physics at Cornell University. He served as assistant and associate professor at Brown University from 1980 to 1985, associate professor of fluid mechanics and professor at the University of California at San Diego from 1986 to 1992. From 1989 to 1992 he was also chief scientist at the San Diego

(See ENGINEERING on 3)

Warner to Announce Budget Reductions by October 15

By Larry Hincker

Governor Mark Warner today outlined the process by which he will evaluate state agency budget-reduction proposals. The governor plans to evaluate agency plans in concert with agency heads and selected legislators.

"By October 15, my decisions on this initial round of reductions will be complete, and I will announce them. Based on those decisions, I will submit to the General Assembly a plan specifying the amounts to be reduced by each agency, as the Appropriation Act requires, and the reductions will be implemented for the current fiscal year.

"Let me be clear: not every agency will receive the same percent reductions. Some cuts will be higher; others will be lower. For some agencies, particularly those with substantial other sources of support, reductions above 15 percent may be reasonable," Warner said.

"Our decisions for budget reductions will be made with an eye toward protecting the commonwealth's most important tasks—providing for safe communities, educating our children, maintaining a social safety net, and strengthening our economy and the infrastructure that supports it, Warner said.

All state agencies were required to submit by September 20 three reduction scenarios describing the impact of reductions of 7, 11, and 15 percent.

Information on November 5 Bond Bill

By Larry Hincker

On November 5, Virginians will be asked to vote on the issuance of general-obligation bonds in the amount of \$900,488,645 for urgently needed upgrades, renovations, and new construction on the state's public college and university campuses—such as Virginia Tech—as well as for improvements at state museums, historic sites and cultural attractions. Every community college and public four-year colleges and universities in every region of the Virginia will benefit from the passage of the educational-facilities bond referendum.

Are Bonds Fiscally Responsible?

Yes. Consistent with Virginia's fiscally conservative philosophy, the bond referendum is prudent, fiscally responsible, and will be repaid in 25 years or less—without raising taxes. The referendum also does not affect Virginia's coveted "Triple A" bond rating.

• Voters may be confused because in

Northern Virginia and Hampton Roads, there are referenda to increase the sales tax. There is also a separate referendum for parks projects.

• There is concern about voter turnout (no contested elections are being held in November...it's basically a ballot of referendum).

• Virginia Tech stands to gain \$95 million from the bond passage for 11 different projects with a total value in excess of \$150 million.

• If you participate in a professional organization at the state level, please promote awareness of the bond campaign.

• How it will read:

Shall Chapter 859, Acts of the General Assembly of 2002, authorizing the issuance of general obligation bonds of the Commonwealth of Virginia in the maximum amount of \$900,488,645 pursuant to Article X, Section 9(b) of the Constitution of Virginia for capital projects for educational facilities, take effect?
Yes No

ACTIVITIES

EVENTS

Friday, 27

International Club Program, 5 to 6:30 p.m., Cranwell Center.

Art Exhibit, noon to 5 p.m. (Tuesday-Friday), noon to 4 p.m. (Saturday), Armory Art Gallery (through 10-4).

Saturday, 28

YMCA Program, 9:30 to 11:30 a.m., Luther Memorial Church.

Women in Graduate School: Challenges and Triumphs conference, 10 a.m. to 3:30 p.m., DBHCC.

Guest Student Recital, 3 p.m., Squires Recital Salon: Jeanne Schumann.

Football, noon: at W. Michigan, ESPN.

Sunday, 29

YMCA Hike, 1:30 p.m., YMCA parking lot.

Monday, 30

Pay Date for Faculty and Staff Members.

Faculty Development Workshop, 10 a.m. to noon, 1120 Torgersen.

Faculty Development Workshop, 3 to 5 p.m., 3060 Torgersen.

Tuesday, 1

Sexual-Assault Awareness Month Begins

Faculty Development Workshop, 10 a.m. to noon, 1120 Torgersen.

