

Eaton Fire Scorches Caltech and Pasadena Communities

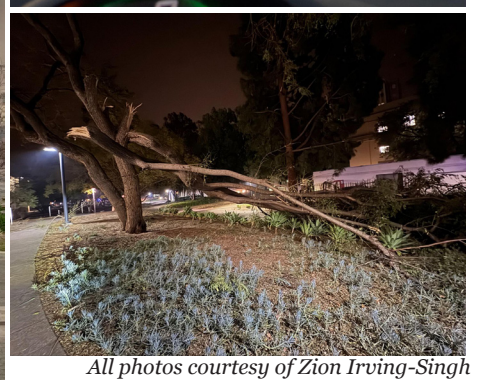


Victoria Davis
News

It is now Monday January 13th 2025 and the Eaton Fire is 14,117 acres and 27% contained. 3,155 firefighting personnel are assigned to this fire. The Eaton Fire is one of the worst natural disasters in United States history, and California's deadliest wildfire disaster. Ten miles of foothills from the Jet Propulsion Laboratory to Santa Anita Avenue is just destruction. Caltech students, postdocs, faculty, staff, and the surrounding community have been impacted by this traumatic and devastating fire. At least 200 Caltech community members have lost their homes to the fires. Thousands have been displaced. Ash contamination, poor air quality, and loss of power and water utilities remain to be additional issues we face.

A Caltech and JPL Disaster Relief fund (<https://giving.caltech.edu/areas-to-support/relief>) is available to assist Caltech and JPL community members impacted by the fires. Resources are available at www.caltech.edu/fire for safety and health, especially how to monitor air and water quality in your area, how to handle and clean up toxic ash from wildfires that have burned structures; mental health resources; emergency and recovery resources, like FEMA, 211 LA, animal shelters, temporary housing options, furnished rentals, help with insurance; returning home after wildfire checklists and fact sheets; volunteer resources; and emergency preparedness for future emergency situations.

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All photos courtesy of Zion Irving-Singh

Caltech and LA Wildfires:

We build rockets, not firefighters, but we are still talking about fire...right?

Camilla Fezzi
The Outside World

“A combination of abnormally dry conditions and powerful wind gusts have fueled Los Angeles with destructive wildfires.” This was the subtitle of the first article published by the *L.A. Times*, and I think you have all read about what is happening, which areas are affected, and how hard they have tried to put out the fire and contain it, but it is a machine that does not stop.

The first element that hit the Southern California area was the wind, a storm that reached 100 mph. According to the *L.A. Times*, Los Angeles and the Southern California area, in general, is a state with consistent and, sometimes, as in this situation, severe drought conditions, and the water level and rain have not risen enough since May even though the rainy season is between April and October. Many firefighters, workers, and volunteers have described current events as the worst and largest fire in the last 25 years. Driven by dry conditions and mighty winds, the flames have claimed at least 24 lives so far and forced more than 130,000 residents to evacuate from their homes. We join with all Caltech members, teachers, workers, office members, researchers, and students who have lost their homes and fear for the future.



Photo Credit: Zion Irving-Singh

Caltech has continued to send out emails, alerts, and detailed instructions on what to do, leaving nothing to chance. In several of the homes and dormitories, students are evacuating, moving south toward the San Diego area, or even going to the Bay Area.

NBC reported that five separate fires are blazing in the greater Los Angeles area so far. Along the coast, the Palisades Fire erupted Tuesday and has since expanded more than 17,000 acres. Over Wednesday night, the Sunset Fire started in the Hollywood Hills and Studio City, prompting evacuations that led to a traffic gridlock on Hollywood Boulevard.

How did they start?

It was mainly the combination of drought and strong wind that ignited the first spark. In addition, the speed of the wind caused branches, leaves, pieces of houses, and cars to move, spreading continuously and expanding. It is contagious,

it spreads, it seems like a virus that grows incessantly and finds food in the destruction of Los Angeles.

Yet, as with every news story, doubts and the probability that the situation could be malicious are unleashed. The LAPD has confirmed to NewsNation that the Kenneth Fire is now being investigated as an arson case, and one person is in custody. Investigators believe the fire may have been set on purpose, and it was citizens who helped detain the suspect. The main reason arson is suspected is because the fires started in different locations more or less at the same time and so far away.

Los Angeles District Attorney Nathan Hochman said the suspected arsonists could face charges as steep as homicide that may result in life imprisonment. “Justice will be swift. It will be firm, and the maximum punishment will be sought,” said Hochman in a statement. The truth remains unclear, but the substance of these rumors is being thoroughly investigated and law enforcement is doing their best to resolve the situation as quickly as possible.

Speaking of damage, officials said Thursday that at least 10 people were killed and more than 9,000 homes, businesses, and other buildings appeared to have been damaged or destroyed in the Palisades and Eaton Fires. Around 5,300 of these structures were destroyed in the Palisades Fire, while another 4,000 to 5,000 structures were estimated to be damaged or destroyed in the Eaton Fire burning in the Altadena area.

At a morning news conference on Friday, L.A. County Fire Chief Anthony Marrone said the growth of the Eaton fire had been “significantly stopped.” At 3:30 p.m., however, he announced that the fire had grown by more than 3,000 acres—to 13,690 acres—as it spread toward the historic Mt. Wilson area with 0% containment. Moreover, the Palisades fire grew from around 17,200 acres Thursday morning to 19,978 acres Thursday evening, at which time the blaze was 6% contained, according to fire officials. On Thursday afternoon, the Kenneth Fire ignited in Woodland Hills and spread to around 1,000 acres.

“This has the potential to be, at least collectively, the costliest wildfire disaster in American history,” UCLA climate scientist Daniel Swain said Wednesday. “Even just the Palisades fire on its own may become so.”

A beaver in the trap!

I was leaving Fleming to go to the library on Tuesday evening; I would define that walk as a sacredness for my daily schedule, a way to relax and at the same time know that I brought home so many discoveries and innovations. I was enjoying a chocolate chip cookie, surely you have tasted one, the ones they sell at Red Door or Broad, with vanilla chips. I don't know, but by now I have a real addiction to those cookies, if they are there, ahhh, I lose my mind! Anyway, it should be a serious article, but they say that the first lines must capture the reader!

Having said that, that evening the chocolate could not resist and, the cookie, as well as my certainties, had flown away. An

unstoppable wind hit me in the face, my hair filled with leaves in an instant, and my legs were shaking. What was happening? Was it a storm? But no, it wasn't raining, nor too cold. Maybe there was sand in the air, I was struggling to breathe, and my lungs were blocked by an invisible wall of toxic fumes, but I hadn't noticed, I saw the trees with all their roots fallen on Olive Walk, branches flying. It seemed like the famous scene from *The Wizard of Oz* when there is a hurricane at the beginning, but, even though it is in L.A., it wasn't a movie.

I ran as fast as I could to the dorm and I would be lying if I didn't say that there was a part of me that enjoyed imitating Tom Cruise in *Mission Impossible*, jumping over the branches, avoiding the leaves, and slaying between the flying bushes. As soon as I was inside I could hear my breathing, my cough and the distant whistle of an unstoppable wind, my eyes were burning, my glasses were dirty, what was happening? Wind, I muttered, so much wind. I immediately thought of my horses, they were probably going crazy from fear and noise, I thought of my cells in the lab, I thought of the workers at the university, I thought of everything, but me. I think it is in these situations where everything that seems real or seems to work disappears and you reach the essence of the situation. The canceled classes... what would I have done the next day? There, yes, I realized a detail that is conditioned these days: I am alone.

