'Snowpocalypse' Kicks Off New Year

When he's not designing ever-tougher lattice-based encryption schemes, Assistant Professor Chris Peikert (CS) moonlights as a snow sled for his daughter, Clara. This is one of dozens of "Hothlanta 2011" images, submitted by members of the College of Computing community, that capture the most severe winter storm Atlanta has seen in years. The snow began falling Sunday, Jan. 9, and was followed by several days of freezing temperatures that kept Georgia Tech closed for three full days from Jan. 10-12. Many local school systems shut down for the entire week. To view galleries of CoC-related images, visit the College's Facebook page and Flickr photostream. Photo by Rob Friedman.

Research News

Financial Dashboard for November 2010

<table>
<thead>
<tr>
<th>2011 YTD New Awards</th>
<th>Proposed Contracts for November 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>$19,450,999</td>
<td>Total $ Amount</td>
</tr>
<tr>
<td></td>
<td>GTI SC  I C  CS  RIM  CSE</td>
</tr>
<tr>
<td>11</td>
<td>$8,898,841  &lt;1%  62%  20%  6%  12%</td>
</tr>
</tbody>
</table>

Inches of snow dumped on GT campus during Ice-olation 2011 (campus record, set in 1940, is 10.3 inches)

Snowplows available to city of Atlanta

Undergraduate GT applications received by extended deadline of Jan. 20 (5% increase over previous year)

$20.1M FY2011 YTD new research awards on
Newly Awarded Contracts for November 2010

<table>
<thead>
<tr>
<th>Sponsor</th>
<th>Value</th>
<th>PI</th>
<th>Co-PIs</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samsung</td>
<td>$190,000</td>
<td>Hyesoon Kim</td>
<td>None</td>
<td>Parallelizing Applications for Mobile Multi-Cores</td>
</tr>
</tbody>
</table>

Grants/Gifts Received for November 2010

<table>
<thead>
<tr>
<th>Sponsor</th>
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<th>PI</th>
<th>Co-PIs</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMware</td>
<td>$45,000</td>
<td>Karsten Schwan</td>
<td>Ada Gavriloska</td>
<td>Virtualization Research</td>
</tr>
<tr>
<td>Yahoo!</td>
<td>$5,000</td>
<td>Amy Bruckman</td>
<td>None</td>
<td>Web Science Lecture Series</td>
</tr>
</tbody>
</table>

Financial Dashboard for December 2010

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<thead>
<tr>
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<tr>
<td>$20,097,628</td>
<td>Total $ Amount</td>
</tr>
<tr>
<td></td>
<td>GVU</td>
</tr>
<tr>
<td></td>
<td>40</td>
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Newly Awarded Contracts for December 2010

<table>
<thead>
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<th>Sponsor</th>
<th>Value</th>
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<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lawrence Livermore Labs</td>
<td>$55,770</td>
<td>Richard Fujimoto</td>
<td>None</td>
<td>Reverse Computing Compiler Technology</td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
<tr>
<td>Yahoo!</td>
<td>$5,000</td>
<td>Amy Bruckman</td>
<td>None</td>
<td>GLITCH Game Testers</td>
</tr>
<tr>
<td>Intel</td>
<td>$55,000</td>
<td>Matthew Wolf</td>
<td>Ada Gavriloska, Russ Clark</td>
<td>MeeGo Curriculum Development</td>
</tr>
</tbody>
</table>

People@CoC

Edwards to Serve as GVU Acting Director Following Mynatt Departure

Effective Feb. 1, Beth Mynatt (IC) will step down as GVU director to serve as executive director for Georgia Tech’s new Institute for People and Technology, and GVU Associate Director Keith Edwards (IC) will be promoted to acting director. Edwards brings to the GVU community expertise in diverse areas: He is an internationally recognized expert in human-computer interaction, ubiquitous computing and collaborative systems. An ACM Distinguished Scientist, Edwards is the author of two books and more than 120 scientific papers and patents; he serves on Microsoft's Trustworthy Computing Advisory Board, and he recently was technical program chair of the CHI 2010 conference, the premier conference in the field of human-computer interaction.

“TI am excited about Keith’s ability to build on GVU's successes, and his commitment to continue GVU's interdisciplinary mission,” said College of Computing Dean Zvi Galil in announcing the change. “I want to also thank Beth for her substantial contributions to GVU over the last five and a half years. She has led the center through a period of sustained growth and increasing partnerships, both on campus and off.”

Bader Guest Co-Edits Special Issue of IEEE TPDS

David Bader (CSE) co-guest-edited a special issue of IEEE Transactions on Parallel and Distributed Systems that focuses on high performance computing with accelerators. Published as the January 2011 issue, it covers a range of accelerator issues that highlight how high
performance computing can be used effectively to break down computational barriers in challenging applications. This issue also contains a collection of papers that explore the hardware accelerator design space.