Family, Work/Life Resources Program, noon to 1 p.m., DBHCC room G.

Faculty Development Workshop, 3 to 5 p.m., 1120 Torgersen.

Wednesday, 2

Faculty Development Workshop, 10 a.m. to noon, 1120 Torgersen.

Faculty Development Workshop, 10 a.m. to noon, 3060 Torgersen.

Family, Work/Life Resources Program, noon to 1 p.m., DBHCC room A.

YMCA Noon Slide Show, noon, Cranwell Center.

Thursday, 3

Faculty Development Workshop, 10 a.m. to noon, 1120 Torgersen.

Graduate and Professional School Day, 10 a.m. to 3 p.m., Squires Commonwealth Ballroom.

Keynote, Hispanic Heritage Month celebration, 7:30 p.m., Squires Commonwealth Ballroom.

Economics Club Speech, 7:30 p.m., DBHCC auditorium: Robert A. Frank, Cornell University.

Friday, 4

Last Day to Drop.

International Club Program, 5 to 6:30 p.m., Cranwell Center.

SEMINARS

Friday, 27

College of Business/Foreign Languages, 11:15 a.m., 1045 Pamplin: Karen Loch, Georgia State University.

MCBB, 12:20 to 1:10 p.m., Fralin auditorium: Vytas Bankaitas, UNC—Chapel Hill.

Geological Sciences, 3:30 p.m., 4069 Derring: Patricia Dove.

MSE, 3:30 to 4:30 p.m., Hancock auditorium: David Gray, Hamad Abatutain.

Monday, 30

Biochemistry, 4 p.m., 223 Engel: Michael J. Barber, University of South Florida.

Horticulture, 4 p.m., 409 Saunders: Richard McDonald, Symbiont Biological Pest Management.

Friday, 4

MCBB, 12:20 to 1:10 p.m., Fralin auditorium: Jeff Dangel, UNC- Chapel Hill.

Geological Sciences, 3:30 p.m., 4069 Derring: Rick Law.

Biomedical Sciences, Engineering, 3 to 4 p.m., 110 Holden: Laurie Locascio, National Institute for Standards and Technology.

BULLETINS

CAS to hold career fair

The College of Arts and Sciences will sponsor Career Spectrum, a job fair geared specifically toward Arts and Sciences majors, today in Squires Commonwealth Ballroom from 10 a.m. to 4 p.m.

Students will be able to meet and talk with recruiters from many companies, show their resumes, and build their personal networks, according to Debbie Wilson, Career Services coordinator. The companies will be recruiting for many different types of positions, including internships, co-ops, and full-time jobs.

Companies attending represent a wide variety of career choices. The companies include Capital One, CIA, Colonial Williamsburg Foundation, Ecolchem, Exxon Mobil, Maxim Healthcare Services, National Security Agency, Soil Consultants Engineering Inc., and U.S. Navy Officer Programs.

Faculty and staff members are encouraged to stop by the

fair to meet and talk with recruiters.

For more information, call Wilson at 1-8131.

Graduate and Professional School Day set

The Graduate Student Assembly is sponsoring Graduate and Professional School Day on Wednesday, Oct. 2, in Squires Commonwealth Ballroom from 10 a.m. to 3 p.m. Approximately 75 universities and Virginia Tech departments will provide students with information about their advanced degree programs. Traditionally, graduate schools, law schools, medical-health related schools, business schools, and engineering schools have attended. Some of the institutions already registered include Clemson University, MCV/VCU Medical School, Wake Forest School of Law, and the University of Tennessee.

This event is free to all students. For more information, contact Paula Williams at 1-7919.

Economics Club to sponsor Cornell professor

The Economics Club will sponsor a speech by Robert A. Frank, professor of economics at Cornell University on Thursday, Oct. 3, at 7:30 p.m. in the Donaldson Brown auditorium. Frank's speech will be "Does Increase in Inequality Harm the Middleclass?"

