TERRAscope program continues earthquake research

CYNTHIA ELLER
Caltech Today

Since the magnitude 6.7 Northridge earthquake 20 years ago (January 17, 1994), researchers at the California Institute of Technology (Caltech) have learned much more about where earthquakes are likely to happen, and how danger to human life and damage to property might be mitigated when they do occur.

"The Northridge quake really heralded the beginning of a new era in earthquake research, not only in southern California, but worldwide," says Michael Gurnis, John E. and Hazel S. Smits Professor of Geophysics, and director of the Seismological Laboratory at Caltech.

In the years just prior to the Northridge earthquake, Caltech launched a program called TERRAscope supported by the Whittier foundation, which placed high-quality seismic sensors near where earthquakes occur. The Northridge earthquake was, in effect, the first test of TERRAscope in which Caltech scientists could infer the distribution of an earthquake rupture on subsurface faults and directly measure the associated motion of the ground with greater accuracy. "With a modern digital seismic network, the potential of measuring ground shaking in real time presented itself," says Gurnis. The real time view also gave first responders detailed maps of ground shaking so that they could respond to those in need immediately after a quake," adds Egill Hauksson, senior research associate at Caltech.

To give us this new view of earthquakes, Caltech collaborated with the U.S. Geological Survey (USGS) and the California Geological Survey to form TriNet, through which a vastly expanded network of instrumentation was put in place across southern California. Concurrently, a new network of continuously operated GPS stations was permanently deployed by a group of geophysicists under the auspices of the Southern California Earthquake Center, funded by the USGS, NASA, NSF, and the Keck Foundation. GPS data are used to make measurements as small as 1 millimeter per year between stations at any two locations, making it possible to track motions during, between, and after earthquakes. Similar and even larger networks of seismometers and GPS sensors have now been deployed across the United States, especially EarthScope, supported by the NSF, and in countries around the world by various respective national agencies like the networks deployed by the Japanese government.

Initially, says Gurnis, there were not many large earthquakes to track with the new dense network of broadband seismic instruments and GPS devices. That all changed in December 2004 with the magnitude 9.3 earthquake and resulting tsunami that struck the Indian Ocean off the west coast of Sumatra, Indonesia. Quite abruptly, Caltech scientists had an enormous amount of information coming in from the instrumentation in Indonesia previously deployed by the Caltech TechTronics Observatory with support from the Gordon and Betty Moore Foundation. By the time the magnitude 9.0 Tohoku-Oki earthquake hit northern Japan in 2011, the Seismological Laboratory at Caltech had developed greatly expanded computing power capable of ingesting massive amounts of seismic and geodetic data. Within weeks of the disaster, a team led by Caltech professor John E. and Hazel S. Smits Professor of Geophysics Mark Simons using data from GPS systems installed by the Japanese had produced extensive measurements of ground motion, as well as earthquake models constrained by this data, that provided new insight into the mechanics of plate tectonics and fault ruptures.

The Tohoku-Oki earthquake was unprecedented: scientists estimate that over 50 meters of slip occurred on the subsurface fault during the devastating earthquake. Currently, scientists at Caltech and the Jet Propulsion Laboratory are prototyping new automated systems for exploiting the wealth of GPS and satellite imagery data to rapidly provide disaster assessment and situational awareness as events occur around the globe. "We are now at a juncture in time where new observational capabilities and available computational power will allow us to provide critical information with unprecedented speed and resolution," says Simons.

Earthquakes are notable—and, for many, particularly upsetting—because they have always come without warning. Earthquakes do in fact happen quickly and unpredictably, but not so much so that early-warning systems are impossible. In a Moore Foundation-supported collaboration with UC Berkeley, the University of Washington, and the USGS, Caltech is developing a prototype early-warning system that may provide seconds to tens of seconds of warning to people about to experience ground shaking, and minutes of warning to people potentially in the path of a tsunami. Japan invested heavily in an earthquake early-warning system after the magnitude 8.9 Kobe earthquake that occurred January 17, 1995, on the one-year anniversary of the Northridge earthquake, and the system performed well during the Tohoku-Oki earthquake. "It was a major scientific and technological accomplishment," says Gurnis. "High-speed rail trains slowed and stopped as earthquake warnings came in, and there were no derailments as a result of the quake."

