Caltech/JPL bands compete at TechStock 2.0, Bowling For Soup headlines
Registrar’s office and IMSS work to improve registration

Tom Sheridan, Bismark Wong, Contributing Writers

Registering for classes has always been a gigantic headache for college students. Even with a major in mind, selecting how the next term will fit into your schedule can be a challenge. In the past, the technical aspects of registering throughout the year of these students in short order is a challenge all schools have to face. Caltech has frequency problems registering the correct students. Registration is in a reference to its well-known tradition of “Ditch Day,” Caltech students have bestowed registration day with the name Ditch Day. It has earned the name. Before 8 a.m. on the designated morning, the most dedicated Caltech students woke up early, ready with plans for what they will take the next day. They logged onto REGIS, Caltech’s online registration system since 2004, and prepare anxiously for the official sign-up day. At 8 a.m. they constantly refresh the page, waiting for the scheduling tool to open — at which point the system crashes and a majority of students are left staring at either a blank screen or an error page.

Caltech’s process of having all students sign up simultaneously for classes, which can be highly competitive to get into due to Caltech’s emphasis on small class sizes, is somewhat unique. Harvard Mudd, one of the Claremont colleges and another school known for its science and engineering curriculum, is of comparative size to Caltech with just 800 undergrads. Rather than having a mad rush to register for classes, it stagnates registration day by allowing seniors first. The term is somewhat random, with seniors registering first and freshmen last, with some-i-class variance.

Berkeley, a much larger school with over 27,000 undergraduates for the 2015–2016 academic year, also breaks up registration by seniority. However, its system determines which students are eligible to register, and registration is further divided into two separate phases to prevent a rush for specific classes. During Phase 1, students are limited in the number of units they can select, and are advised to sign up for the priority classes that they have to take. Phase 2 allows them to modify their schedule with additional units, usually with classes that either flooded during Phase 1. Caltech’s free-for-all system can lead to well over 850. Yet, IMSS reported no suspicious activity involving scripts or bots. Several theories were proposed about the sudden rise, including increased competition for interesting humanities courses or simply “a change in student behavior,” according to Mary Morley, the registrar and head of REGIS at Caltech. “Everyone got up before 8 a.m., everyone sat there refreshing at 7:45.” The shift was a dramatic increase compared to the steady rise in hits/second observed in previous years. “When I started at Caltech in 2007, we were seeing about 370 hits/second during the bad ones,” said Chris Malek, an associate director of academic services at IMSS. “Every single year, every term, the traffic goes up. So we have this moving target, and every year it gets worse.”

The two-week registration delay and connectivity issues raised complaints to such a magnitude that IMSS and the registrar’s office were spurred to find an equitable solution for the fall quarter registration. The Academic and Research Committee (ARC) chairmen, and the registrar emailed informing students about upcoming changes and the state of the system.

IMSS hopes to begin utilizing Amazon’s Cloud infrastructure by the fall term of the 2016–2017 academic year to improve the versatility, redundancy and scale of Access Caltech’s facilities. It would also drastically reduce costs over time, as server upgrades to cope with the increasing activity have been an expensive investment and would only grow more costly with increasing loads. Larger schools can both afford and justify a setup similar to Amazon, but the constant investment and technical demands of such a system are beyond the permanent solution. “Once you try to change anything here at Caltech, the student body really is change averse. Any process is viable. I have no bias one way or the other, but my initial reaction was that we should be able, as an institution, to do this.”

One benefit of using Access Caltech in the first place was the decrease in the need for Caltech to control over student data, an important issue at any college. As Malek explained, “There’s infrastructure, but if you ask me it’s your responsibility to actually architect your application and run it.” Another type of cloud-based computing is platform as a service, wherein software is transferred from the user over to the provider, who runs the servers and databases. The most involved type of service, software as a service, involves simply using applications provided online, like Gmail, where everything is handled by the provider. Because Amazon will provide “infrastructure as a service,” there were no concerns about sharing student data, since the Access system would still be completely handled by REGIS/IMSS.

One issue is that the problems with registration might not all be known. Access Caltech, rather than REGIS itself, was identified as the bottleneke, as Peter Ng, an IMSS technologist. “This is pretty challenging to determine how the cloud is providing a gatekeeper kind of situation. We haven’t seen anything beyond 30 percent utilization thus far.”