Graduate Women's Forum presents Toth

The Graduate Women's Forum presents Emily Toth, known for her *Ms. Mentor* column on the Chronicle of Higher Education on line, on Saturday, Sept. 28. Toth will speak on "Navigating the Academy: Survival Strategies for Graduate Women" at 10 a.m. in the Donaldson Brown Hotel and Conference Center auditorium. The event is open to the entire campus community.

For more information, contact Rachel Christensen at 1-7806 or rachrist@vt.edu.

Nominations sought for Ruffner Medal, University Distinguished Achievement Award

Nominations are being sought for the individuals to be named William H. Ruffner Medal or University Distinguished Achievement Award recipients.

The Ruffner Medal provides recognition to individuals who have performed notable and distinguished service to the university. Its name honors a member of the initial board of the institution who was instrumental in shaping the curricula of the fledgling college. Ruffner also was Virginia's first State Superintendent of Public Instruction.

Examples of such service would include outstanding achievement in efforts devoted to the promotion, improvement and development of the university's mission as a land-grant university; significant service on one or more of the official, informal, university-related, or otherwise designated advisory, counseling, volunteer, or action groups serving the university; and extraordinary interest in and support of (including material support) the well-being of the university and its students, faculty and staff members in efforts to provide educational opportunities and research and

public-service programs on behalf of the citizens of the state and nation.

No individual affiliated with Virginia Tech as a student, faculty or staff member, administrator, trustee, or in any similar capacity is eligible for the Ruffner Medal until at least 12 months after ending their affiliation.

The University Distinguished Achievement Award is awarded for nationally distinguished achievement, personal and/or professional, in any field of endeavor of enduring significance and value to the society; and an identifiable and appropriate relationship with the university, so that presentation of the award would reflect favorably both on the award recipient and the institution.

The same restriction regarding university affiliation applies to the University Distinguished Achievement Award as to the Ruffner.

While most persons selected for the award will likely be alumni or alumnae, or previously would have had some faculty, staff, or trustee relationship with the university, the above would

(See *NOMINATIONS* on 4)

Speaker selected for Hispanic Heritage Month keynote address

By Juliet Crichton

Judge Marilyn Milian, who last year became the first female judge to preside over television's syndicated courtroom show *The People's Court*, will present the keynote address for Virginia Tech's Hispanic Heritage Month celebration. The October 3 event begins at 7:30 p.m. in Squires Commonwealth Ballroom, and is open to the public.

Fluent in Spanish, Milian spent a year at Harvard Law School as the director of training for the Guatemala Project, responsible for training the Guatemalan trial judiciary, defense, and prosecution bar in investigatory and trial techniques. She served from 1984-1994 as an assistant state attorney for the Dade County State Attorney's Office, followed by an appointment by then-Gov. Lawton Chiles to a

five-year stint in the Miami County Court in the Domestic Violence, Criminal, and Civil Divisions. In 1999, Florida Governor Jeb Bush appointed her to the Miami Circuit Court, where she served in the Criminal Division.

Milian received her undergraduate degree from the University of Miami, graduating *summa cum laude* with a 4.0 grade average. She then graduated *cum laude* from Georgetown Law School.

Milian's talk will be the highlight of the Virginia Tech Hispanic Heritage Month celebration. The theme for this year's celebration is "Where we've been, where we are, and where we are going" ("*El pasado, el presente y el porvenir*").

For more information, call Kimberly Philpott at 1-3787.

CAMPUS UPDATE

Funding-resources site has new web pages

The Research Division's on-line "Funding Resources" site has two new web pages, focusing on humanities and social sciences and homeland security.

From www.research.vt.edu/funding/, select "Funding Resources" then "Special Topics" or go directly to www.research.vt.edu/focus/specialtopics.html.