Closer to home, Caltech professor of geophysics Robert Clayton has aided local earthquake detection by distributing wallet-sized seismometers to residents of the greater Pasadena area to keep fire and police responders to find the worst-affected areas more quickly after an earthquake strikes.

Caltech scientists have also been playing a leading role in the large multi-institutional Salton Seismic Imaging Project.

Continued on page 3

News briefs from around the globe

Need to know - 100 words about the world this week - with an emphasis on good to bad news as picked by The Tech EDS

Irran agrees to new deal
US reduces caloric intake
Colby arsonists caught
Venezuela to raise prices
Famous conductor dies
Taliban attacks again
Sochi Games threatened

Helping readers burst out of the Caltech bubble

Iran agrees to new deal
5% purity, not 20%, for Uranium enrichment agreed to be new limit [CNN]

US reduces caloric intake
118-calorie average decrease in consumption reported by USDA [TIME]

Colby arsonists caught
3 individuals arrested for starting fire that has burned 1900+ acres [ABC]

Venezuela to raise prices
56% inflation leads president to plan decrease in govt. subsidies [NYT]

Famous conductor dies
80-year-old Claudio Abbado (La Scala, Vienna Philharmonic, etc.) died [NYT]

Taliban attacks again
22 killed, civilians & military, in attack on Pakistani army checkpoint [ABC]

Sochi Games threatened
22-year-old suspected suicide bomber may have slipped by security [ABC]
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 gourmet than our resident master chef, now’s your chance to prove it!
Email us for a spot on the list at tech@caltech.edu

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Broadsides of Tech articles for the Tech can be written by students and non-students alike. Get paid up to $30 for every $5 complete and there will be several Amazon Gift Cards awarded to randomly selected people who responded to the survey.

Write articles for the Tech

Minutes for November 19, 2013. Taken by Catherine Jamshidi
Officers Present: Zach Rivkin, Connor Coley, Malvika Verma, Connie Huseh, Michelle Tang, Catherine Jamshidi
Guests: Connor Rosen, Margaret Lee
Call to Order: 9:05pm

President’s Report (Zach):
• In my candidacy statement from April, I advocated for student leadership to take a level headed approach with the administration and focus on increasing student mental health resources. The process has usually been successful, and the most recent and largest accomplishment is an evening hours pilot program. After half a year of civil discussions with Kevin Austin, Leslie Nye, Tom Mannion, Annela Sargent, John Dubiri, plus many other invaluable participants, along with a recent hardline passionate Faculty Board presentation, a limited evening hours trial will go into effect until the end of this academic year. This is an incredible step forward for the Caltech safety net and auspiciously points towards a positive shift in relations between students and student affairs. I hope to see further improvements during the next half of ASCIT’s term and in the years ahead. Significant thanks goes to those mentioned above along with the student leadership, the Head UCCs, and especially to the IHC Chair Connor Coley for spending an innumerable number of hours and offering constant support through the entire process.
• Club funding has been completed.
• The ASCIT retreat and midyear reviews occurred. Survey responses were very helpful for framing discussions and supplying appropriate feedback.