Will expanding the carrying capacity of Access Caltech create a “downstream effect” that will simply change the bottleneck from Access to REGIS? Will the issue have to be solved all over again on the next registration day, with predictable consequences? While there are no guarantees for the future, the registrar’s office looks forward to an error-free future and hopes the move to the Cloud will be the solution students and administrators have been waiting for.

Upcoming Events

1. Caltech Y Decompression
   Saturday | June 4th | 7:00-9:00 p.m. | Finney Lounge
   Stop during finals week? Join us to decompress with free food — burgers, hot dogs, cookies, fruit and veggies, ice cream, chips and drinks; entertainment — movies; and just hanging out with your friends. It is a great way to relax a little before the last finals of the school year! If you’d like to volunteer to help out, please fill out the form here: http://gform.pr/37607.

The theme is Minions, and volunteers get a free gift card.

2. Yosemite — Centennial Grove Camping - Hiking Trip
   Tuesday to Friday | June 14th to 17th | Cost $142 | Sign-ups begin Tuesday, May 24th at the Caltech Y — Spaces are limited (payment required on sign up)
   For more information, contact or visit the Caltech Y or our website: www.caltechY.org. Spaces are limited.
   Wilson, the house just north of the Credit Union). This trip you must sign up and pay the fee before Tuesday, May 24th. To secure your spot on this trip you must sign up and pay the fee before Tuesday, May 24th. No camping experience is necessary. The No camping experience is necessary. The transportation, campsites, and most meals.

   The trip is scheduled for Tuesday, June 14th to Friday, June 17th. Transportation, campsites, and most meals. No camping experience is necessary. The Caltech Y Yosemite Trip is open to all Caltech students. Sign-up begins at the Caltech Y on Tuesday, May 24th. To secure your spot on this trip you must sign up and pay the fee ($142) in person at the Caltech Y (505 S. Wilson, the house next door to the Credit Union). Spaces are limited.

   For more information, contact or visit the Caltech Y or our website: www.caltechY.org.

   The registrar’s office implemented a semi-solution. Frustrating delays of a few minutes began to occur — at which point the system crashed, and registration was postponed for the official sign-up day. The term was somewhat random, with seniors registering first and freshmen last, with some-i-class variance.

   Berkeley, a much larger school with over 27,000 undergraduates for the 2015–2016 academic year, also breaks up registration by seniority. However, its system determines which students are eligible to register, and registration is further divided into two separate phases to prevent a rush for specific classes. During Phase 1, students are limited in the number of units they can select, and are advised to sign up for the priority classes that they have to take. Phase 2 allows them to modify their schedule with additional units, usually with classes that either flooded during Phase 1. Caltech’s free-for-all system can lead to well over 850. Yet, IMSS reported no suspicious activity involving scripts or bots. Several theories were proposed about the sudden rise, including increased competition for interesting humanities courses or simply “a change in student behavior,” according to Mary Morley, the registrar and head of REGIS at Caltech. “Everyone got up before 8 a.m., everyone sat there refreshing at 7:45.” The shift was a dramatic increase compared to the steady rise in hits/second observed in previous years. “When I started at Caltech in 2007, we were seeing about 370 hits/second during the bad ones,” said Chris Malek, an associate director of academic services at IMSS. “Every single year, every term, the traffic goes up. So we have this moving target, and every year it gets worse.”

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It's time to demote Pluto ... again

OREIL HUMES
Contributing Writer

In 2006, the International Astronomical Union (IAU) voted to reclassify Pluto, stripping it of its status as a planet while establishing a separate category of dwarf planets. While it makes sound scientific sense to demote Pluto from its planetary status, I argue that we should go even further by destroying the designation dwarf planet—a category which is both scientifically useless and pedagogically confusing. Instead, we should call Pluto what it really is: a Kuiper Belt Object.

