Caltech breaks record for network data transfer

Physicists led by Caltech have smashed yet another series of records for data-transfer speed. The international team of high-energy physicists, computer scientists, and network engineers reached a transfer rate of 339 gigabits per second (Gbps)—equivalent to moving four million gigabytes (or one million full length movies) per day, nearly doubling last year’s record. The team also reached a new record for a two-way transfer on a single link by sending data at 187 Gbps between Victoria, Canada, and Salt Lake City.

The achievements, the researchers say, pave the way for the next level of data-intensive science—in fields such as high-energy physics, astrophysics, genomics, meteorology, and global climate tracking. For example, last summer’s discovery at the Large Hadron Collider (LHC) in Geneva of a new particle that may be the long-sought Higgs boson was made possible by a global network of computational and data-storage facilities that transferred more than 100 petabytes (100 million gigabytes) of data in the past year alone. As the LHC continues to slam protons together at higher rates and with more energy, the experiments will produce an even larger flood of data—reaching the exabyte range (a billion gigabytes).

The researchers, led by Caltech, the University of Victoria, and the University of Michigan, together with Brookhaven National Lab, Vanderbilt University, and other partners, demonstrated their achievement at the SuperComputing 2012 (SC12) conference, November 12–16 in Salt Lake City. They used wide-area network circuits connecting Caltech, the University of Victoria Computing Center in British Columbia, the University of Michigan, and the Salt Palace Convention Center in Utah. While setting the records, they also demonstrated other state-of-the-art methods such as software-defined intercontinental networks and direct interconnections between computer memories over the network between Pasadena and Salt Lake City. “By sharing our methods and tools with scientists in many fields, we aim to further enable the next round of scientific discoveries, taking full advantage of 100-Gbps networks now, and higher-speed networks in the near future,” says Harvey Newman, professor of physics at Caltech and the leader of the team. “In particular, we hope that these developments will afford physicists and students throughout the world the opportunity to participate directly in the LHC’s next round of discoveries as they emerge.”

Armed with these new technologies and methods, the Caltech team estimates that they may reach 1 terabit-per-second (a thousand gbps) data transfers over long-range networks by next fall.
Food with Mannion!

Do you like eating food?
How about free food at nice restaurants?
Ever want to tell the world exactly what you think of said food?

The Tech will be beginning a new column to chronicle the foodie experiences of new writers every other week... The Catch: They’ll be going head-to-head with Tom Mannion who will be reviewing the same restaurant. If you have ever thought you were more of a gourmand than our resident master chef, now’s your chance to prove it!

Email us for a spot on the list at tech@caltech.edu

ASCIT Minutes

Minutes for November 15, 2012. Taken by Allika Walvekar

Officers present: Diego Caporale, Christian Rivas, Pushpa Neppala, Mario Zubia, Michelle Tang, Allika Walvekar, Puikei Cheng

Officers Absent:
Call to Order: 8:37 pm

President’s Report (Diego): Ray Gonzales conducted a survey training class. He is a great resource if you need any future help on writing an unbiased survey.

The Caltech Writing Center is being revamped and moved to CSS.

The BoD had a meeting to revise the BoC bylaws that were released. A revised version with minor changes will be sent out the the community on Friday. A vote will be held the Monday or Tuesday after Thanksgiving. RA hiring will begin soon and the administrators would like to have more student involvement. Event registration for next year will be revamped and might include more training.

Officer’s Reports:

V.P. of Academic Affairs (ARC Chair: Pushpa): A Tech bulletin was published this week about the SFC. Connor put together an UG research committee with SFP involvement for a morning presentation at the SFC. Pushpa is going to try to organize skype focus groups with 2-3 alums per option for the SFC. The ARC is currently choosing a Professor of the Month for November. Drop day is 11/21/12 and winter term course registration is 11/26/12.

V.P. of Non-Academic Affairs (IHC Chair: Christian): Big I construction is wrapping up. Financial concerns with funding have been clarified with the presidents.

Director of Operations (Mario): Club funding announcements will occur in the next few days as the Steering Committee met on Monday. Mario will be assigning club storage lockers for clubs that asked for them. The yearbook has been sent to the publishers.

Treasurer (Puikei): Sent out emails to the reps and the treasurers about Big I.