Officer’s Reports:
• V.P. of Academic Affairs (ARC Chair: Malvika):
  o Meeting with Provost Online Education Committee
  • Flipped classroom vs. online courses
  • Faculty don’t want to dumb down standards
  • Concrete proposal: CS0
  o The second Student-Faculty Lunch was this past Thursday. We have continued to see a large amount of interest in this program from both students and faculty.
  o The ARC is interested in adding a compliments section to the ARC Concern Box on Donut.
• V.P. of Non-Academic Affairs (IHC Chair: Connor):
  o The IHC is working with Jon Webster and Dining to enter nutrition information of food options. If you’re interested in helping us with data entry (for some money), send me an email. We’ll likely begin around winter break.
  o Invite your professors to your house dinner! It’s a great way to get to know them in a non-academic context.
• Director of Operations (Connie):
  o Remember that you can still register a new club anytime! Apply at clubs.caltech.edu
• Treasurer (Monica):
  o We finished Club Funding and I will be publishing the breakdown of the 2013-2014 budget on Donut.
• Social Director (Michelle):
  o The Ice House comedy show event will likely be made a termly event.
  o Page Interhouse: Daft Punk was this past weekend.
  o The Wallpaper. concert will be Friday, December 6th, at 9PM on Bechtel Mall (just west of Millikan).
  • There will probably be an after-party (details to follow) with a Snap Yourself! Photo booth.
• Secretary (Cat):
  o Connor Rosen and I have created a follow-up survey to gauge trends in feedback on the student experience. It should take no more than 5 minutes to complete and there will be several Amazon Gift Cards awarded to randomly selected people who responded to the survey.
  o Go fill it out!!
  o I sent out all of the club funding decision emails and tried to provide reasoning for our decisions. If any clubs have any questions, please do not hesitate to ask!
  o I’m working to schedule ASCIT meetings for 2nd term.
  o I’ve posted all of the recent minutes on the Donut Website and have compiled a list of action items to follow-up on for each BoD member.

If anyone has any questions or concerns about a section of the minutes please email the appropriate officer. We are happy to answer any questions.
Meeting Adjourned: 10:53 pm
PHOEBE ANN LAURA SANTOSO
Contributing Writers

Hi everyone! This is the Caltech Y Column, designed to inform you about the Y and the opportunities we provide for you to inspire your passions and develop new skills in our programs or leading your own!

Founded by students in 1916, the Y was organized to provide extracurricular activities planned and implemented by students as an opportunity to develop new skills and discover their passions and themselves. The mission of today’s Y remains the same—to create events that will prepare students to become engaged, responsible citizens of the world.

The Y seeks to broaden students’ worldviews, and raise social, ethical, and cultural awareness through teamwork, community involvement, activism, and leadership.

The Caltech Y’s mission and core values are to provide leadership, civic engagement, service, adventure, and perspective.

Regardless of which pillars capture your interest, feel free to attend any of the below programs, or contact us to organize your own!

Here’s a sampling of past programs:

- Alternative Spring Breaks: Costa Rica, New York, Yosemite, San Diego, San Francisco
- Make-A-Difference Day
- Hillsides Home for Children, LA County Arboretum and Botanic Garden
- Center for Natural, Morton Nolan Simon Museum trip

Upcoming events:
1. The Caltech Y Science Policy Series and Caltech Pre-Med Association present a biotech discussion with Dr. Kohlhase
2. Mt. Waterman Day Hike

The talk and discussion will be held Tuesday January 23rd at 7:00 – 8:30 pm (talk) | 8:30 – 10:00 pm (book signing and reception) and will be held in 125 Steele from 12:00-1:30pm.

Upcoming events:
- Explore LA:
  - Cirque Du Soleil, Center for Natural, Morton Nolan Simon Museum trip

Research continues 20 years after Northridge quake

PHOEBE ANN LAURA SANTOSO
Contributing Writers

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PHOEBE ANN LAURA SANTOSO
Contributing Writers

The project is mapping the San Andreas fault and discovering additional faults by setting off underground explosions and underwater bursts of compressed air in order to measure the transmission of the resulting sound waves and vibrations through sediment.

According to Joanne Stock, professor of geophysics at Caltech, knowing the geometry of the fault and the characteristics of the nearby sediments informs our understanding of the types of earthquakes that will occur in the future, and the reaction of the sediment under ground shaking.

In addition, Caltech scientists learned much through simulations—both computer modeling and physical modeling techniques—how earthquakes occur and what they leave in their aftermath.

Computer simulations of how buildings respond during earthquakes recently allowed Caltech professors Thomas Heaton, professor of engineering seismology and John Hall, professor of civil engineering, to estimate the decrease in building safety caused by the existence of defective welds in steel-frame structures, a problem identified after the Northridge earthquake. Researchers simulated the behavior of different 6- and 10-story buildings made from welds, and a variety of potential earthquake scenarios created by the Southern California Earthquake Center for the Los Angeles and San Francisco areas. The study showed that defective welds make a building significantly more susceptible to collapse and irreparable damage, and also found that stiffer, higher-strength buildings perform better but are more flexible, lower-strength designs.