So why, according to the IAU, isn’t Pluto a planet? The IAU has established three criteria for evaluating whether or not an object is a planet or dwarf planet. According to resolution B5, a planet is “a celestial body that orbits the Sun, (a) has sufficient mass for its self-gravity to ... (assumed) a hydrostatic equilibrium (nearly round shape), and (c) has cleared the neighbourhood (sic) around its orbit.” The first criterion is fairly straightforward, separating the notion of a planet from the notion of a natural satellite or moon. The second is a statement about the size of an object—a planet must be big enough for gravity to be the dominant force sculpting its shape. And the third is, well, confusing. Unfortunately, the third criterion is critical. It is the qualification Pluto fails and it establishes the difference between a planet and a dwarf planet. What objects have cleared their “neighborhood” and dwarf planets haven’t.

The “clearing its neighborhood” criterion comes down to gravitational influence. Planets, especially large ones like Jupiter, have gravitationally dominated their orbits. Anything that passes too close to Jupiter will either be flung into the Sun or be ejected from the solar system. In this way, Jupiter clears its neighborhood. The same process would work for the other seven planets as well. However, Pluto exists in a belt of similar objects—the Kuiper Belt—where its diminutive size is enough to make it round, but not enough to clear its orbital path.

Because this process is inherently gravitational, it means that the IAU’s criteria establish a separation of size thresholds, both of which must be passed in order to be a planet. One, passing the “roundness” criterion, exist in a set of in-between size category, a poor consolation prize to satiate angry Phobolites. The dwarf planet distinction fails on two counts: it groups together objects of very little in common (other than roundness) and it fails to group together objects that share important physical properties and histories.

There are five objects in the solar system that qualify as dwarf planets: problematic Pluto, our Moon, Haumea, Makemake, and Eris. Haumea, Makemake and Eris are all residents of the Kuiper Belt, which lies beyond Neptune’s orbit, while Ceres is located much closer to the Sun in the asteroid belt, which is between the orbits of Mars and Jupiter. While the Kuiper Belt Objects (KBOs) in the Kuiper Belt have much in common with each other, they are vastly different from Ceres, both in composition and history. Ceres is primarily rocky; the KBOs are icy. Ceres, as a member of the asteroid belt, has primarily been influenced by Jupiter, while the KBOs’ histories are heavily shaped by the influence of Neptune. Ceres is essentially a hodgepodge with other objects with new real consequences: it leads to the impression that Ceres is isolated in a completely different region of the solar system. As an astronomy outreach educator, I have encountered several aspiring astronomers who mistakenly believed Ceres orbited beyond Neptune. The category dwarf planet, then, is misleading, a term that obscures truth.

A categorization that makes more sense is to group Ceres with objects that share its composition and history—the asteroids. Ceres may be an exceptionally large member of the asteroid belt, but this does not change the definition of “dwarf planet.” Similarly, Pluto, Eris and their lesser known cousins should be classified alongside the rest of the Kuiper Belt Objects, with which they have more in common than with outlander Ceres.

Superstar astrochemist Neil deGrasse Tyson advocates for a similar zone-like division of the solar system, separating asteroids and Kuiper Belt Objects. He even goes as far as splitting the planets into two categories—inner planets and outer planets—a division that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again reflects the shared composition and history of the rocky planets and gas giants. He explains: “This exemplifies the fact that again...
Katherine discovers the Cameron Sandwich

KATHERINE GUO
Editor-in-Chief

This week, I’ll be reviewing a sandwich from Chandler that Cameron Earl, who is the namesake of said sandwich, recommended to me. Being a vegetarian, Cameron came up with a variation on the chicken m\_r\_g\_h\_e\_r\_i\_t\_a, which is a popular sandwich from Chandler’s “Deli Epicenter.” The sandwich, known thereafter as the Cameron S\_a\_n\_d\_w\_i\_c\_h, replaces the chicken breast with spinach leaves and avocado. I would have done a punny name involving the fourth Earl of Sandwich, who supposedly invented the sandwich, but I am not that clever.

I didn’t really know how to ask for the Cameron Sandwich. The first time, I forgot how to describe the Cameron Sandwich, so I gave an awkward physical description of Cameron and how she ordered this sandwich every day, and Sandra (the sandwich artist) understood what I wanted. After ordering it twice, Sandra now asks me if I want the “special sandwich” and just starts making it. She is truly amazing.