Social Director (Michelle): All the houses passed their second safety check. Registration online will be shut off Friday at noon. Olive Harvest is tomorrow.

Secretary (Allika): Looked into printing ASCIT Thank You Card but professional companies are too expensive. Allika will be designing a Thank You Card and printing it on cardstock.

Meeting Adjourned: 9:31
A few days later, I convened a full board to hear the case. After five minutes to look over the evidence, we called the defendant in. I asked her the same questions I had asked in the preliminary hearing, and she said the same thing all over again. She didn’t cry this time. She put on a strong face, but it was clear she felt humiliated. She had to watch as one of the biggest mistakes of her academic life was paraded in front of nine of her peers. When she was done answering questions, she quietly left the room, and the Board began to deliberate. After about ten minutes later, we had made our decision. There were no surprises. She had been convicted of plagiarism, so we resubmitted her assignment for a regrade with the two plagiarized sentences redacted, and decided that her new grade would be a C-. This might be everyone’s first reaction: The BoC cannot afford to waste time on small cases if it wants to get to the important ones in a timely manner. One idea has been to reduce the number of cases. This is certainly the ideal approach, but it is easier said than done. Thus far, I have seen more board members sitting on this board, given at orientation (yes freshmen, it was even worse last year) and I have spoken to the Faculty Board about ways to reduce cheating. In particular, I emphasized the importance of taking down old solution sets. I also plan to have House BoC Reps give a second BoC talk to the Freshman class at the start of third term when they go on grades. However, it may take years before these solutions begin affecting our caseload.

Another suggestion was to simply have the BoC work faster. My answer, “We are!” We are halfway through the current Board’s term. We have already seen more board members sitting on this board, given at orientation (yes freshmen, it was even worse last year) and I have spoken to the Faculty Board about ways to reduce cheating. In particular, I emphasized the importance of taking down old solution sets. I also plan to have House BoC Reps give a second BoC talk to the Freshman class at the start of third term when they go on grades. However, it may take years before these solutions begin affecting our caseload.

The BoC cannot afford to waste time on small cases if it wants to get to important ones in a timely manner.

One of her professors had accused her of committing a violation. She said she knew that she was supposed to cite her sources, but she had made a mistake and was very sorry. Christian had a lot of work to do so he didn’t ponder for very long and instead knew why I had called the books. A few hours later, though, he was distracted by what first seemed to be a jet. He heard leaves rustling, heard a rumbling swoosh, and felt the air as the something gliding past him. He remembered looking up and saw that it was a Techer on a skateboard with brightly dyed hair. Rather, it was not hair. It was a mane, flourishing in the wind that the Techer was creating and blinding and warning him with its bright colors. This Techer was virtuosic.

While flying by, he was also enthusiastically listening to music and nonchalantly checking his phone. This was Eric. He believed in self-expression and combining his Techer ways with his Techer efficiency. He joined the growing caltech culture ofChange: harsher climate, he thought that it would be everyone’s first reaction to take advantage of such summer weather to enjoy the caltech culture ofChange: despite its usual cool and rainy nature. He dyed his hair so he didn’t have to “express himself” through his clothing. By dying his hair a specific color, he could choose the correct colors. They had to say something about him and that the same time they had to be noticeable.

Eric chose red and yellow because he thought of himself as fiery and dazzling.

These were also the colors of his two favorite toy airplanes that he played with when he was little. Unusual!

When they came, his parents noticed that he had changed. He became less talkative and more irritable. He refused to tell his loving parents what he did in his free time. He simply said he didn’t have free time. For the time being, the parents only discussed the hair issue and were growing more and more concerned about the upcoming Holidays when they would reunite with the whole extended family. A temporary decision was made to use last year’s family photo as the Holiday card that they would send out.

Christian blinked and went back to work. He looked up again when he heard a group of Tachers happily walking by on their way to class. There were two of them and they were also part of Eric’s elite group. Christian admitted to having a crush on one of them. Eric was really beginning to baffle him, both academically and personally. He was surprised at himself but could not deny the fact that he liked how this blonde-and-electric-blue girl looked. Still, he had come to Caltech for the education and not for style critiques, and so he dove back into his textbooks.