Caltech professor of mechanical engineering and geophysics Nadia Lapusta recently used computer simulations of numerous earthquake scenarios to determine what role “creeping” fault slip might play in earthquake events. It has been known for some time that, in addition to the rapid displacements that trigger earthquakes, land also slips very slowly along fault lines, a process that was thought to stop incoming earthquake rupture. Instead, Lapusta’s models show that these “stable segments” may play a role in quiescent or “classic cracklike” seismic events, like an earthquake, accelerating and even strengthening its motions. Lapusta hypothesizes that this was one factor behind the severity of the 2010 Tohoku-Oki earthquake. Taking advantage of advances in computer modeling, Lapusta and her colleague Jean-Philippe Avouac, Earle C. Anthony Professor of Geology at Caltech, he created a comprehensive model of a fault zone, including both its earthquake activity and its behavior in seismically quiescent time.

Physical modeling of earthquake is carried out at Caltech via collaborative efforts between the Divisions of Geological and Planetary Sciences and of Engineering and Applied Science. A series of experiments conducted by Ares Rosakis, the Theodore von Kármán Professor of Aeronautics and Mechanical Engineering, and collaborators including Lapusta and Hiroyo Kanamori, the John E. and Hazel S. Smits Professor of Geophysics, Emeritus, used polymer plates to simulate land masses. Stresses on the plate were increased until the plate broke, simulating fault sliding. Researchers learned that strike-slip faults like the San Andreas may rupture in more than one direction (it was previously believed that such faults had a preferred direction), and that in addition to sliding along a fault, ruptures may occur in a “self-healing” pulselike manner in which a seismic wave “crawls” down a fault line. A third study drew conclusions about how faults will behave—in either a classic cracklike sliding rupture or in a pulselike rupture—depending on the angle at which compression forces strike the fault.

Northridge was a devastating earthquake for Los Angeles, and there was a massive amount of damage. However, if we view the problem in a broader sense, we stepped up the plate to Northridge to determine what we could do better. And as a result we have ushered in an era of high-fidelity geophysical networks on top of hazardous faults. We’ve exploited these networks to better understand earthquakes occur, and we’ve pushed the limits such that we are now at the dawn of a new era of earthquake early warning in the United States. That’s because of Northridge.”

Students discuss recommendations from Hunt Report

In March 2007, President Jean- Lou Chameau and Acting Vice- President for Student Affairs assembled a committee composed of students, staff and faculty, to be chaired by Vice Provost Melany Hunt. The committee’s discussions were culminated in what is known as the Hunt Report. The report included the timeless question: “Is Student Affairs successful in its roles of supporting students? Is the current office and current opportunities to gain from Student Affairs appropriate and effective?”

In answering these questions, the committee members put forth a list of 22 recommendations.

“The Committee strongly endorses the creation of a position of Associate Dean of Residential Life reporting through the Dean of Students. By centralizing the oversight of students’ nonacademic and academic lives within the Dean of Students Office these two areas of responsibility can allow for better support of students’ lives both inside and outside of the classroom.”

The Assistant/Associate Dean would be responsible for ensuring the well-being of students within Institute housing. In consultation with the Director of Residential Life, the Associate Dean of Students, and other stakeholders, the new Dean would develop policies and an approach that ensures the welfare of students in housing and provides a balance between the Institute’s responsibilities for their welfare and the development of independent governance within the Houses.

“To be successful, the new Dean should possess certain critical skills and qualities and have received sufficient support from the administration in his or her efforts. The residential life Dean should be a student advocate and have a strong background in Student Affairs or a related field, have a solid background in residential life leadership, be familiar with the current laws that regulate student housing and activities, and be able to take a collaborative approach in the development of policies that govern student life in the Houses. He/she must demonstrate responsibility for student self-governance and the principle of student self-governance at the same time as he/she will be guided by the Institute’s policies and the unique role of student self-governance in the Houses.”

In 2011, Associate Dean Lesley Nye joined the Dean’s Office as the Director of Student Affairs and Dean Green “supporting the academic success and well-being of students. For the purpose of continuous improvement, we must ask ourselves if the establishment of this position has accomplished its mission. Ensuring well-being and student welfare? Collaborative approach?”