Like its meaty sibling, the Cameron Sandwich contains, between two halves of a ciabatta roll, fresh mozzarella, fresh basil, and sundried tomato pesto. These ingredients by themselves work together really well. I oddly enjoy the texture of hot, melty, fresh mozzarella in any sandwich, and the basil and tomato pesto make me feel like I’m eating a delicious pizza sandwich. The pesto is so, so good especially.

But what do avocado and spinach leaves add? I was initially skeptical of warm avocado in a sandwich, but its creamy goodness made the sandwich mouthfeel (still don’t know about that) experience so much better. Also, avocado tastes super good and goes really well with the pesto and spinach on toasted bread.

Finally, the spinach. Raw spinach and I have never been best friends, but it also paired extremely well with the rest of the ingredients, especially the mozzarella. Also, I got to think about how healthy I was being with every bite. My only complaint is how the sandwich physically works together. Depending on my luck, sometimes the Cameron Sandwich i\_n\_c\_e\_s\_s\_a\_n\_t popped out avocado chunks because they slipped right b\_e\_t\_w\_e\_e\_n the smooth spinach leaves and the goopy mozzarella. I handled this by tightening my starved grip on the sandwich. Also, the very first time I ate it, I somehow managed to get avocado all over myself, which is probably related to the aforementioned problem. I’d recommend this sandwich to everyone, and I’ve already tried doing that. If you’ve talked to me in the past week, I probably have discussed the food I’ve been eating (as usual), but more importantly, this incredibly groundbreaking sandwich discovery. This is a great sandwich for vegetarians to enjoy, but even people without meat-based dietary restrictions, like me, would love it. Stay strong, vegetarians eating on board. The Cameron Sandwich has just entered your lives.

Introspection can be terrifying

Growing up is confusing. From the reeves-on-the-standup debs of kindergarten to the half-filled lecture halls of Ch 3a, no one has ever hesitated to give me advice on how to think. I use these colored blocks to understand addition, refer to these diagrams because “A” only stands for “apple,” watch these videos, play this educational game — trust us, you’ll learn this concept soon enough. Yet, there’s one thing that strikes me: I was never taught to introspect. I’m convinced that’s hurting me now.

Feeling my way into computer science as a sophomore in high school, I was sure that was what I wanted to do for the rest of my life. Playing around on this touch screen phone? Getting extra computer time instead of just 30 minutes for AIM? Count me in! Never mind the fact that I had no idea what the scale of “life” or even the time between then and college was — I was learning something, having fun and that was it. Was that it?

I didn’t ask myself that question. This trend continued much deeper than that. Jumping into college applications, I went through the motions with my counselors, spent hours in front of the crimson glow of the Common App screen and wrote what I considered were thoughtful essays. Yet, throughout this process, I thought very little about what I wanted — after all, we were all seniors in high school who had to ask to be excused to go to the bathroom. What did I want? Was I turning out to be? Were my values and interests really as deep as they once seemed?

These questions certainly seemed out of my league at age 16. Now, you might be thinking, isn’t this the point of the college essays? These prompts are often worded like “Discuss activities that have contributed to your choice of major.” The first thing to pop into your head is a laundry list of pseudo-accomplishments, not an opportunity for reflection. To this day, this bugs me: students spend months trying to articulate an impression of themselves to strangers with only a shadow of a clue of who they really are.

Perhaps I started this with a false premise — maybe introspection isn’t something that can be taught. After all, it requires a certain level of maturity and there is no structured way to look inside of yourself (oh, how nice that would be!). On some level, I agree. Experiences like traveling alone, having conversations with friends that challenge your paradigms, being rejected, going to college and writing for the best campus newspaper do indeed force you into rethinking yourself as a whole. And yet, there’s some tragedy to this in the form of inertia. The later we step to ask ourselves these questions, the quicker we’re heading down a pre-determined path. Over the course of the last few years, I’ve come to learn that there are aspects of the liberal arts that genuinely excite me and facets of computer science that undoubtedly bore me. Is this reason enough to change the track of my life? Maybe, maybe not — but my mentality has scarcely changed. I’m learning something, having fun and that’s it. I’ll be the first to admit that introspection can be terrifying.