The humanities and social-sciences page (www.research.vt.edu/focus/humanities.html) provides links to funding resources: databases, alert services, federal agencies, foundations, and recent announcements from the "Opportunity Update."

The seven topics under homeland security are national and international security issues, weapons technology, sensor-and-surveillance technology, safety and disaster-response issues, peace and international affairs, Afghanistan and Middle Eastern studies, and biosecurity, health, and safety issues. In addition to funding resources, each also links to related reports and to pre-defined Community of Science funding searches.

The web sites are maintained by Liz Ackerman, web master for the Office of the Vice Provost for Research. To receive the weekly Opportunity Update e-mail, contact Ackerman at lizacker@vt.edu.

ENGINEERING

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Supercomputer Center. He has been in his current position at University of Illinois since 1992, except for a one-year appointment as interim chief information officer for the institution.

Gulari was educated at Robert College in Istanbul, Turkey, and completed her master's and Ph.D. in chemical engineering at the California Institute of Technology. Beginning in 1979, Gulari served as assistant, associate, and professor of chemical engineering at Wayne State University, where she was then appointed chair of the Chemical Engineering and Materials Science Department in 1993. In 2000, she was appointed division director of the Chemical and Transport Systems Division at NSF and then as acting assistant director of engineering since September 2001.

Virginia Tech Research Magazine now available electronically

The *Summer 2002 Virginia Tech Research Magazine* is now available at: www.research.vt.edu/resmag/.

Topics in this issue include infectious disease research, including mosquito control; non-timber forest products, a potential source of immense profit in the deep forests of Appala-

chia; faster, safer, cheaper, air travel using small airplanes; composer Kent Holliday's music, which commemorates people, events worldwide; using virtual reality to study structure stability; using model airplanes to scout fields for pest infestation and disease; scholarship to

preserve the author John Donne's exact words, and brief items about CAT scans of rocks, controlling unmanned vehicles, modeling complex molecules, students working too many hours, whistle blowing risks, bioterrorism on the farm, and a metropolitan institute.

Sterrett Scholarships Awarded

The Staff Association for Facilities Employees "S.A.F.E." recently awarded the William M. Sterrett Sr. Scholarship.

The scholarship is available to Facilities employees and their dependants. This year's recipients were Heather Harris, daughter of David and Rita Harris. David Harris is a Physical Plant Storeroom employee. The second

recipient was Joshua Manning son of Allen and Janet Sanders. Allen Sanders is an electrician for the Physical Plant Department.

For more information, to apply or make donations to the scholarship visit web site www.facilities.vt.edu, and go to the William M. Sterrett Sr. Scholarship link.

DINGUS

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rapid response that will be necessary to maintain a leadership role in cutting-edge research in science and technology. More and more, progress in these areas requires 'breakthroughs on demand.' To succeed in this new reality, we will need to pool together talent across several colleges in the university. VTICT is the vehicle for us to achieve these ends."

VTICT was created from a plan originally conceived by the College of Engineering in 1997, and Malcolm McPherson, architect of the plan and interim dean of the college, predicted it would move his college into the nation's top-10 engineering schools. "Tech's institutes will allow for a seamless path from fundamental research through applied research and development to technology transfer, not only through publications but also through the licensing of intellectual property, the initiation of new companies, student involvement, and technical assistance to Virginia companies," McPherson said.

The new entity is based on the concept of organized research units (ORU's), which other universities have used to allow synergistic research groups from the science and engineering areas to work together at one

campus location. The ORU's employ full-time researchers and support personnel with strong linkages to academic units through faculty and student involvement, often generate a high return on investment, and play a primary role in elevating the status of the associated university.

According to McNamee, VTICT will incorporate the common features of the ORU's that have produced strong economic growth.

A task force is being organized to raise the \$85 million needed by 2007 to fund the institute. Co-chairs are A. Clifton Lilly Jr., vice president of technology for Phillip Morris USA; Ray Martin, chair emeritus of Schnabel Engineering Associates; and Joseph Viperman Jr., retired executive vice president of American Electric Power.