This Techer was virtuosic. While flying by, he was also enthusiastically listening to music and nonchalantly checking his phone.

**Spoiler Alert** (article contains some plot summary)

“So this is it?” 007 asks M. “We’re both played out!” If you ask me, the answer is a resounding NO. Even in an era of cyborgs and robots, we still need our field agents like 007. The film franchise turns 50 years old, but if they keep making films as awesome as Skyfall, they are nowhere near retiring. As 007 is resurrected, so is the franchise.

Skyfall offers more than the usual tuxedos, martinis, hot girls trapped by 007’s charm, action sequences, and stunning locations. This film is a forceful drama with Sam Mendes (American Beauty, Revolutionary Road) directing brilliant performances from Daniel Craig, Judi Dench, and Javier Bardem.

The film opens in the bustling Istanbul, as James Bond (Daniel Craig) chases a villain, utilizing four modes of transportation to do so. This film also features good double pretty good with blight blue hair tips. What is an interesting place he had come to? Caltech was really beginning to baffle him, both academically and personally. He was surprised at himself but could not deny the fact that he liked how this blonde-and-electric-blue girl looked. Still, he had come to Caltech for the education and not for style critiques, and so he dove back into his textbooks.

The BoC cannot afford to waste time on small cases if it wants to get to important ones in a timely manner.
If you feel that the Board of Control leadership is not trustworthy or lacks integrity, you probably shouldn’t have voted for those candidates.

...
New faces: Introducing Cassandra Horii

Cassandra Horii is the new director of Caltech's center for teaching and learning. The center was recently established as a resource to cater to the academic needs of both students and faculty on campus. The Tech sat down with Cassandra to learn more about her and her plans for the center in relation to the Caltech community.

You majored in physics as an undergraduate and earned a doctorate in atmospheric chemistry. How did you end up in this particular line of work?

I started to be curious about teaching, learning, and higher education as early as an undergraduate, when I completed an honors thesis on learning in the sciences. Later on, I worked as a consultant at Harvard at their teaching and learning center, and closely worked with my faculty advisor on designing new curricula for some of the core courses. My scientific interests and my interests in learning have grown in parallel over time, and this became a really compelling career direction for me to pursue.

After my Ph.D., I taught first-year writing at Harvard for several years; I was also associate director at the Bok Center for Teaching and Learning at Harvard. From there, I went on to become a dean at a small college just outside of Boston, where I really got to design a center for teaching and learning from the ground up.

It has been great to broaden my reach and to work with faculty and disciplines outside of the sciences. But I am glad to be back working closely with a campus so dedicated not only to the sciences, but also to gaining a breadth of understanding and knowledge through the humanities and social sciences.

How does Caltech parallel (or differ) from other universities you have observed over the years?

Every institution has its own particular character. One thing to note in particular is that our classes are comparably smaller. To note in particular is that our particular character. One thing that can be very helpful to do is to discuss feedback with another individual and sort through an action plan to prioritize.

The new center (which we are developing, to meet everyone’s needs in the long run) you can get a sense of what we’re doing by exploring our start-up website, www.teachlearn.caltech.edu.

For example, this quarter, I piloted a seminar on getting mid-quarter feedback, and a range of people attended, from undergraduate TAs all the way through emeritus faculty. I will continue to work with people on that; the more we get feedback throughout a course, the more meaningful the end feedback is—it’s actually one of the simplest and most effective ways to improve both teaching and learning.

One thing that can be very meaningful to do is to discuss feedback with another individual and sort through an action plan to prioritize. Since I have developed a background of research on how feedback do not all agree. We can then link them to strategies that might help students and faculty alike, improving the process for everyone.

What is the center for teaching and learning’s mission?

The new center (which we are working on naming more formally) is a resource to make teaching and learning work better in ways that really respond to student and faculty interests and needs.

Whom does the center for teaching and learning hope to serve?

The three populations to think about would be students in their role as learners, students, undergraduate and graduate, in their role as teachers, and faculty members in their role as course leaders and teachers. Themes will overlap as we continue to develop programming and really build the center, but obviously everyone’s needs in these categories differ a bit. The Caltech community can expect to see more programs and services, which we have already begun to develop, to meet everyone’s needs in the long run. You can get a sense of mean, when the individual pieces of feedback do not all agree. We could then link them to strategies that might help students and faculty alike, improving the process for everyone.