If you want unsurpassed stability, integrity and value for your money, Caltech Employees Federal Credit Union offers an honest alternative. There are no gimmicks. No annual fees. No harsh penalties. Just some of the lowest lending rates and highest savings rates in the nation . . . and a state-of-the-art eBranch for easy, convenient online and/or mobile access to your account. We’re the overwhelming choice for financial services among the entire Caltech family. If you haven’t yet joined, call or visit us online or in person today. You belong here.

Special Solutions Proven Results

Must qualify for CEFCU membership to join. Minimum $5 deposit and one-time $5 membership fee due upon opening any CEFCU account. Federally insured by NCUA.
Deep breath in ... deep breath out ... Ooommmm. So zen.

KC was so mad that his eye began to twitch.

The other team just got SERVED. Yeah, I’ll show myself out.

So #aesthetic.

The ball must have smelled “foul” for Mark to make that face. Rhye.

Brittany Percin ... How do I begin to describe Brittany Percin? Brittany Percin is flawless. One time she punched me in the face ... it was awesome.

I envision a small squeal as Rush gently guides the ball to the other side of the net.

"You won’t! You won’t!" — One creepy mask to another.

The opposition retreats after hearing the roar of this mighty Beaver.

Fencing jokes? What’s the point? Haha ... ha ... ha ... hpe.

"You mean we can’t hold on to the walls if we’re tired ... ?"

There sure are a lot of people laying down for a sport.

"You mean we can’t hold on to the walls if we’re tired ... ?"

I’m going to go ahead and say that telekinesis is cheating ...
ASCIT Minutes
Meetings are every week in SAC 13

ASCIT Board of Directors Meeting
Minutes for 26 May 2016. Taken by Alice Zhai.
Officers Present: Serena Delgadillo, Tim Liu, Sakthi Vetrivel, Kalyn Chang, Robin Brown, Alice Zhai
Call to Order: 12:12 pm

I. President Updates: Serena
a. Transition Dinner is on Monday (Memorial Day)
b. Current graduating class is the first class affected by the 12-term tuition policy -- survey will most likely be sent
c. DONUT website needs to be updated

II. ARC Chair Updates: Tim
a. Student-Faculty Lunch happened last week
b. Update ARC guide for frosh
c. Planning for Student-Faculty conference for next year -- conference is in February, looking for topic ideas

III. IHC Chair Updates: Bobby
a. Absent

IV. Treasurer Updates: Kelyn
a. Moving boxes on Olive Walk are now available to everyone
b. Reminder for student organizations and clubs to spend budget

V. Director of Ops Updates: Sakthi
a. Ruddock Frosh Party happened last week
b. Made a log of which houses had what resources
c. In process of being added to the Club Steering Committee
d. Talked to Yearbook Business Managers about budget
e. BFP and Techstock are coming up!
f. TOTEM 2016 came out

VI. Social Director Updates: Robin
a. Dodgers game is on June 4 – 110 people signed up!
b. Rath Party on June 10

VII. Secretary Updates: Alice
a. Will gain access to DONUT by contacting Devteam
b. Will update glass case on Olive Walk -- ask Phillip or Sean for key

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: 12:42 pm

REMINDER FROM COUNSELING CENTER:
Meditation Mob
(drop-in mindfulness meditation group)

Meet every Tuesday
12:00-12:50 p.m.
Bottom floor of Winnett

VICE PROVOST’S OFFICE HOURS
Vice Provost, Chief Diversity Officer and Professor of English, Cindy Weinstein, holds regular office hours. This is an opportunity for undergraduate, graduate students and postdocs to meet and discuss what they’d like pertaining to the Council on Undergraduate Education, Caltech accreditation, the Staff and Faculty Consultation Center, Student-Faculty Programs, the Center for Teaching, Learning and Outreach, the Caltech Diversity Center and the libraries.

There are four appointments per hour, 15 min. each. Sign up the morning of the office hour in 104 Parsons Gates, Vice Provosts’ Offices (x6339).