I sat on the floor of my six square meters and I was short of breath, but I couldn't open the window, the wind could be felt, but I didn't care, it wasn't just that, there was something else that escaped me, something more subtle. That night I struggled to sleep, not that it never happens, on the contrary, but the uncertainty flowed through my veins like hemoglobin, it made me breathe and look at the ceiling. It was around three when I decided to get up and see what the situation was like outside. I took my cell phone from the nightstand and saw hundreds of messages, alarms, and emails. That's what it was, the fire. I went out and flakes of ash were falling on my hair, the wind had calmed down a little, but what confused me the most was the smell, even if it brought back several memories. It had been a few days since the New Year's Eve celebrations and it is tradition for my dad and I to build all kinds of fireworks, I have lost my passion for pyromania, yes I got to the point of throwing firecrackers directly from my hand after lighting the fuse, so much adrenaline! (“And so much stupidity,” my mother says), and yet that smell was the same, but much stronger, sharper... toxic.

With all those threats of evacuation, it is not hard to believe that the night was tormented and that I felt the fire surrounding me, but the worries were bigger, how could I sleep, it was not the time, the place, the hour. When I woke up the always blue California sky had turned orange. It seemed like one of those disaster movies with post-apocalyptic scenarios. It made me laugh at least



Photo Credit: Zion Irving-Singh

to think about how much my brother loves those types of movies, he says, according to his very adult philosophy, that by watching those movies, then you realize that your life is rather better, that, covered by the warm sheets, you feel comforted knowing that it's all fake and that someone will win the Oscar for best special effects. But no, this is not the situation, and when he called me and said “No Cami! I'm terrified at the same time, but also excited, I mean you will be part of history, having taken part in everything that is happening. In short, you lived it!” My voice, I would say dry on the other side of the world: “I would also like to avoid it, I want history to talk about me in other ways... there.” Nothing, I couldn't shut him up, but it comforted me to talk to someone, to know that they were safe. And I am? This question was constantly hitting me, what could I do, how could I help, I turned around and there were only white walls to crash into (so no, I'm not in *Blacker*, otherwise I would have written black!).

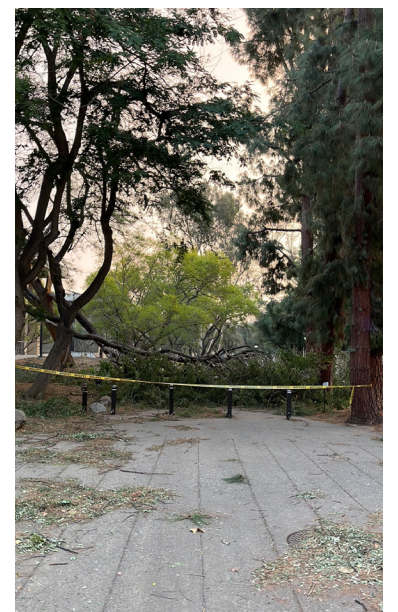
I thought it wasn't happening, so close then, we're talking about a few kilometers at most, of a highway, and thank God that the Americans build 10-lane highways! It was all so... palpable. I read about the professors and workers of the university who lost their homes and who were evacuated, but one thing comforted me, and for this, I have to thank the security of Caltech. The emails, the constant messages, were certainly very annoying but useful in clarifying the situation. And with all my heart I am close to those who are suffering more than anyone else from this terrible situation. However, these days have given me something fundamental, friendship: I have found peace in the laughter and chatter that during the term is difficult to mistake for the mountain of things to do and, although there is always a mountain of things to do (or that I invent to do... because that's what it is), in the end I know that people matter more than what we have (and the horses OBVIOUSLY).

Hard days, days of suffering that I hope will pass soon. During a lesson held via Zoom I felt like during COVID-19 again and no, those memories, those dark moments, have marked us enough, they have changed our lives, and we do not want to open new chapters of a complex era. I close by reflecting on how

returning to the essence is fundamental in these situations, to look the enemy in the eye and know that we are just a piece of the LEGO that surrounds us, a globe made of people who work, suffer, and love with you. Above all look at that fire, that enemy, and understand that most of the time that enemy is you.

I hope with these words to be able to share and help other people who find themselves in difficult situations and I thank again the entire Caltech community for the protection and safety given. Writing a joke to lighten the mood, if something like this had happened in Italy, no Italy would exist anymore, and the police is not so specialized and cohesive for such objectives. So, the stereotype of the American who is two meters tall and “thick” two meters due to training and muscles will always remain, even if I am still waiting for The Rock to come and save me. Yet there was another The Rock who lifted me in sadness and that was the Caltech community.

Thank you from the bottom of my heart,
Camilla



Caltech Campus, trees everywhere, thank you for the wonderful job of the community and workers

Eaton Fire

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What follows is a personal accounting of the events of last Monday through Thursday.

Monday, January 6th

I remember scrolling on my Instagram in the evening after work, and I saw a post from CityofPasadena warning about a significant windstorm canceling all events and activities for the Pasadena area on Tuesday January 7. I then opened my Weather app and looked at the hour by hour forecast for the next 24 hours and saw the wind icon at each hour predicted for Pasadena. I flipped to Santa Clarita, my hometown, and saw the hour by hour prediction: wind, wind, wind. I flipped to Los Angeles: wind, wind, wind. La Cañada Flintridge: wind, wind, wind. I was shocked. How are there Santa Ana winds for *all* of LA County in one day at the same time? I've lived in LA for 32 years, and have never seen that. I messaged my mom in Santa Clarita about the wild forecast predicted for all of LA County. I messaged my lab mate who was commuting between Orange County and Pasadena lately. He too had forecasts of wind, wind, wind for OC. Then, Caltech emailed us at 9:39 PM. Subject line: Caltech Weather Advisory: Significant Winds and Elevated Fire Conditions Expected in Los Angeles County. Email body: "Strong winds, ranging from 30 to 50 mph with widespread gusts between 60 to 80 mph; isolated gusts between 80 to 100 mph are possible." 80 to 100 mph wind gusts... I remember winds like that from my time living in North Carolina during grad school when we would have tornadoes or hurricanes. I was shocked that we were going to have Santa Ana winds of that magnitude. Those winds rip trees and powerlines out of the ground. Those winds carry umbrellas and other loose debris across town. I looked again at Santa Clarita's forecast. Winds were anticipated to begin at 8AM on Tuesday in SC. I looked at Pasadena's forecast. Winds were anticipated to begin at 11AM. *Good*, I thought. *That gives me time to walk Tyson (my dog) and walk to campus for subgroup meeting before winds really pick up.* I went to bed thinking I would make sure I bring my portable phone charger to work and put new batteries in my emergency lanterns in the morning.