What would your role be in the center for teaching and learning?

As director, I wear a lot of hats: from planning and budgeting to designing and running workshops on teaching and learning, such as for new TAs and early career faculty, and others. I will also supervise staff—at the moment, we are currently working on hiring an Educational Outreach Coordinator to support faculty on new K-12 and public education outreach projects. Another large part of my work consists of individual consultations—whether sitting down with someone to discuss course feedback as mentioned, or providing information about different approaches to online teaching, or responding to a question about methods for effective lecturing. People don’t often see that side of my role, but it’s incredibly rewarding and varied.

Regarding the TQFRs and any formal evaluation of teaching, those will stay right where they are, with the Registrar’s Office and the Office of Institutional Research; my role is really to help people make the best use of that information—for example, I can work with graduate students applying to faculty positions on putting together their teaching portfolios.

What is your role as director of the new center for teaching and learning?

As more people participate, it becomes naturally more difficult to maintain such a large program. So, like my work with ARC, I am working with CPET. They will continue to set their priorities and interests and define topics, but it’s really important to support that, while expanding the circle of opportunities for people.

What are your future plans for the center for teaching and learning?

Right now, the center consists of myself, but I think it is important to emphasize that we are just starting up; I have been here just since late summer.

When we do establish the center over the coming months, this will be a physical location where students and faculty could walk in with questions and find a range of resources in one place.

There will also be workshops and ongoing opportunities to learn more about teaching and learning. This term, we worked to help train class ombudpeople, and the meeting had pretty good attendance as a pilot. Over the upcoming academic year, everyone at Caltech can look forward to a full sweep of programs.

A big surprise I discovered is just how often faculty are working on their teaching... One of my jobs it to unearth this, and really help faculty share what they’re doing...

- Cassandra Horii

First of all, it is fantastic that students are so involved in the process of teaching and learning at Caltech. From the moment I stepped on campus, the ARC was part of the process for me, and I got to know the people and the mission of the ARC.

I hope that our center and I will be a resource for the ARC. Through the TQFRs and the CPET, we will certainly hope to identify priorities and topics they would like to work on. When you identify a direction in which you would like to go, I am a resource who can help provide some of that background information, ask questions at some times, help troubleshooting at other times, and really collaborate.

What are some other on-campus groups with whom you hope to collaborate?

Another way that Caltech is pretty unique is that a graduate student group, the Caltech Project for Effective Teaching (CPET), has organized itself and run a series of teaching-related seminars and workshops.

The group has also developed a certificate program for graduate TAs to show and document their interest in teaching, which is great for them out on the job market, where they may potentially apply for faculty positions.

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Feel free to contact Cassandra Horii by email at cs@caltech.edu with any questions, comments, or ideas. The center’s website is www.teachlearn.caltech.edu.
Caltech Public Events is now hiring student ushers. $15 per hour to work concerts, performances, lectures, films and parties.

No experience needed, no hard labor, flexible schedules.