**Randall Chair of the Program Committee for the ACM/ SIAM SODA**
Dana Randall (CS) chaired the program committee for the ACM/SIAM Symposium on Discrete Algorithms (SODA), held in San Francisco, Jan. 23-25. SODA, one of the major annual theoretical computer science conferences, focuses on research topics related to efficient algorithms and data structures for discrete problems. Researchers presented 135 papers out of more than 500 submissions.

**Vazirani Searches for Digital Equilibrium Theory at MIT, UCLA**
Vijay Vazirani (CS) delivered a talk, “Extending General Equilibrium Theory to the Digital Economy” at MIT on Dec. 7, 2010, and at UCLA on Jan. 10. The talk discussed how a new pricing model needs to be developed for digital goods. General equilibrium theory, which Vazirani called the "undisputed crown jewel of mathematical economics" over the past century, does not apply to digital goods; once produced, a digital good can be reproduced at (essentially) zero cost, thus making its supply infinite. Vazirani's talk was based on a joint paper with Kamal Jain of Microsoft Research.

**ARC Student Fellowships Awarded for Spring 2011**
The Algorithms & Randomness Center (ARC) recently announced the winners of its fellowships for Spring 2011. The recipients, mentors and their proposed projects include:

- **Anand Louis** (CS): "Towards a Spectral Algorithm for Small-Set Expansion and Graph Multi-Partitioning." Mentors Santosh Vempala (CS), Prasad Raghavendra (CS) and Prasad Tetali (CS & Math).
- **Linji Yang** (CS): "Analysis of the Hard-Core Model on Square Lattices Beyond the Tree Uniqueness Threshold." Mentor Eric Vigoda (CS).

This year's winners were selected by a committee including chair Prasad Tetali, Vladimir Kolchinuskii (Math), Milena Mihail (CS), Sasha Boldyreva (CS), Bill Cook (ISyE) and Ton Dieker (ISyE). For more information, visit the ARC website.

**Randall Chairs AMS Committee at 2011 Joint Mathematics Meeting**
Dana Randall (CS) chaired the AMS Program Committee for the Joint Mathematics Meeting, held Jan. 6-9 in New Orleans. The Joint Mathematics Meeting, the largest annual mathematics meeting in the world, features some of the leading scientific publishers, computer hardware and software manufacturers, health and lifestyle companies, companies offering mathematics enrichment products, and professional organizations. The AMS (American Mathematics Society) committee chooses the invited plenary speakers for the meeting, which is a comprehensive scientific program geared toward mathematicians of all ages and levels of expertise.

**Bader Speaks as Invited Panelist at NSF Workshop on HPC**
David Bader (CSE) served as an invited panelist at the National Science Foundation's "Community Input on the Future of High Performance Computing" workshop, held Dec. 3, 2010, in Arlington, Va. Bader was joined by fellow panelists Raquell Holmes from the Center for Cell Analysis and Modeling at the University Connecticut Health Center, David Lifka from Cornell, and Daniel Reed from Microsoft. The workshop addressed broader engagement and workforce development in high performance computing.

**Mynatt Receives 2011 Cancer Research Award**
Outgoing GVU Director Beth Mynatt (IC) has been selected by the Georgia Cancer Coalition to be among the 12 recipients of a 2011 Cancer Research Award, together with another Georgia Tech faculty member, Ali Adibi of the School of Electrical & Computer Engineering. Mynatt will receive $50,000 to support a collaborative effort among Georgia Tech, Children's Healthcare of Atlanta, the Georgia Department of Community Health, Morehouse School of Medicine and IBM to develop a distributed model of the pediatrics system in Georgia. The goal is to better understand how care processes, information and resources flow through the system.

**GVU, CoC Communications Take Home CASE D-III Awards**
The GVU 2010 Annual Report received an Award of Excellence from the 2011 Council for
Advancement and Support of Education (CASE) District III Awards Program and is among the finalists for CASE D-III Grand Award. Also, the Office of Communications received a Special Merit award for its undergraduate recruitment publication, "From Application to Graduation: Mapping the Path to Your Future." The finalists will be recognized and Grand Award winners announced at the 2011 CASE District III Conference, to be held Feb 20-23 in New Orleans.

**Vempala Lectures at India's Top CS Theory Conference**

Santosh Vempala (CS) gave a plenary lecture at Foundations of Software Technology and Theoretical Computer Science (FSTTCS), India's flagship theory conference. FSTTCS is a forum for presenting original results in foundational aspects of computer science and software technology. Vempala's lecture, titled "Recent Progress and Open Problems in Algorithmic Convex Geometry," includes algorithms for sampling, optimization, integration, rounding and learning, as well as mathematical tools such as isoperimetric and concentration inequalities.