Dingus, director of the transportation institute since 1996, has conducted transportation-safety and human-factors research since 1984. Before joining the Virginia Tech faculty, he served as associate director of the University of Iowa's driving-simulation facilities and director of the National Center for Advanced Transportation Technology at the University of Idaho. He has managed nearly \$60 million in research funding and has written more than 120 technical publications during his career.

UNIVERSITY

Continued from 1

collaborate programmatically with the Commonwealth Campus Centers.

In a major restructuring of other program units reporting to Dooley, Doug McAlister, formerly director of Public Service Programs, now heads a new unit called Program Development, which includes Public Service Programs, Continuing Education, the Center for Organizational and Technological Advancement (COTA), Donaldson Brown Hotel and Conference Center, and Hotel Roanoke and Conference Center. Ted Settle, who had led Continuing Education, is now director of the newly formed Economic Initiatives and Marketing Research. The Economic Development Assistance Center, which previously was part of Public Service Programs, now reports to Settle.

The university's outreach-program activities in Southside Virginia and the Institute for Advanced Learning and Research, which is led by Tim Franklin, complete the program units of the University Outreach and International Affairs division.

"These organizational changes will result in an enhanced capacity for the university to better lead and serve its various communities and customers across all mission areas of the university," Jones said.

EMPLOYMENT

The following classified positions are currently available. Position details, specific application procedures/position-closing dates may be found on Personnel Services web site <http://www.ps.vt.edu>. Positions are also listed on the Job Line, a 24-hour recorded message service. For information on all job listings, call 1-5300. Some positions include state benefits. Positions with numbers beginning with "W" are hourly and do not include state benefits. Individuals with disabilities desiring assistance or accommodation in the application process should call by the application deadline. Closing date for advertised positions is 1 p.m. Monday. An EO/AA employer committed to diversity.

FULL TIME

Two full-time food-service positions available.

Analytical Biologist, 008020K, PB 3, VBI.

Biostatistician, 008018K, PB 4, VBI.

Budget Analyst, 006927F, PB 4, BFP.

Business Practices Specialist, 007952F, PB 5, Controller's Office.

Computer Operations Technician, 008023J, PB 3, VTTI.

Data Integrity Coordinator, 007818S, PB 3, University Development.

Division Head, Construction Services, 007597F, PB 6, CDC.

Employee Relations Program Coordinator, 001073D, PB 5, Personnel Services.

Financial Analyst, 006676Y, PB 4, OPS.

Graduate Staff Support, 002583B, PB 3, CIS.

Housekeeping Worker, 002243H, PB 1, RDP.

Housekeeping Worker, 007776C, PB 1, DBHCC.

HVAC Technician, 008001H, PB 3, RDP.

Lab Facility Coordinator, 008021K, PB 4, VBI.

Laboratory Specialist Senior, 007582M, PB 4, CVM.

Molecular Biologist, 008019K, PB 3, VBI.

New Student Processing Supervisor, 001887S, PB 3, Undergraduate Admissions.

Research Specialist, 007732J, PB 3, FWS.

Scientific Glassblower, 001267B, PB 5, Chemistry.

Software Developer, 008017B, PB 5, Computer Science.

PART TIME

Animal Care Technician, W022675M, PB 1, VTH.

Animal Care Technician Large Animal, W020066M, PB 2, VTH.

Icu Veterinary Technologist Large Animal, W022218M, PB 2, VTH.

Large Animal Husbandry, W022155M,

PB 1, VTH.

Office Services Specialist, W020596J, PB 2, Schiffert Center.

Postal Assistant, W022549M, PB 2, CVM.

Registered Nurse, W023484J, PB 4, SHS.

Research Specialist, W023480M, PB 3, CSES.

Smart Road Dispatcher, W023483J, PB 3, VTTI.