*Requirements: Caltech student, Positive attitude, Friendly personality

To apply email Adam Jacobo (ajacobo@caltech.edu) or call (626)395-5907

For info on Caltech Public Events visit: www.caltech.edu/content/public-events
Basketball returned to Caltech this week as the women's team played in the Caltech-Occidental Thanksgiving Classic, a two-day, four-team, I guess, "classic". Actually, their first game was supposed to be against Linfield, but all the Linfield players mysteriously got food poisoning before the game. They probably went to Burger Continental or something (this joke is brought to you by Vishnu Manoranjan, who won a Burger Continental gift card at Midnight Madness and was so disgusted, he left it in the stands). So, the girls began their campaign with a home game against Oberlin. The game was mostly attended by Oberlin fans (a group that included two traitorous Caltech students who made what turned out to be a winning bet with some of the Caltech players and Oberlin's vice president and dean of students, who has a truly marvelous head of hair). Oberlin went on a 12-0 run to begin the game, holding the Beavers scoreless in the first six minutes. Eventually, Caltech's Paige Logan made a jumper to make the score 12-2. But, the Oberlin offense (and defense) refused to let up, increasing the margin to 21 at halftime (33-12). The Beavers didn't fair so well in the second half either, although they held a 1-0 lead for a couple minutes before Oberlin's Malisa Hoak (that's one of those names which you have to be famous to pull off or you hate your parents forever) hit a three-pointer that ended that dream. Oberlin continued their dominance, ultimately defeating the Beavers 72-31. Stephanie Wong led Caltech with 11 points. Christina Marquette of Oberlin led the scoring for the day with 21 points. It also seemed like our players were a little bit afraid of her, always backing off when she drove through the middle. Although, to be fair, I was little afraid of her, too. On the final day of "the classic", Caltech played the Whitworth Pirates of Spokane, Washington (fun fact: I watched Red Dawn this weekend, as I am a big fan of the original, which is set in Spokane). The Beavers started out strong, going up 5-1 in the first two minutes. The Pirates tied it up at eight after three minutes, and soon took a 12-9 lead. But, the Beavers weren't finished yet, tying it at 14 with just under 13 minutes to go. Then, they were finished. The half ended with the Pirates leading 51-20. The second half wasn't much better. Actually, it was much worse. Whitworth quickly resumed their winning ways, keeping the Beavers from scoring for the first three minutes while putting up 11, themselves. With five minutes left, they had really pulled away, up 89-24. And then came the classiness. Despite being up by 65, the Pirates began taking three pointers in an effort to reach 100 points. So, fine, it's a nice goal, I guess, if you're into that sort of thing. But, after reaching 102 and with just 13 seconds left, Whitworth's Faith Emerson took and made another 3-pointer, ending the game at 105-26 (for those of you keeping track, the second half score was 54-6). Typically, I would, at this point, complain about un-adaptive coaching or lack of motivation/spirit in the team, but I was really put-off by the running up of the score. Uncool, Pirates, uncool. Also, what's up with opinion articles, these days? Calling out specific Caltech students? Also uncool. What happened to complaining about housing or the deans or CDS? You know, classic undergraduate complaining. All I'm saying is that's not how you convince me of something. Anyways, the Pirates had six players with double-digit scoring, while Caltech was once again led by freshman Stephanie Wong, with 15 points. Wong was named to the all tournament team for her scoring prowess. The Beavers begin conference play when they take on Redlands at home on Thursday at 7:30 pm. The men's team also plays Redlands the night before.
Black Friday: A grand American tradition

RAJ KATTI
Contributing Writer

USA—On Friday, popular demonstrations by workers at the world's 19th largest economy were swiftly crushed in what historians have already dubbed the "Black Friday Massacre." Starting early Friday morning, the economic superpower swiftly put down approximately 8,500 demonstrations over a geographic area spanning five continents, primarily concentrated in North America.

As of Saturday morning, the American Red Cross has reported 5,784 dead and upwards of 17,000 wounded. Independent agencies have confirmed allegations of numerous civil rights abuses, including the slaughter of at least 2000 unarmed senior citizen workers. The workers had been protesting inhumane working conditions and demanding basic human rights such as adequate healthcare, cost-of-living pay increases, and reasonable work hours.

Senior spokesperson David Tovar commented, "These incidents precipitated by a handful of impressionable agitators have been successfully contained." When asked about pressure from the UN Security Council to respond to recent allegations of human rights abuses, Tovar replied, "This sovereign entity, possessing greater economic power than Norway, Saudi Arabia, and most African nations, will not tolerate Western meddling in issues of security."

- David Tovar

This sovereign entity, possessing greater economic power than Norway, Saudi Arabia, and most African nations, will not tolerate Western meddling in issues of security.

U.S. Secretary of State Hillary Clinton and other leaders of NATO will meet tomorrow to discuss economic sanctions on the superpower, as well as the release of a single protester who has been memorialized for waving a white flag at superpower police forces in a symbol of non-violent resistance.

Acquired Taste

At this point, Goku has to reach Super Saiyan 3 in order to defeat Majin Buu. How can we show the audience just how powerful Goku is in Super Saiyan 3?

Why don’t we just make his hair a bit longer?

- Dragon Ball Z Plot Development Department

For more photos, videos, and archives of previous issues, check out the Tech website!

tech.caltech.edu