Responding to this question is left as an exercise for the reader. The author(s) wish to remain anonymous to avoid a potential conflict of interest.

The California Tech
January 21, 2014
3

Go to http://caltechy.org/lists/ to self-subscribe to announcement lists or http://caltechy.org/events and sign up information.

For a student’s perspective, please visit http://caltechy.org/lists/ for any other questions.

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For a student’s perspective, please visit

http://caltechy.org/lists/ for any other questions.
Hey ladies and gents. Hope everyone had a good MLK weekend.

It's week 3 and that means career fair will soon be upon us (as will midterms).

As a frequent visitor to the career fair, I can tell you that it is hot and not particularly well ventilated. Bear this in mind when deciding on your “Give me a job” outfit.

Here are some recommended guidelines to follow.

Gents:
1.) Deodorant. And not just that body spray stuff either. I mean real antiperspirant deodorant. As I mentioned before it is hot and not well ventilated, which leads to all sorts of olfactory wonders.

2.) Do dress well. A career fair is all about making some sort of impression on the recruiters so that they will remember who you were instead of just noticing that you happened to drop off a resume. That said, no impression is better than a bad impression, and that includes your clothing choice. Opt for a pair of your better looking jeans or a nice pair of khakis or chinos, all of which are expected to be devoid of rips and discolorations despite how cool you think they are. Also, you probably won’t look any more like a CS major just because you decided to show up in your PJs, so avoid those as well.

3.) Do not wear a full suit. I repeat NO SUITS. Every career fair I see the few guys that show up in a suit. I’m being very adamant about this so I’ll defend my position. Firstly, like Brad/Chad: The Interview Series Part 1, Career Fair, I said before, it is hot. Do you know what suit jackets are good at? If it’s well tailored, then it’s good at making you look awesome but regardless of that, it is good at keeping you warm. You can probably do the math here, but for you bio majors out there (I jest), Hot Day + Attire to keep warm = Perspiration. Next, why are you wearing a full suit to the career fair? I understand that you want to make a good impression, but these people haven’t even offered you an interview yet. Why are you investing so much in trying to impress them when they haven’t invested back in you?

4.) I recommend a tie, but this is personal preference. Here are some guidelines for a tie. Thinner ties are, in general, better, but also try to pair the size of your tie with the width of your body. Wider individuals can benefit from a wider tie whereas thin individuals should avoid them like the plague. Learn to tie a tie. Just google it if you don’t know how and for a career fair I recommend a pratt knot for just the right bit of formality paired with a hint of youthfulness.

Ladies:
1.) See number one above.

2.) Business Casual is the buzzword here. According to my sources your goal should be either a pair of slacks in a neutral color, a trim skirt in a likewise neutral color, or a pencil skirt in black.

3.) As for your top, a nice solid color blouse in a non-neutral color will work well.

4.) Shoes are flexible but do avoid trainers or sneakers.

Best of luck at the career fair!
NAILEN MATSCHKE  
Contributing Writer

The genre of electronic dance music (EDM) is by all means an ever-changing one, with different points in its history decidedly linked to specific sounds. For many people, the mid- and late ’90s were marked by the big beat style, full of repeated breakbeats and low, powerful synth lines.

The Crystal Method was the American answer to the British dominance of the scene, producing tracks that were almost impressionistic in the sheer amount of electronic precision and gloss that they possessed.

After meeting in Las Vegas and then moving to Los Angeles, the duo released their first album, Vegas, in 1997.

This made them relative newcomers to their genre, but both Vegas and its 2001 follow-up, Tweekend, are regarded as some of the best work of the time period. However, 2004’s Legion of Boom didn’t mark any deviation from like they weren’t quite sure how to do so.

This year, they tried to change this with their self-titled LP, which released on January 14.

One thing is indisputable: they definitely figured out how to produce a more modern sound.

While this may sound like a good thing, it is instead one of the album’s greatest weaknesses as it quickly becomes a 50-minute showcase of modern pop EDM more than anything else.

The album’s opening track, “Emulator,” was unfortunately released as the lead single to the album, as it is one of the album’s weaker songs.