Tuesday, January 7th

I woke up to the startling howl of wind. Surely that wasn't true. Winds weren't supposed to start until 11AM here... I sprung out of bed before my 6:30AM alarm, and decided it was time to get ready for the day. *Poor Tyson*, I thought. *He's going to be so afraid of the wind when I take him outside this morning. I hoped it would only be this evening that would be scary for him.* I hooked Tyson into his harness and clipped on his leash. We opened the door and tree leaves were down and shoved into the corner of our hallway. Wind woosh-ed past us as I closed the door behind us. It was already so windy. We walked downstairs and into the courtyard of my apartment building and we stepped over tree branches as we made our way to the front gate. Outside on Wilson, just north of Caltech, Christmas trees that were placed on the sidewalks for trash pickup were scattered about the roads. The wind gusts came in spurts and Tyson's ears flew back and down, his tail between his legs, shaking. We didn't go for our usual walk around the block

and went back inside where it was calm after he peed and pooped. As I ate breakfast, I watched the balconies of my neighbors from my window. The neighbor below me had a triangle sunshade bolted to the bottom of my apartment's balcony that flapped up and down in the wind. The next neighbor over had a patio umbrella still fully open. I watched it wiggle in the wind, and then with one big gust, it was picked up off the ground, flipped upside down, and flung to the other side of her patio. I decided to back away from the window and finish getting ready for the day. I put new batteries in my lantern, cleared my Christmas wreaths and Tyson's outdoor dog bed off the balcony, and brought them inside.

As I walked on Wilson and crossed E Del Mar St., I noticed a bunch of palm tree branches were in the road, obstructing traffic in the right lane. Cars made loud crunching noises when driving over the branches. As soon as I got to my office, I plugged in my portable power bank to charge. My labmates commented that I was prepared, and I laughed saying that my mom lived through the 1994 Northridge earthquake, so I was raised to be prepared for anything.

After subgroup, the winds continued to strengthen. My labmates and I watched as a tree outside the third floor of Noyes swayed back and forth, away from the building and then smacked into the window. It was a loud smacking, but the glass held. We decided it was best to keep our distance from the window. Palm trees bended and swayed along Wilson.

All day, the winds seemed strong. Typical Santa Ana winds, though, it seemed. Small debris, like seeds, sand, tiny leaves, would fly about and get in your eyes, so you have to squint when you walk. Nothing I haven't seen before. I met with undergrads at Red Door for a lunch meeting about our upcoming issue for the Tech. I went back to Noyes to make electrodes. My mom texted me around 2PM to tell me about a horrible fire that had started in Pacific Palisades and that UCLA doctors she worked with were being evacuated. I met with a grad student in Schlinger Courtyard about a Caltech Wildlife column I hope to write and that she was taking photos for. I went to Gates Annex to hear Ryan Hadt's tenure talk—which was fascinating and great by the way! Then returned to Noyes again. I quenched a solid-state reaction from 500 °C to room temperature at 5:31 PM. I cleaned up, prepped my supplies for tomorrow—thinking there would be a tomorrow—and then packed up.

By 5:50PM, I was heading north on Wilson and the winds were getting uncomfortably strong. I kept glancing, hoping no tree branches would fall. I crossed Del Mar and made it to my apartment. There was another opened umbrella in the courtyard of the complex and the wind was dragging the umbrella and metal patio table across the courtyard with a loud screech. I darted upstairs and went into my apartment. My roommate was home, sitting on the couch. She looked at me and commented on how loud the winds were getting. I agreed, and quickly grabbed Tyson. *Hopefully I can get him to pee and poop in this weather quickly and then we can stay in the rest of the night*, I thought. Tyson was terrified with the loud winds whipping around us. I coaxed him down the stairs and through the gate, to his peeing tree. I looked down the street (north of Wilson towards the mountains). Gusts of

wind were now rapidly punching and barreling down Wilson towards Caltech. Punch, punch, punch. I tried to bend down to Tyson and keep him on the sidewalk, and protect him from any debris that might hit him. Punch, punch, punch. The wind punched from north to south as if being sent like a torpedo from the mountains and down to the end of Wilson. The trees above me shook and jolted with each gust. Tyson kept pulling away from the sidewalk to run up the steps and back to the apartment building's front gate. I tried to keep him focused on going to the bathroom, but at this point, even I was getting nervous about the strength of the winds. I darted up the steps with Tyson, and we huddled in the alcove of the building, shielding ourselves from the wind gusts. Whenever there would be a break in the gusts, I would pull Tyson back to the sidewalk and onto the dirt patch to try to get him to poop. He always needs to poop at this time, and I was determined to get him to go now, so we could take shelter for the rest of the night. We must have darted back and forth between the sidewalk and the alcove of my apartment building 15 times. I imagined anyone watching me must have thought I was insane, but the gusts were so intense I didn't care. One extraordinarily powerful gust of wind, burst down Wilson in an instant. I saw the wind pick up dirt, dust, and debris all in one giant cloud and watched it hurdle down the street. It was a moment of winds like I had seen in North Carolina during a tornado warning. Winds like that moved debris across a road, in the air as if someone had pressed a button and forced gravity to be perpendicular to the ground. All of a sudden the street lights went out, and Tyson and I were in darkness. I looked around, and the power to the apartment complexes around us were still on. Oddly, it was just a few street lights along Wilson that went out. It wasn't even all the street lights. The winds calmed for a moment, and I took the opportunity to walk Tyson a little further down the street to a patch of grass. He finally pooped, and we ran back inside to the apartment.

I started to make dinner and noticed my mom had been texting me. She asked if the winds were getting worse in Pasadena like they were for her in Santa Clarita. By 6:22PM, Tyson and I were back in the apartment, and I messaged her back that the winds reminded me of tornado weather in NC. She told me the Palisades fire was now massive: 30,000 people evacuated and the images on the news were apocalyptic. At 6:54PM, as I was prepping my lunch for tomorrow and making dinner, I smelled smoke. Not from cooking. It wasn't coming from the kitchen. I could smell it seeping in from the patio door. Wildfire smoke. Two minutes later, my mom called me asking where we put the photo albums. She asked me if I was distracted, and I assumed the smoke smell must be nothing—I didn't see any buildings around me on fire, or see any plumes of smoke. She was getting worried about the winds and she was packing in the event that she needed to evacuate. I was just trying to finish making some food, so I could think about what I was doing and what I should be doing.

I got off the phone with her at 6:59PM and checked the Watch Duty app, and it showed that there was a 10 acre fire that had just started in Eaton Canyon. I quickly texted my mom that I thought I smelled smoke, and sent her a screenshot of the

map on Watch Duty. The group chat with my labmates started blowing up. One labmate asked if our advisor lived near Eaton Canyon. Yes. One labmate drove home from lab and had a tree fall in front of him. Another labmate posted on Slack that she smelled smoke in the lab, but it was coming from outside. Another labmate texted that they smelled smoke. Another labmate texted that they drove home with a tree branch stuck in their car bumper. Another labmate texted that the tree in their apartment complex was falling down and they smelled smoke. I finished making dinner and sat down on the couch. The winds were stronger and stronger and stronger, making me uncomfortable to be by the patio sliding doors. By 7:26PM, my roommate came out of her room and said that her mom was driving down from Altadena with her two cats. She asked if it was okay, and I said of course. I quickly grabbed my dinner and Tyson, and went into my room, so he would be separated from the cats. I told my labmates and other Caltech friends to download Watch Duty. We tried to figure out what the dark red zones and yellow zones meant on the map. We figured it out: red (evacuate, GO now), yellow (get ready, be SET to leave). The rest of us realized, we should get READY.

7:27PM, we watched the evacuation zones expand. One labmate texted that smoke was flooding through his apartment. I wrote "Pack stuff guys." As I scrambled to take bites of my dinner and throw important things in a suitcase: change of clothes, birth certificate, first aid supplies. I couldn't think straight. Labmates were debating that we didn't have to pack because we were much farther south than the fire. I reminded that if this becomes like the Palisades fire, we want to be prepared.