**CoC Well Represented at Consumer Electronics Show**

Russ Clark (CS) and graduate students Maribeth Gandy (IC) and Jeff Wilson (CS), along with Brian Davidson of the Interactive Media Technology Center and Matt Sanders of the Research Network Operations Center highlighted Georgia Tech's augmented reality research at the Consumer Electronics Show (CES), the world's largest consumer technology tradeshow, held Jan. 6-9 in Las Vegas. In the Alcatel Lucent booth, Gandy and Clark helped show off the "Virtual Tour Guide" application built using Georgia Tech's Argon browser and 4G/IMS services. In the Verizon booth Wilson and Gandy helped show the "Video Portal" research project that explores the next step in video conferencing, integrating augmented reality concepts.

**Christensen Organizing Top 2011 Robotics Conferences**

Robotics & Intelligent Machines (RIM) Center director Henrik Christensen (IC) is helping to organize two of the world's top robotics conferences in 2011. Christensen is serving as general chair for the 20th IEEE International Symposium on Robot and Human Interactive Communication (Ro-Man 2011), to be held in Atlanta from July 31 to Aug. 3, and Ayanna Howard (IC) is serving as chair for local arrangements for the conference. Christensen, along with Stanford's Oussama Khatib, is serving as general co-chair for the 15th International Symposium on Robotics Research (ISRR 2011), to be held Aug. 28 to Sept. 1 in Flagstaff, Arizona.

**Personnel Announcements**

Scott Gilliland has joined CoC as a Temporary Research Scientist I in IC effective 11/22/10. His email address is scott.gilliland@gatech.edu and is located in TSRB 240. Welcome Scott!

Magdalena (Magda) Slawinska has joined CoC as a Research Scientist I in CS (CERCS) effective 11/24/10. Her email address is mslawins@cc, phone number is 4-6831 and is located in KACB 3226. Welcome Magda!

Alex Goldstein has joined CoC as a Program Manager in IC (RIM Center) effective 12/1/10. His email address is alex.goldstein@cc, phone number is 5-8548 and is located in CCB 219. Welcome Alex!

Mariya Ishteva has joined CoC as a Post-Doc in CSE effective 1/15/11. Her email address is mishteva@cc and is located in KACB 1336. Welcome Mariya!

Santosh Vempala has been awarded an honorary courtesy appointment by the school of ISYE here at GT. Congratulations Santosh!

Nyree Pugh is now the Purchasing Associate in the Financial Services department of the College. Congratulations Nyree!

Constantinos Mannouris' last day at CoC was 1/7/11. Best wishes, Constantinos!

**General News**

**David Keyes to Keynote CSE Convocation, Set for Feb. 11**

To celebrate its elevation to school status and explore the boundaries of the very discipline it is helping to create, the School of Computational Science & Engineering will hold the CSE Convocation on Friday, Feb. 11, in the Klaus Atrium. The event will feature a panel discussion, "Transformational Science: Past, Present, Future," moderated by Jeff Vetter and featuring CSE faculty members Haesun Park, David Sherrill and Jeffrey Skolnick. The event's keynote speaker will be David Keyes, dean of mathematical and computer sciences and engineering at King Abdullah University of Science and Technology, who will speak on "The Exascale: Why and How."

**CoC Projects Benefit from GT Technology Fee**

Four projects proposed by TSO to support academic and research operations in the College
received approval for funding through the Georgia Tech technology fee. In an allocation phase that distributed more than $3.4 million to projects across campus, the four proposals included:

- **Manycore Computing Equipment for Massive Data Analysis**, which delivers a comprehensive platform for teaching the current state of the art in both traditional HPC and emerging large-scale data analysis on modern architectures.
- **InVention Labs 2**, which supports ongoing efforts to create a networked set of rapid prototyping labs across campus offering open-access, flexible, easy-to-use, precision fabrication tools.
- **Programmable Networking Hardware Lab & Test-Bed**, which will build a new state-of-the-art, hands-on laboratory for programmable, software-defined networking equipment for graduate networking courses.
- **Academic Instructional Facilities/Networking**, which supports upgrades to networking capabilities in classrooms, instructional labs and surrounding common spaces, introducing technology that will boost bandwidth, provide significantly increased network security and accountability, and improve network management.