Storekeeper, W022291M, PB 2, VTH.

OFF CAMPUS

4-H Technician, 008022M, PB 2, VCE—Dickenson County.

Administrative Program Support, 007411B, PB 3, Engineering/NVC.

Nursing Supervisor, 006726M, PB 3, CVM.

Senior Program Administrator, 006436Y, PB 4, DCE.

FACULTY POSITION

NON-INSTRUCTIONAL

Virginia Cooperative Extension, Albermarle/Greene Counties. Extension Agent. Contact: Steve Umberger, 121 Hutcheson Hall, (0437).

Virginia Cooperative Extension, Fluvanna County. Extension Agent. Contact: Steve Umberger, 121 Hutcheson Hall, (0437).



VIRGINIA POLYTECHNIC INSTITUTE
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Editor
John Ashby, 1-6961

News Bureau Manager
Sherri Box, 1-8508

Production Manager
Melinda Shaver, 1-8524

Business Manager
Paula Vaught, 1-8819

Web/Editorial Assistant
Sherri Songer, 1-2522

Letters to the editor and questions for "Ask *Spectrum*" should be addressed to the editor, 102 Media Building, Virginia Tech, Blacksburg, VA 24061.

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Professor's new system solves problems by tricking computers

By Sally Harris

If people were computers, Srinidhi Varadarajan of the Department of Computer Science could enable them to go back to their youth to correct mistakes they made, adapt a jet engine to run a car, or change a part from one SUV engine to another as both vehicles sped down a highway side by side.

Of course, people aren't computers and don't need to do those things, but computers need to do equivalent processes. Varadarajan has come up with the method, Weaves, a compiler technology that allows the programmer to use a code in any programming language and convert it to a form similar to object-oriented programming. Weaves technology is used to create a virtual world that tricks the software into thinking it is in the real world.

The global computer network—the Internet—has doubled every year for nearly 20 years. The problem is how to test new pieces of network software on such a grand scale. The traditional method is through computer simulation, such as the model of a jet cockpit in which beginning pilots start to learn how to fly a plane. But simulation requires rewriting the software in a different form to test it, as the original cannot be tested. That creates two different versions, and there is no formal mechanism to ensure the equivalence of the test with the real thing, Varadarajan said.

Another method is emulation, or the direct testing of the original software. That way, the programmer can write a piece of software once and not have to rewrite it for simulation testing. The main problem with emulation is a lower degree of control than simulation. Why not, Varadarajan asked, create a virtual world to make software think it is in the real world? Weaves can support both simulation and emulation testing, which was Varadarajan's first goal. "You can't test a piece of network software on 200-million computers," he said. Or even 5,000 computers. "But we can create hundreds of thousands of virtual machines that make software think it's running on a very large-scale network. This leads to the creation of a virtual Internet."

Weaves can do all the things existing systems can do and more without asking software programmers to write code specifically for Weaves. "They just write it as they usually do and we take it," Varadarajan said. Then, through reverse analysis, Weaves can make any language look the same.

Also, Weaves allows for mistakes. "In each step in life, we take steps based on what we know," Varadarajan said. "If we realize we made a mistake and want to go back and undo it, we have to remember all the steps we took that caused the mistake." On the computer, the program must also remember all the steps made

leading up to a mistake. "Trying to save all the information is very hard," Varadarajan said. "We are trying to make Netscape work without knowing the steps that lead up to the mistake. Weaves automatically does this. It records and saves data and shows what we need to go back in time to change." Thus the system allows for the weaving together of the languages and codes and for fast automatic checkpointing and recovery with no application support.

With a National Science Foundation CAREER award of \$400,000 over five years for his proposal "Weaving a Code Tapestry: A Compiler Directed Framework for Scalable Network Emulation," Varadarajan will continue research using Weaves, which "uses a novel vertical integration of the compiler-generated

object framework, operating system and compiler support for fast and memory-efficient checkpointing, and a new adaptive time window based on parallel-discrete-event-simulation algorithm, all of which work in conjunction." This would be analogous to enabling a person to adapt a jet engine to work in a car or exchange parts in two fast-moving vehicles without stopping them.