At 7:29PM, evacuation zones expanded again. The fire was now 200 acres. One labmate was now listed in a yellow zone. He was asking where he should go if he has to leave. I texted my mom asking what the news was saying about Pasadena. She said they're not saying anything about an evacuation center for Pasadena. I could hear my roommate's mom had arrived to our apartment with the cats. Smoke was filling the apartment.

At 7:40PM, I texted a Caltech friend who doesn't have a car that I would come get her if we need to evacuate. She was stuck in Resnick, waiting for a campus security officer to escort her safely to her apartment. She was afraid it wouldn't be safe to travel into the windstorm on her own. At 7:54PM, Caltech sent out an emergency alert. I reassured labmates that Caltech will probably keep us posted about evacuation centers. I realized if we evacuate we might be there for days. We need toothpaste, toothbrushes, soap, change of clothing, animal food, medications, important documents. I started throwing these things in a bag, and texting a list to labmates. How easy it is to forget that one needs soap.

At 8:51PM, a labmate posted in Slack that a giant tree had fallen on Wilson near Caltech's north parking garage.

At 8:57PM, my friend trapped in Resnick had gotten a ride from the building manager and was now safely home. My roommates mom, dad, and two cats were with us in our two bedroom apartment. We all exchanged numbers, and I had them download the Watch Duty app. Her dad had a Windy app that let him monitor the projections for the wind gusts. The worst of it was supposed to

be now, and soon it would calm down. I pulled out my air mattress and set it up for her parents. We agreed we should try to get some rest, but leave our phones on in case we need to evacuate.

9:13PM a labmate texted that the Bert fire had started in between San Pasqual and San Marino. One labmate was nearby and the power went out at his house. Labmates flooded to respond that they would take him in if he needed to evacuate. We still didn't know where the shelters were. Caltech notified us that if we are not in an evacuation zone, we should shelter in place. Caltech notified again that there would be no school tomorrow, Wednesday January 8th.

At 9:30PM, I reached out to another labmate who didn't have a car. I offered to come get her and her cat if she needed to evacuate. I told her I would have my phone on and be checking it all night if she needed anything.

10:08PM, a shelter was finally announced for Pasadena at the Pasadena Convention Center. I slept in my clothes that night, with a blanket over my head to protect me from the smell of the smoke, and turned my air purifier on High. I woke up with every notification that came across my phone, checked it, then went back to sleep when the map continued to show no change. The fire spread across to the east, but wasn't making its way more south. As I laid in bed, the winds punched against the front door of the apartment so much I was worried the door would fling open. I could hear the wind pound the door and the hinges squeaked with every burst of the wind. The deadbolt kept the door in place.

By 12AM, the winds had calmed and one labmate couldn't sleep. He decided to go to Caltech campus to assess the damage. I saw that our advisor had messaged in Slack that she and her family had evacuated and they were safe with a friend.

Wednesday, January 8th

In the morning, the sky was filled with smoke. You couldn't see the sun. Other dog owners were on Wilson like me. With masks on. It was eerie and quiet. No cars were on the road. I could see the tree that had fallen on Caltech campus. It was already sectioned off with caution tape. We learned later that day that our advisor's whole neighborhood was gone. A labmate's parents had evacuated from La Cañada and were staying with her in the Catalina apartments. We all spent the day sheltering in place, waiting for the winds to stop so that aircraft could fly and drop water on the fire. Until the winds stopped, all we could do was wait. We watched TV and waited for updates, waited for change, waited for news. One labmate spent the day in Altadena, handing out water, masks, and trying to help wherever he could. By Wednesday evening, we received a notification that the water in Pasadena was no longer safe to drink and we should only drink bottled water.

Thursday January 9th 2025

By morning, all the bottled water in Pasadena had been purchased and the smoke was much, much worse than the day before. My air filter, once green and operating optimally, was now blinking yellow, indicating I need to change the filter. Our advisor said if we had the ability to leave Pasadena, to do so. The Eaton Fire and the scorched Earth it left behind seemed to have no end in sight.

Circumnavigating TACIT's *Earth Data: The Musical* — A Retrospective

Damian Wilson
Culture

“It was preposterous that we finished the show.”

So reflected Director Brian Brophy on *Earth Data: The Musical*, its one-weekend full run in Ramo Auditorium held on the 3rd of last November. With 20 actors, 16 musical numbers, and a sprawling crew of musicians, managers, producers, advisors, and designers, this 2-hour original musical—staged by Theater Arts at Caltech (TACIT)—was certainly no easy feat. With shows held on the 1st, 2nd, and 3rd, this culminated a year of workshops featuring students and staff from every corner of the Caltech/JPL community acting, singing, and ideating in concert. The musical was presented as part of *Blended Worlds*, Caltech/JPL's contribution to PST ART: Art & Science Collide, a festival held in affiliation with the Getty, the city of Glendale, the Glendale Arts and Culture Commission, and the Glendale Library Arts & Culture Trust.

Fitting for its scientific subject matter, the show itself had been a research project from the outset. Brophy reflected, “In the beginning it was experimental: *How can we take earth data and turn it into a musical in such a way that people care about nature?* It's a cultural experiment.” Beyond *Earth Data*, remarkably, the director sees all theater through a research lens. “Anything we do in the theater is an experiment. We have a hypothesis, we're going to see if we can test it out, and



Cast of *Earth Data*, from left to right: Kathryn Bikle, Ellis Spickermann, Cai Tong Ng, Jocelyn Argueta, Joony Kim, Anya Janowski, Armin Kleinboehl, the author, Maria Azcona Baez, Eric Smith, Joey Jefferson, Julian Wagner, Solvin Sigurdson, Jessica Kilgore, Josef Svoboda, Leslie Maxfield, Boyuan Chen, Matt Braaten. Just out of frame are Joži McKiernan and Michael Gutierrez.

then see if we can verify the results and have a run on Broadway.” What better attitude for Caltech dramaturgy?

What *Earth Data* became flourished from that experimental kernel, according to music director Emily Shisko. Driven originally by an affinity for alt-classical singing, namely the micropolyphony of a particular rendition of *2001: A Space*

Odyssey at the Hollywood Bowl, Shisko shared: “The image in my head is that's the little piece of grit that started the whole thing, and it's been layered over with lacquer in that it has to be a narrative. It has to be something people can sing without being professionals, and that people can understand. That forms the pearl of *Earth Data*. But all this weird

and experimental stuff was the grit at the center of the pearl, if that makes sense.”

During its improvisational beginnings, the musical lacked named characters or a clear narrative. Over time, however, contributions from the ensemble began to cohere, culminating in a first look at Act I during a beta run in April—offering everyone a much-needed op-

portunity to step outside themselves. “It's very easy as an actor to get inside your own echo chamber,” said Maria Azcona Baez (ChE '25), who played female lead Mab. “We're super familiar with the project: the ideas around it and how we want to execute them. ... Honestly, I was looking forward to more criticism than we got.” (Baez remarked, with a Caltech

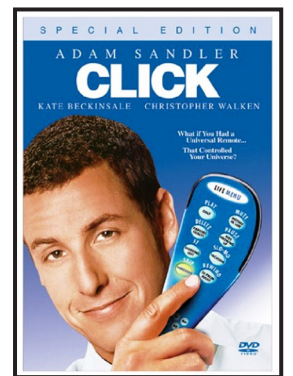
Amazon Skymall

Welcome back to Amazon Skymall! In this column, we hold a raffle where we [not] randomly select one of our lucky readers and give them the item of their choice from these hand picked selections!