The best comparison for it would be an attempt to make an angrier Daft Punk that got wrapped up into looping over the catchy hook delivered. The structure of this song is also nice, if simple, with a constant buildup for the first half followed by a bright string-driven bridge.

Track three, “Sling the Decks,” is acceptable, as it spends a couple minutes building up to a well-executed half-time section, but then seems unsure where to go and then retreats into repetition.

“Storm the Castle” starts off loud and basically just alternates between chichi, half-minute breaks and in-your-face beats, synths, and vocals.

The repeated vocal clip in this song is one of the most egregious examples of pointless sampling that I’ve ever heard.

It’s not just irrelevant and grating, but needlessly loud and overpowering as well. It reaches the 181 st track, with a big-beat structure and composition, with the only key difference being updated instrumentation.

There’s even a cheesy, high-pitched synth solo that, every time you think it’s done, just keeps on going.

“Jupiter Shift,” the album’s eighth track, is then an exercise in throwing generic beats onto the tried-and-tested build-up and release formula, and there’s really not much to be said for it.

Track seven, “Dosimeter,” is one I didn’t initially like, but has grown on me over a few listens.

There aren’t really any moments that blow me away, but its use of more unconventional rhythms and experimental sounds make it an interesting listen nonetheless. "Grace" is then a bit slower and more mellow than its predecessors, with some emotional vocals and cathartic clean synth chords thrown in for good measure.

I could see this playing in some radio play, though there’s nothing really catchy about it to point to.

"Difference," on the other hand, was another favorite, with perfect balance and interplay between the instruments and the vocals and masterful transitions from each section to the next, across the spectrum of volume and aggression.

It also has a disgustingly sick beat that pulses and pushes the song forward with pure power. "M e t r o " follows as a strange, ethereal break in the album filled with airy synths and a long sample taken from inside a subway car.

In a way, it sets up the more low-key "After Hours," though it turns out to be a bit disappointing since it’s mostly another exercise in popular modern EDM production.

In the end, The Crystal Method is still recognizable (as one should hope) as a Crystal Method album, with relentlessly synths and not a single vocal imperfection.

It certainly is darker and more aggressive than their previous work, unashamed to draw inspiration from popular dubstep acts and adopt modern percussion conventions over the breakbeats of the ’90s.

There are still moments where the group slips back into their past (such as the second half of “110 to 101”), but it’s more a tasteful throwback to The Crystal Method’s roots, “110 to 200,” though it turns out to be a bit disappointing since it’s mostly another exercise in popular modern EDM production.

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I could see this playing in some radio play, though there’s nothing really catchy about it to point to.
Answers to last week’s crossword puzzle from puzzlechoice.com

A C R E  
W O R S T  
A V O W  
B R I M  
A B A T E  
D A Z E  
H A V E  
D E V I L  
A L O E  
O V E R T  
Y E L L  
M E N D  
R E T A I L  
L E G A T E  
L E A S T  
R U N  
H I N D  
T O R T  
S T A F F  
O R E  
L E N T  
E L I  
G E E S E  
G A L E  
G E E T  
E A R  
L L A M A  
C A R P E T  
R I G G E R  
W A S P  
C R A M  
D E L V E  
A C H E  
E A V E S  
N E O N  
T H E N  
S C E N E  
T A K E  
T E N T  
S T R U T  
A N E W  

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
Swim team grabs victories over Mills and Chapman

GoCaltech

The Caltech swimming and diving team welcomed Chapman and Mills for a tri-meet on Sunday afternoon at the Braun Pool. The men’s team posted a win over Chapman while the ladies grabbed victory over Mills.

During the dual meet between Chapman and Caltech, the Beavers came away with wins in 10 of the 13 events. In the head-to-head competition between the Beavers and Mills, Caltech won 11 of the 13 events.

In the tri-meet on the women’s side Chapman and Caltech claimed all the first place finishes. Leading the way of the Beavers was Jacqueline Maehi-Lano.

She started her day with a win in the 200-yard IM by touching the wall in 2:23.84. Three races later the junior won the 100-yard butterfly in 1:01.24.