**Peterson Signs Letter to Obama Supporting ‘Robotics Roadmap’**

Georgia Tech President Bud Peterson was one of 11 university presidents to sign a letter to President Barack Obama endorsing the “Robotics 2.0” report created in 2009 by a joint Computing Research Association and Computing Community Consortium committee chaired by RIM Director Henrik Christensen (IC). The report, which has also been called a "U.S. Robotics Roadmap," explored and recommended research investments for robotics in such vital economic sectors as manufacturing, health care and service, as well as looked into the future for emerging trends and technologies. “Robotics has captured the imagination of generations of Americans," read the letter to Obama. “Today, robotics has the potential to author yet another chapter in the rich history of the federal/university/industry partnership to extend the boundaries of knowledge and opportunity.”

**Women@CC Kicks Off Spring Semester Activities**

Women@CC has had a great start this semester. Facebook recruiters came to Georgia Tech from Jan 18th-19th to talk to students about their experiences and to give opportunities for students at their company. Also, on Friday of that week, members of Women@CC took an outing to Chow Baby to kick off the New Year. Meetings will start on Thursday, January 27th at 6-7pm in room 354 of the College of Computing (the same room as last semester). If you have any questions, please contact Co-Chairs Linda Hyunh or Alissa Hartenbaum.

**Research SVN and TRAC Service Upgrade**

Good news for research programming users of SVN (a software version control tool) and TRAC (a project management and bug tracking tool). TSO recently migrated and upgraded the Research Community SVN and TRAC service to newer, faster hardware and to the latest versions of the application software. Researchers can use the SVN Request Form on TSO's website to request an SVN Repo and TRAC instance for research projects. Instructional SVN/TRAC repos are managed on a different set of servers, and those requests should still be sent to helpdesk@cc.gatech.edu.

**Mailman Mailing List Services Merged**

TSO provides a Mailman mailing list service for list addresses ending @cc.gatech.edu. Until recently, the service was provided using two separate Mailman servers. TSO has merged the two servers into one, located at http://mailman.cc.gatech.edu/. Now users need only remember one location to find and manage their mailing list membership. In addition, monthly password reminders have been deactivated since Mailman now supports on-demand password reminder via email. New mailing list requests should be sent to helpdesk@cc.gatech.edu.

**Fedora Linux Desktop Support Now Available**

In the last Compiler, TSO announced beta availability of Ubuntu 10.04 LTS for research desktops. TSO has now added beta availability of Fedora 14 for research desktops. These managed operating system loads of Ubuntu and Fedora utilize the same open-source Puppet management software technology used for TSO’s support of Red Hat Enterprise Linux for servers and desktops. Features include: directory service-driven CoC or GT account authentication, automatic group login authorization, host-based firewalls, NFS automounting of CoC research servers, root privs for research lab managers, local package installation from remote repos, and more. Anyone interested in beta testing this TSO-managed OS load should fill out a request form on the TSO website.
To help Compiler readers stay informed of the latest College of Computing media coverage, we share the month's headlines from the CoC website. Below are links to all headlines from Dec. 1, 2010, to Jan. 31, 2011 (most recent headlines at the top).

- Is Your Next Credit Card Your Cell Phone?
- The Rise of Robo Sapiens
- The Robot in The Next Cubicle
- Art + Technology = Pulse
- Social Media And Academics Join Forces To Help Students Study
- Georgia Tech Professors Receive 2011 Cancer Research Awards
- GT Center to Explore 21st Century Universities
- The Terminator Scenario: Are We Giving Our Military Machines Too Much Power?
- Bobick and Furst Named to GT Advisory Committee on Global Partnerships
- 4 Online Services to Satisfy Your Vanity
- OpenStudy Partners with Yale, NYU on Open Course Offerings
- Wikipedia—the Encyclopedia Anyone Can Edit. But Have You?
- 100+ Online Resources That Are Transforming Education
- Georgia Tech Faculty Members Elected as IEEE Fellows
- Study Examines Thinking-in-Pictures Hypothesis
- Six Weird and Wonderful Robotics Projects
- Simon Ranked Among the Top Robots of 2010
- What's Inside Chocolate, Strawberries
- Georgia Tech Team Helps Decode Newly Sequenced Strawberry Genome
- The Coming Wave of Augmented Reality
- What Should a 21st Century University Look Like?
- Kinect Hacks: American Sign Language Recognition
- Georgia Tech to Found Center for 21st Century Universities
- Your Phone Could Be the Key to Making AR Real
- Georgia Tech Student Helps Create Street Harassment App
- New Social Site Makes Studying Feel Like Facebook and Twitter
- CSE Doctoral Student Wins Marshall Sherfield Fellowship
- Special Report - The State of Computer Science Education
- Arrest Made In Vegas May Rid The World of One-Third of All Spam
- Point-Counterpoint: Learning with Social Media