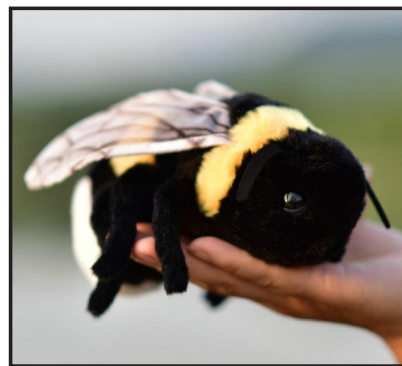
Enter this week's raffle by using the QR code or the link below:



NO
NO
Free



The Click DVD
\$14.99



Soft Bee Plush
\$8.99



Sword Mini Cheese Grater
\$14.90



Table Saw for Cake and Salads
\$16.48



Chemical Fire Extinguisher 2 pack
\$34.90

audience: “We’ve slightly expanded the echo chamber, but it’s an echo chamber nonetheless.”)

Brophy felt confident about the musical at that stage: “I was pretty content with the shape of the musical, having only really comprehensively worked on it from January, February, March—three and a half months with all of that music. A full one hour of spectacle was quite an achievement. And it happened because we had a really good group of engaging and brave humans who wanted to risk the unknown for something they thought would be valuable.” Above all, the director was heartened by the sincerity of the Caltech audience’s engagement. “The most gratifying feedback is that they cared about the characters. ... To get people to care about anything is quite mystifying.”

Cole Remmen, assistant director and co-writer, described the process of linking the play’s larger themes in Acts II and III. “A lot of the broad strokes of it had been, if not cemented, outlined. We knew that [the characters] were going to go to Congress, which was teased for the audience [in the beta]. ... We knew that we wanted to have a scene with these scientists from the past. That was in the original pitch that Brian sent me—these ideas that were not quite yet connected. We had to find a way to coalesce them.”

In uncovering the music for those later acts, Shisko’s writing strategy involved defamiliarizing herself from what had already been done. “One of the things I did was to get through Act I with all the stuff I knew we liked and needed to keep. I treated it like it was somebody else’s music, a score that I was reviewing for the first time, and analyzed as much of it as I could, and saw what the melodic gestures were that showed up in more than one song, what harmonic relationship were happening over and over again that seemed to be what the song sounded like, and noticed what of the song was unusual and specific to one song.”

Recounting how Act I was too eventually rewritten (or “spiffed up”), Shisko likened the development process to composing an essay: “If you start writing at the beginning and just keep going into the end, you’re going to wind up with something that doesn’t connect with the end. It’s like writing the intro of the essay and never going back to see if the intro fits. You want to make sure that everything is of a whole.”

These final stages of production brought many new faces into the fold, including stage manager Sofia Lyon, for whom *Earth Data* was a triumphant return to the theater world. “In terms of jumping back into theater, it was the best experience I could have had. It’s an original piece, and epically ambitious: a lot of technical cues, lighting cues, sound. ... It was a good undertaking for me.” For Lyon, the musical was also a first exposure to the joys of joining art with science. “I didn’t grasp how big the world of science-driven art really was,” she added.

Among the other newcomers following the beta was Jocelyn Argueta, a web producer for JPL Communications, who depicted academic-turned-corporate scientist Dahlia Foxworth. (The character was originally depicted by Arabella Camuñez [ChemE ‘27].) Argueta was enthralled as soon as she learned of *Earth Data*’s existence: “I’d never done a musical before. I just wanted to be a part of it.

I told Brian: *Please just let me do whatever!* ... It just so happened that I ended up getting Dahlia. She was an awesome character, and I had a lot of fun playing her.”

Argueta, whose research background helped inform her performance, was especially appreciative of the show’s scientific realism. “I had never seen the science environment portrayed so faithfully, and it included so many nuances that I think scientists deal with in the field in the lab—the ethical side of it. And so when the call came out to be a part of the full stage production, I was like *Yeah, I’d love to do anything involved with it.*”

Joining as a main actor just months before the November run presented Argueta with a unique ordeal. “First week or so,” she related, “I was a little disoriented by *What does co-creation mean? How much is set in stone? Why are certain things set in stone that way?* But then it became very clear to me: the work you had been doing for a year, essentially. It was all very special. ... I felt very lucky to play a part of bringing that giant co-creation life to it.”

The play’s climactic depiction of Congress proved an exceptionally challenging sequence to stage. The *Earth Data* writing team drew from the real-life experiences of JPL postdoc Bradley Gay, whose research on human impacts on the Alaskan permafrost—recently published in Nature’s *Scientific Reports*—originally inspired the show. (The work was conducted alongside his JPL colleague Kimberley Miner, who also advised on the musical.)

“The idea [of *Earth Data*] was to capture not only the science, but the visceral emotion that comes with these findings as well as the insight that is drawn from these discoveries,” Gay shared. Interfacing with Congress over the years too was emotionally intensive. “It was getting frustrating, and it kind of sent me down a path where I was like: *What am I doing here? Am I just a talking puppet or is real change actually going to be lasting?*”

Translating such complex feelings to the stage took some restraint with form. As Brophy explains: “With something like a congressional testimony, having all the senators burst into song—I don’t know how you’d do that without it feeling comedic. That’s not what we wanted to portray. It really came about because there wasn’t a good path forward in incorporating the music in a way that felt honest to the stakes that we were presenting.” Gay agreed: “I think [music] would have muddied the actual seriousness of the situation.”

The extended showdown at Congress thus unfolded almost like a straight play within a musical. For nearly 20 minutes, tensions between characters steadily build through spoken dialogue, delivered with all the dramatic sterility of a C-SPAN hearing. Only then does *Earth Data* return to song with a reprise of “Rising Sea” (originally from Act I), an emotional outpouring between Mab and Dahlia capturing the turmoil faced by scientists like Gay when on the congressional floor.

Leading up to the Ramo run, TACIT was invited to present *Earth Data*’s finale (“Science Lights the Way”) at the ALEX Theatre in Downtown Glendale, as part of a *Blended Worlds* show hosted by comedian Reggie Watts. “It’s always fun working with professionals because it always shows you

that you’ve got a lot to learn,” said co-writer and production designer Sullivan Braun. “It also shows you that you’re doing pretty damn well.”

The performance culminated in a drumline courtesy of Crescenta Valley High School, and the zeal in the room for *Earth Data* was palpable. Albert “Joey” Jefferson, a JPLer who played male lead JJ, recalled the night with extraordinary fondness. “The whole energy was on level 100, and hearing people sign ‘Science Lights the Way,’ having a big smile on their face, wearing their NASA shirts, restored my faith in humanity in a lot of ways. ... It was really beautiful.”

Following a packed weekend run of the completed musical, *Earth Data* quickly caught the attention of Sandra Tsing Loh (Ph ‘86), a Caltech alum known for such STEM-flavored radio exploits as NPR’s *The Loh Down on Science*. An abridged, sung-through showcase tracing out the narrative arc of the show via a few highlighted songs was arranged as part of a variety show at the Odyssey Theatre Ensemble in West Los Angeles on November 17th. Among those joining the *Earth Data* cast was the fellow L.A.-based Terrible Adult Chamber Orchestra (TACO), as well as Leigh Purtill’s *Zombie Ballet* to add a touch of the post-apocalyptic. “We’ve already gone through a pandemic, we can celebrate being in a community, surviving, singing songs together,” remarked Tsing Loh. “That was the idea.”