Kalyn Chang claimed first place during the 100-yard freestyle race as the first-year was just over a second faster than the runner-up with a time of 1:01.07. Chang had a great swim in the 50-yard freestyle as she placed second with a time of 27.76 which was just .07 seconds slower than the top finisher.

Iris Liu battled well in the 100-yard breaststroke event. The senior's right foot for the men’s team. The Caltech 200-yard freestyle relay team of Leon Ding, Galen Gao, Kevin Yu and Chris Bradley posted a 1:49.28 win with a finishing time of 45.12.

Boosts the men’s team victory. He won the 200-yard IM with a time of 2:08.52 then proceeded to claim victory in the 100-yard breaststroke race (57.50).

Gao claimed an individual event win as well by winning the 100-yard butterfly race in 1:22.78.

Yu won a pair of events to help continue the positive momentum of Coach Lindsay provided. In addition he has the motivational skill, communication style and understanding of the learning process required to work with students that have a range of abilities.

Tom is also a physical educator who looks forward to the dual aspects of this position and teaching the general student body in our physical education program as well.

Prior to his stint with the Huskies he served as the varsity coach at Cactus Shadows High School (2007-2011) in Cave Creek, AZ. Gardner tallied an outstanding record of 45-1 in the Desert Sky Region leading the squad to the conference’s championship four times. Moreover, his teams placed second in the state twice and earned a third and fifth place finish during his tenure.

While serving at Cactus Shadows, Gardner also held the position as a younger and scout for Trevecca Nazarene University in Nashville, TN (2008-2011) and was the Club Director for Club Summit Volleyball in Scottsdale, AZ (2005-2011).

The native of Manhattan Beach, California earned his Master’s of Education in Educational Leadership from Northern Arizona University in 2007 and his bachelor’s degree in Advertising in 1993. Gardner also earned a Teaching Certification from Northern Arizona in 1997.

He takes over the helm of the program from Jodi Lindsay who resigned after four seasons to pursue club coaching opportunities.

Caltech welcomes Gardner as head volleyball coach

GoCaltech

The Caltech Athletics, Physical Education and Recreation department is pleased to announce the hiring of Tom Gardner as the head women’s volleyball coach. He is the 12th head coach in the department’s 38-year history. Gardner will begin his appointment in February.

“I am excited for the opportunity to coach at one of the top schools in the country with dedicated and driven student-athletes,” Gardner said. “I will build the same level of confidence in my athletes that they have in the classroom to bring great success to Caltech Volleyball.”

Gardner spent the past three seasons as the head coach of Southern Maine. During the 2013 season he guided the Huskies to the best record in school history (22-11) en route to being named the Little East Conference’s coach of the year. He took a program that had six wins the season prior to his arrival to the school’s first conference tournament appearance in a decade.

“Tom was a joy to discover in our search process. He is a thoughtful educator of young people, someone committed to development and support every bit as much as to driving skill acquisition and competitiveness,” said athletic director Betsy Mitchell. “He has the volleyball knowledge and coaching experience that we need to add to our program.”

林业在他的带领下，球队取得了38-11的战绩，这在学校的历史上是前所未有的。他被命名为小东联盟最佳教练。他带领球队取得了第一个全国大赛的资格。

C.J. Culpepper posted a second-to-finish win during the 500-yard freestyle race. The junior posted a time of 5:19.51 which was nearly 20 seconds faster than his closest competitor in the race.

In the men's 100-yard race, sophomore Patric Eck posted a time of 49.75 to top Taylor Ford to a measure of revenge after Ford won by .08 seconds over Eck in the 50-yard race.

On the diving board Ben Grabowski posted a pair of personal best scores en route to two first place finishes. The junior started the day with a score of 210.95 on the three-meter board, and then tallied 203.10 points when he won the one-meter competition.

This meet against Chapman and Mills marks the first collegiate head coaching wins for Caltech’s first-year coach Jack Leavitt.

Weekly Scoreboard

Women's Basketball @ Claremont-M-S L, 88-39 Final
Men's Basketball @ Claremont-M-S L, 75-50 Final
Women's Basketball vs. Whittier L, 100-73 Final
For more photos, videos, and archives of previous issues, check out the Tech website!

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