Spring Term Office Hours
12 p.m. - 1 p.m.
Friday, June 3

The California Tech
Editors-in-Chief
Jon Coffer
Katherine Guo
Page Editors
Chloe Hsu
Iha Huang
Hyun Joon Lee
Ciara Ordner
Neera Shah
Copy Editor
Nehaly Shah

Contributing Writers
Kshitij Grover
Oriel Humes
Nailen Matschke
Tom Sheridan
Bismark Wong

Contributing Photographers
Michael L. Wong
Leo Balestri

Circulation Manager
Kit Chinetti

Advisor
Richard Kipling

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Letters and submissions are welcome; e-mail submissions to tech@caltech.edu as plain-text attachments, including the author’s name, by Friday of the week before publication. The Tech does accept anonymous submissions under special circumstances. The editors reserve the right to edit and abridge all submissions for any reason. All written work remains property of its author.
The advertising deadline is 5 p.m. Friday; all advertising should be submitted electronically or as camera-ready art, but The Tech can also do simple typesetting and arrangement. All advertising inquiries should be directed to the business manager at tech@caltech.edu. For subscription information, please send mail to “Subscriptions.”
Editors’ Farewells: Reflections on the past four years of The California Tech

Last year, one of the outgoing editors wrote one final article before graduating. Since Caltech is no stranger to tradition, we wanted to continue this and offer some of our own parting words.

NEERA SHAH
Page Editor, past Editor-in-Chief

What a whirlwind four years it has been, not only trying to get through the academics at Caltech and just college life in general but also trying to find the journalism culture on campus – and keep it alive. During most of my first two years here, I accepted things as they were and did little to fight to keep journalism relevant; I assumed there was little that could be done because probably would have been tried already. But, complicity could only last for so long, and, thankfully, other members of the Caltech community felt the same way. It feels good to know that we have an ever-increasing group of students willing to dedicate time to publishing a weekly paper.

We always hear “writing is important,” and by now you all probably roll your eyes every time someone says it. Writing papers probably roll your eyes every time you have to do them. Not making it worthwhile, isn’t it? But I trust that the editors, current and future, will continue to shape the Tech into a useful source of information and entertainment for the Caltech community.

There are endless opportunities for you to get involved in something that interests you, whether that is contributing to something like the Tech or being part of another club on campus. Take advantage of these, as they will make the stresses of college at least a little easier to bear. And if you can’t see to find something already established, do not hesitate to ask around. The community here is exceptional because there is always someone willing to help you.

Thank you to anyone who has ever taken the time to read any part of the Tech. Thank you to those who wrote articles, drew comics or took pictures for the Tech. Thank you to the students who helped with layout and planning of the paper, especially Jon Collier, Katherine Guo and Chloe Hsu. Thank you to every single member of the Caltech community for making my last four years what they have been: a collection of moments that have of course taught me a lot about science, but that have more importantly revealed to me a lot about myself and about the world around me. To the class of 2016, congratulations for making it through your time here, and I can’t wait to see how you will make your mark on the world.

NEHALY SHAH
Copy Editor, past Editor-in-Chief

Watching The California Tech grow over the past four years has been quite an experience, and I am grateful to those who have had any part in the process. Without the support and involvement of this community — students, staff and faculty — the paper would not be where it is today. I recognize that there is still room for improvement, but I trust that the editors, current and future, will continue to shape the Tech into a useful source of information and entertainment for the Caltech community.

This has been one of the best experiences I’ve had at Caltech, and it has been an honor to serve this community through my four years with the Tech. Finally, I want to urge you all to continue to make the Tech what it know it can be. Keep reading, keep writing and keep connecting.

Crossword

Across
29. Variety show 47. Form of math
30. Machine for extracting moisture 52. Ornamental framework
31. Edible round flat seed 53. Underground den of a fire
32. Type of duck 54. Clone
33. Large semiaquatic rodent 55. Mistake
34. Baffling question or rodent 56. Evergreen tree
35. Drama set to music 57. Orderly
36. Commence 58. Chromaticity
37. Birdcall 59. Two-channel feature
38. Air current 60. Material for starting
39. Hawaiian greeting 61. Mixed food consisting of greens
40. Appropriate 62. Ornamental sustenance
41. A blank area

Down
1. Bird shelter 4. Carve
2. Hawaiian greeting 5. Edible round flat seed
3. Overwhelming fear 6. Frozen water
and anxiety 7. Display
10. Chromaticity
11. Historic period
12. Mississippi tributary, ___ river
13. Attempt
16. Providing food or sustenance 21. Barconial
17. Sound 22. Research workplace, in short
23. Obviates 26. Variety show
27. Research workplace, in short
28. Obviates

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