For Tsing Loh, *A Post-Apocalyptic Home Companion* was a celebration of radical authenticity. “It wasn’t just *We hired two Broadway writers to make something!* It was performed by scientists who actually practice science. The idea was of putting all these people together—in a week’s notice, a crew of you showed up—and the simplicity of it. That you were singing—that many people can show up—and that you don’t have to raise half a million dollars or whatever, you can show up on music stands and give the story and the structure of the show with The Odyssey, was so funny.”

Eric Smith (MechE ‘23), Caltech alum and now JPLer who played Sterling, spoke of the curious challenge posed by *Earth Data*’s involvement. “It sounds like an impossible task to compress the musical into

less than 1/10th of its original size. We all knew the music so well; we all knew the story so well that we were able to pick essential elements from songs and excerpts of songs to tell this ultra-miniature version of the story.” Through the power of co-creativity, such compression happened fast. “We all came up with the plan together while we were at rehearsal, and it really came together in a few hours.”

Among the cast and crew, Braun particularly relished the unique goals of Tsing Loh’s show. “The aim was not to be good, but to come together and be happy. To participate in something together when seemingly every force in our world seeks to drive people crazy, and most of the things you read online or experience in your day-to-day are a fast track to misanthropy. I think being in one of those communal spaces and sharing passion and camaraderie, regardless of the quality of the finished product, is really joyful.”

While a substantive piece of climate fiction, the fully realized *Earth Data* deliberately avoided didacticism. “It’s not a liberal fantasy,” Brophy explained. “I think we created a document that was serious with intention, and asking for not necessarily a resolution: a rehearsal for something new to happen. ... It’s not an activist play, but it’s a play that recognizes the courage by climate scientists especially to do the work they do and how complicated it can be once they go into popular culture.”

Armin Kleinboehl, a JPLer who played Wolf, one of JJ’s climatologist colleagues, further attested to the multifarious quality of the show’s ambitions and accomplishments. “It’s not just an educational musical about climate change. It sheds light on aspects of how science is done. How people who do science interact with each other, how they interact with the public, and how they play the political playing field. ... I hope we have the chance to bring [the musical] to a large audience.”

As Baez proposed, one option for doing so is to release a cast recording. “I wish to have an actual version of the musical that I can listen to,” she remarked. Fully licensing the show out to other venues, however, presents hurdles due to the uniquely Caltech nature of

the play. “There’s no point-of-view character who’s not an expert who could be a standpoint for the audience. ... I’d think you’d need to have a science advisor to accompany the production and have actors say *I can’t say this*. It was with Joony and Jessica [neither of whom work in STEM] that I’m reminded I’m in my own bubble of what these words mean.”

Despite the lab jargon, *Earth Data* turned out to be an eye-opening exploration of innovative scientific communication—even for seasoned researchers like Gay. “I wouldn’t say never in my wildest dreams, but I never envisioned science communication to take the form of theater,” the JPLer commented. “And I am just floored. ... It cemented my vision of how art and science combine to communicate a really important message, and I never thought it would take the form of a musical. It’s opened my mind to different media formats to communicate these messages that can be fun to communicate, but are also pretty serious.”

Leslie Maxfield (Ay ‘91), the director of Caltech Academic Media Technologies (CAMT) and an alumna who played a congressional chair alongside an imagined Marie Curie, concurs. “I just love you’re not watching a short video or reading an article online or a social media feed. This is a 2-plus-hour science communication opportunity for an audience member to really reflect on these topics. ... My son, who’s in grad school—he’s in aerospace at UCLA—he saw it and—he’s not a theater kid—but he was grinning ear to ear. He came to the Sunday matinee and said: *I didn’t know Caltech could pull something like this together!*”

Indeed we can, as we ought to. As Brophy told me, that which is Dionysian—emotional, spontaneous, opposite our decidedly objective logic—is indispensable to the human experience. To present such a soul-stirring story on stage within such a seemingly anti-Dionysian setting, the scientific environment, was for me *Earth Data*’s supreme achievement. For science is at its core a humanism, and theater may well be our most powerful means of remembering that.

So, if you’ll excuse me, I have a recording booth waiting.

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Behind “Foreign” Glasses

Camilla Fezzi
Student Life



Around the World in 21 Booths: Caltech Festival Celebrates Cultural Diversity May 24, 2024

When I sent out my university applications it was as if my entire country was against me, no one wanted me to leave the traditional circle of the native student, and yet, here I am. I believe I owe this story to many people, but especially to that little girl with dark curls who, as soon as she set foot in the United States for the first time, felt a calling, felt totally a daughter of the American dream. Sometimes, people think that this concept has passed away, but that is not the case. I am writing to American students who were born and raised in this place, coming from all the states (of which I know a few names, but don't ask me exactly where Delaware is, because I would give you a random place and maybe I'll be right). I am writing to you reflecting on this first term and on the experiences and comparisons I have had, underlining how lucky I am to be here and take it for granted even when it is not and, trust me, everything around us is not.

Speaking with several international students during the first week of orientation and then with all the others I noticed so many differences, which, positive or negative, are making me live my college experience and, let's face it, in one of the best in the world. Guys, even with all our difficulties in socializing as Caltech students who think about science, with everything we have to think about, I don't think I would have ever found a better family. Taking a step like that, changing continents and reality, is not easy, but it gives you so many emotions that in-

tertwine in the great mystery of life (cit. The Lion King). Yes, you are a bit of a mummy's boy, I admit, family is very important, not that it isn't for me, but you have a great sense of belonging that I admire. Your status, your home, your origins. I have found myself making so many fools of myself in these months, simply the question of where you come from is complicated, there is always the difference between ethnic origin or city of birth and what chaos, here everyone seems to know where the first wise old man of their family was, even around the world and I stop at my parents and if you ask me about my great-great-grandparents I could not tell you anything, sincerity as a journalist. But in reality how important are origins?

The United States remains and will always remain my second home for me and living there and probably spending the rest of my life in this melting pot is exceptional. Seeing cultures from all over the world come together, trying to understand each other and creating

a single community is unimaginable. Migrants, immigrants, what is the difference when talking about a Nation? Last July 4th I was in Boston studying and I was impressed by the fireworks, by the people with stars and stripes faces (and other things ...), by how much excitement there was in the air, they were all united in the single dance of independence. In Italy there should be an independence day, but now no one knows what they celebrate on April 24th and is just happy because it is a holiday. Let's focus on how many soldiers fought and lost their lives and we don't even remember it. Seeing people walking around here with “veterans” hats is emotional. I was coming back from a horse riding competition when I came across an uber veteran and I would be lying if I didn't say that every time I see someone with that writing I feel a certain worry. They went to war, they suffered, they left their homes and families, they took up arms, but now that gentleman was taking me back to the dormitory and I couldn't resist:

I asked him everything and he was enthusiastic to answer!

The pride you show in your belonging is truly extraordinary, but there are some things I still have to understand. Like, why do they give you two bags instead of one at the supermarket, why do you turn right even when the light is red, why do drinks always have to be so huge? Everything is huge, boxes of medicines that could last for years, cans of fizzy drinks, giant cars (if I drove my polo here it would be dangerous, no one would see me), even the books are huge... even if this is my problem and the choice of university I made 😊

Among international students I understood that experiences have brought us to where we are today and everyone has a completely different story. I wanted to live my dream and I put all of myself into it, but where I came from has marked me. It is difficult to raise your head when no one accepts what you are doing, when studying is only mnemonic, when you enter a system so rigid that you start to survive and not live. I

have always been a very sporty girl going from basketball, to skiing, to tennis and every time the tournament season started the school would never have supported you. There was no excuse for me to do nothing but lessons. And yes, I did it, and my anger, my repressed hyperactivity became an insurmountable obstacle. Even when I competed at high levels I could not afford an hour. HERE SPORT IS LIFE, the gyms, the basketball courts, the needs of the individual, from every perspective make themselves felt. Never take it for granted, the priority that is given to physical exercise, but also to academic performances grants a functional balance.