As all CAREER awards require an educational component, Varadarajan will develop learning modules to augment the simulation-based projects used in networking courses across the country to save students from spending an inordinate amount of time learning the intricacies of working in a simulation environment.



The solar house on the Mall in Washington, D.C. is part of the Solar Decathlon. (R. Dunay)

Solar house transported to D.C. safely

By Sarah Newbill

Last week marked a milestone in Virginia Tech's entry in the national Solar Decathlon competition as the team's 530-square-foot solar house was successfully transported and set up on the Mall in Washington D.C. alongside 13 other competing houses from all over the nation.

Following the opening ceremony, competition began with judging in 10 specific categories. Public tours of the competing houses will continue through October 6, with the final

winner announced on October 5.

Daily rankings for the Tech entry will be updated during active competition at http://www.eren.doe.gov/solar_decathlon/follow.html. As a part of the graphics and communications category of the competition, the teams are required to post daily diaries about their experience in the Solar Decathlon. These diaries will be posted from September 30-October 4 at the link listed above.

University proceeds with Fall Commencement

By Larry Hincker

Virginia Tech will proceed with Fall Commencement in December as planned. The university must cut an additional \$11 to 33 million from its state appropriations and had considered eliminating the fall ceremony to meet reduction targets in the office responsible for Commencement. The university must cut up to \$100,000 from its various Commencement activity budgets.

"Because the cuts proposed are permanent reductions in our base budget, we may look again next year at eliminating this program. However, cancellation this year would cause a severe hardship on students and their families who have made plans many months ago. Having spent most of my career in education, I understand well the emotional attachment to Commencement. I am very grateful for the support from the local hotel community, which helped save this program," said President Charles Steger.

Local hotels have agreed to contribute a portion of room night revenues related to Commencement to help the university defer costs for this year's event. Private funds were contributed to offset the balance that was cut from the Commencement budget.

Steger said, "In order for us to preserve academic quality, we must focus our financial resources on the classrooms and laboratories. I fear that elimination of various Commencement activities is only the beginning of program reductions that will occur as we cope with unprecedented losses in state support. Cuts of this magnitude are inflicting deep wounds on all of higher education."

A decision on the continuance of Fall Commencement will be made before the end of Spring Semester 2003.

Dairy Club named number one in nation

By Stewart MacInnis

The Virginia Tech Dairy Club was named the top student club at the American Dairy Science Association Student Affiliate Meeting in Quebec in July.

"The last time we had a first-place win was in 1994," said David R. Winston, Extension dairy scientist and a club adviser. "Since 1980, though, this is the eleventh time we've been first place. So we've put a long dry spell behind us."

Nine other student chapters nationally competed against Virginia Tech for the outstanding chapter award. Judges looked at such indicators as membership, club activities, and participation at student affiliate meetings.

In addition to being named the outstanding student chapter, the Virginia Tech Dairy Club also received a first-place award for its scrapbook, and third-place awards for its yearbook and web site. Ten students from the 65-member club and five advisers attended the Quebec meeting.

Ray Nebel, professor of dairy science, was named outstanding adviser in the national organization. Winston was elected first-year adviser.

NOMINATIONS

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not preclude presentation of the award to a Commencement speaker, visiting scholar, public official, or individuals with other such relationships. The potential recipients of the proposed University Distinguished Achievement Award would not necessarily have had the same close association with the institution as is required for the Ruffner Medal. Nominations for the Ruffner Medal and the University Distinguished Achievement Award should be forwarded to Elizabeth Flanagan, vice president for Development and University Relations by November 15. Additional awards information is available at www.universityawards.vt.edu.

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