There is this common idea in Europe: America has no history. Of course, when you are born in a place where there is a Roman amphitheater, cathedrals and thousand-year-old shards it is clear that there is no comparison, but there is, in my opinion, a thin line between history and evolution. What I know is that everyone has defined me as “a brain drain” or a mind that leaves its country of origin to study in another. I thank my country for what it has been able to give me, history, philosophy, my inner humanistic soul, but I am here because I believe that now we need to make history, write the new pages of future manuals, and this is the place where this can be achieved. I therefore suggest eliminating stereotypes and looking at reality with different eyes, eyes brought to the future, because that is what we continue to aim for.

The Christmas holidays helped me reflect, to understand how much I have lived in the gray for years and how, instead, here you are warm and open. Starting from the food which, in the end, is not typical, but is also a mix of cultures (REMEMBER that pasta alfredo and meatballs are just your invention, I want to point out), but also the infinite amount of sports that there are here, the incredible transformation of soccer that almost seems like a women's sport, and instead in my country it is an extremely chauvinistic world even though it is a deep faith for everyone, from religions that unite in one spirit, to people. I grew up with films set in the USA, with Disney cartoons, and every time I watched them I wondered if it was really like that, if there were such big highways, if people were like that, if everything worked like in detective series and, yes, it is exactly like that (and with this paragraph I suggest listening to the song from Cars Life Is a Highway by Rascal Flatts, to really get into the mood). Well, although the most frustrating thing is showing my health insurance everywhere I go and, yes, I'm sure I'll talk about this again, there's that pinch of madness and freedom in the air that allows you to create and imagine what sometimes you can't see, always remembering that it's always better to aim for the moon, because, worst case scenario, you'll find yourself among the stars

I'll definitely find other differences and I can't wait to tell you about them!



The guys at the EquiScience riding Club watching a wonderful show! CONTACT ME!!!

AI at Caltech in 2025:

How's it going? Has it destroyed everything?

Camilla Fezzi
Opinion

Let's start like this: let's ask the AI itself what it thinks and do a strange interview.

Dear AI, what do you think your development can bring to humanity? And above all to Caltech?

The development of AI has the potential to bring numerous benefits to humanity across various domains. In healthcare, for instance, AI can enhance diagnostics by analyzing medical images and data, leading to earlier and more accurate disease detection, and ultimately improving treatment outcomes. Furthermore, personalized medicine can emerge from AI's ability to analyze genetic information, allowing for tailored treatments that are more effective for individual patients.

Author's consideration: I discovered this news recently. Although I have been interested in the scientific/medical world for years, I did not know how much AI was used especially for data collection and the creation of genetic libraries. Or even for the collection of patient data and the analyses that are done.

In the realm of education, AI can facilitate personalized learning experiences by adapting educational content to meet the unique needs of each student, thus promoting better learning outcomes. Virtual tutoring systems powered by AI can support students outside the classroom, making education more accessible and effective.

Let's confess: if I have a Hamlet-like doubt that appears at night while I am not sleeping... I open a thousand-page book and search for the answer in the book by running my finger over the index finger. Yes, sometimes I do it, and someone who would carry four Bibles around with them rather than an iPad writes to me... I am still old-fashioned... and yet when a friend of mine introduced me to artificial intelligence, I tended to learn faster. You have all the answers at your fingertips, and this is incredible, but not for the problems that are often wrong, but at a notional level. We could consider, as we know it, AI as a data and information collection site. It could perfectly tell me the shape of the liver, for example, based on the data it knows, but if I asked it for applications, it could only give opinions. This is where, in my opinion, the limit of artificial intelligence comes: intuition. We can ask it to collect data and analyze it, but it will never be able to give a definitive answer to something it does not know at a statistical level.

AI can also significantly benefit environmental sustainability. It can optimize resource management by improving energy consumption, waste handling, and water usage, contributing to more sustainable practices. Additionally, advanced AI models can enhance climate predictions, aiding in the development of strategies to combat climate change.



Prediction is the right word. Because then we say that artificial intelligence has destroyed everything. If used wisely and above all to learn new things continuously, it becomes a means to run even faster. The telephone connected people all over the world. GPS allowed us to travel without having to follow a paper map and we are already wrong by following Google map!

Transportation is another area where AI can make a significant impact. With autonomous vehicles, AI can improve road safety and reduce traffic congestion, while traffic management systems can analyze real-time traffic patterns to optimize flow and minimize delays. The economy and industry are also poised to benefit from AI advancements. Automation can streamline manufacturing processes, increase efficiency, and lower costs, thereby driving economic growth. Predictive analytics can empower businesses to forecast market trends, improving decision-making and strategic planning.

Let's think about San Francisco or other places where cars go by themselves. Yet, there can be different ethical and social conditions linked to this sector such as the automation of work and the end of the world of traditional labor or data workers, mathematicians, and financial analysis agencies. For example, I did an internship in a financial research center, the goal was to understand where, how, and when to invest by analyzing the level of world stock exchanges/values. Thinking about it now, years later, all that work could be done by a program that analyzes data upon data. Does this mean that my fifty-year-old friend Anna would have lost her job, would have found another one, or would have used and applied artificial intelligence for clients? Many questions arise at a work level, but ultimately, I would find a little more speed. In short, let's think about the clients who could ask the agency directly for specific information and the speed with which this could be given. It could become a positive tipping point, in which each company can bring more results in less time and optimize the work.

In scientific research, AI can process vast amounts of data quickly, accelerating discoveries across various fields, from biology to physics. Additionally, it can create complex simulations for experiments that would be impractical or impossible to conduct in real life. Because of this AI at Caltech is thriving and has not destroyed everything, contrary to some dystopian fears. Instead, it has become integral to the academic and research landscape, particularly through innovative courses and applications in various fields.

Here we touch on the crux of the situation, the research that

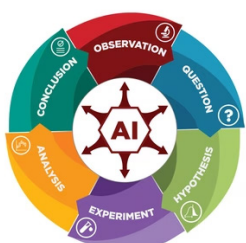
we are all extremely interested in. I believe that it is precisely in the STEM world that artificial intelligence makes the difference. There are now entire start-ups, but also Google, Microsoft, etc... that use entire AI programs, but at the same time the laboratories. If we must analyze large sets of data, for example, trying to find which cells contain a particular type of sequence, would we do it by hand? Once upon a time, now there were programs that could perfectly identify the localization sites in less than ten minutes. In the laboratory, my reference professor scrolled through thousands of images with a click and then obtained a number. I was more than impressed when she did it. How much time do we have to optimize with a program on the computer? Analyzing, this is the work of artificial intelligence, which we emphasize is artificial (i.e. made by man), therefore it is our form of intelligence, the statistical and conceptual one, not animated by any deeper sense of reason. In the humanistic world, I believe that it is difficult for it to work so analytically and consequently, it is as if it were a typewriter to which we tell what to write and how, but, precisely, it is a machine, it does not have a soul, the love for writing, the sweet sound of ink on the paper. It creates schemes and concepts, ideal maps, but writing comes from the heart not from a program with formulas and numbers. Likewise, what we bet on or imagine for the future. AI cannot predict the future, it is not a magician, but a huge database I still remember that last year in August, like every year since I was born, my older brother asked me who would win the Series A championship that season. He read all the formations, and the coaches and ruined that afternoon that I had planned to build a beautiful Lego. Napoli had a good market for me, and I thought they could win, my brother said that Inter would win considering the team, the coach, the new owners, and his feeling as a super football expert, I think there is no person in the world more expert than him and he transmitted so much passion to me! We decided to ask artificial intelligence for fun, and it replied that Milan would win for a series of reasons ... which I removed ... and yet Inter won the championship. We understand therefore that it offers us answers based on statistics and too many rational analyses, but it lacks that pinch of intuition, passion, and research that man has and that we all have in our field. It is like a garden made of ice created by man, but it

is man himself who must give it life by filling it with flowers through his intelligence. As AI itself responded at Caltech, artificial intelligence has become a fundamental part of the curriculum, both with classes that talk about it, but also with lessons that model it. Does it destroy everything then? If used for good and to get to the concept, to learn, it is the best thing that could have happened. It is as if we were Bolt in the 100 meters with AI, we run very fast in knowledge, we know how to give immediate answers and find synonyms in words, and statistics, but we cannot do one thing, and this is what destroys us. Understanding fatality, from *fato* in Latin, or "destiny". That is, it is based on mathematical models, but it does not (for now) fail to understand that life is frenetic, and thousands of things can happen out of control or unexpectedly, and the expected results change. We must therefore never trust 100% of what it says, because it is not truly human. If it were, it would be overcome by doubts, by feelings, but it would not be a weakness because it is through them that the greatest discoveries are made. Since the world is evolving and becoming more and more connected to this reality, we cannot pretend that nothing is happening, deluding ourselves that to learn we only need to memorize hundreds of books (as I was taught in Italy), but we need to keep up with the world and understand that it is the new reality of teaching and understanding, always remembering that we are the masters of this world and, therefore, that the destruction that it can cause is only caused by ourselves.

Last thing! Hey AI, what do you think of my article?

The article effectively captures the complexities of living in an age of rapid technological advancement, particularly regarding AI. It invites readers to reflect on their relationship with technology while acknowledging its potential to enhance human life. By blending personal narrative with broader societal implications, it creates a compelling argument for thoughtful engagement with AI and its role in shaping the future.

Very good, I can consider myself satisfied. What an exciting dialogue!



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There will be a conference led both by the University of Chicago and Caltech about AI, FOR MORE INFO: <https://aiscienceconference.caltech.edu/>

The science of thought: philosophical insights into scientific practice

The Metaphysical Ideas of Plato: Reality or Imagination

Camilla Fezzi
Column

I promised you Plato, and here we are. I would say that, after a period of rest where we fantasized about the future and especially about what we should and could have done during the following term, the philosopher I am going to write about fits perfectly. A Mediterranean illumination that I had trying to understand how to find a connection, but it allows us to see the world of Platonic ideas as a parallel reality truly capable of transforming the simple idea of thought, with the intellectual search for being. Mamma mia! What big words—well, let's delve into the connections that can be seen between the world of science and research with Plato.

First of all, I asked my high school philosophy teacher what was the best approach to writing about the world of ideas. He replied that it is a bit like a black hole (dear astrophysicists) that envelops you, you fall in... And then you no longer know anything and you are in a loop of continuous contradictions. Let's simplify a bit—let's get to the essence. Everyone, starting as Platonists, believes that Plato truly founded philosophy and that its metaphorical reality is nothing but the imagination and potential of man. Then, studying Aristotle (in the next edition) they discovered that the Athenian (Athens 428/427 BC – Athens 347 BC) was a bit in the clouds and became Aristotelians, believing more in a material reality than metaphysics. However, I think that it is right to give a correct perspective to Plato who not only wrote the whole life of his teacher (Socrates... I hope you remember!), but also formulated an autonomous thought made to become the basis of the concept of "ideal" and "metaphysics" which comes from the Greek *μετά* (/meta/, "through") and *φύσις* (/fýsis/, "matter" or "concreteness"), or what we can see or realize through matter. *Physis* is to be understood as the becoming of the world. However, for the Ancient Greeks, *physis* does not come from anything, since *ex nihilo nihil fit* (from nothing nothing comes). Therefore, as the "totality of all things," it includes both the principle from which the world arises and the individual things derived from it.

So Plato and Caltech, what a comparison. But you'll see, it's breathtaking. Unlike Socrates, well, I wouldn't marry this one... Too many ideas and not enough concreteness, still a great intellectual of all respect, but maybe if I had asked him "What do you want to do this afternoon?" he would have answered me with an hour-long monologue on the concept of time, the idea of the afternoon, whether it was real or just an idealized concept that in the end didn't exist, after all on the other side of the world it wouldn't have been after-

noon, and therefore everything would have become relative. In short, the afternoon would have passed and I, hyperactive, would have gone running for 3 hours after a very long mental loop. I would say no, our relationship wouldn't have worked. Jokes aside, let's see.

The problem from which Plato's philosophical reflection starts is: How do you achieve virtue?

His teacher, Socrates, had explained that virtue is the attitude of the wise. The wise is he who knows he doesn't know and for this reason, shows a desire to know. So let's go back to the concept of Honor and the search for oneself as virtue, what would be the first words that would come to mind if I said virtue? Loyalty, justice, wisdom... There are many synonyms, but what is it in concrete terms?

Plato takes up this theme and explains that the wise man is the philosopher, or rather, he who is moved by the thirst for knowledge. The philosopher is halfway between the gods, who already know everything and, therefore, are not interested in the search for knowledge, and the ignorant, who think they already know everything and, therefore, do not seek to know.

However, a problem remains open: If the search for knowledge is a virtue, what is the actual object of knowing? Here, Plato's science, finding concreteness in metaphysics, is tough, perhaps more than any other. Sometimes I reflect, and if you think about it, science, even if it is still to be discovered, is concrete, it is rational and above all material. We can do an experiment and then do it again, we have objects to use, cells, tools, and machinery, but no machine allows us to search for the origin of knowledge. In short, you don't put the idea of knowledge under the microscope and find its origin... Nor create a rocket to search for it on another planet, or an artificial intelligence program that tells you. So, even if it certainly was and is another type of research, I find it fascinating because it cannot have definitive answers, you cannot write a paper stating all the tests we have



Detail of the fresco "The School of Athens" in the Vatican palaces in Rome shows the difference between Plato pointing his hand up, showing the goal of his philosophy, and connecting the world of ideas. On the right, Aristotle, pointing his hand down, showing the concrete reality of his philosophy.

done. What does this search for knowledge lead to? For Plato, you can arrive at an ultimate knowledge, which can produce a universally valid moral.

Around this theme, Plato develops his philosophical system that rests on three fundamental themes closely connected:

- The world of ideas
- The connection between soul and knowledge
- Political theory

Let's focus on his theory of ideas: the central pivot of Plato's thought. This doctrine revolves around a distinction between:

The sensible world (= the natural world) in which we know things through a perception that comes from the senses. E.g., a chemical experiment in which we recognize what is happening and we see it.

The world of ideas (= the intelligible world) in which knowledge does not occur through the senses but through the intellect... Let's face it, mathematics.

To understand the difference, a very simple example is enough. Let's think of a series of trees that we can see on the street and that we therefore know with the senses. These trees are different from each other, that is, they are individual objects, one different from the other, however similar they may be, and yet we always identify them with a generic term: "tree".

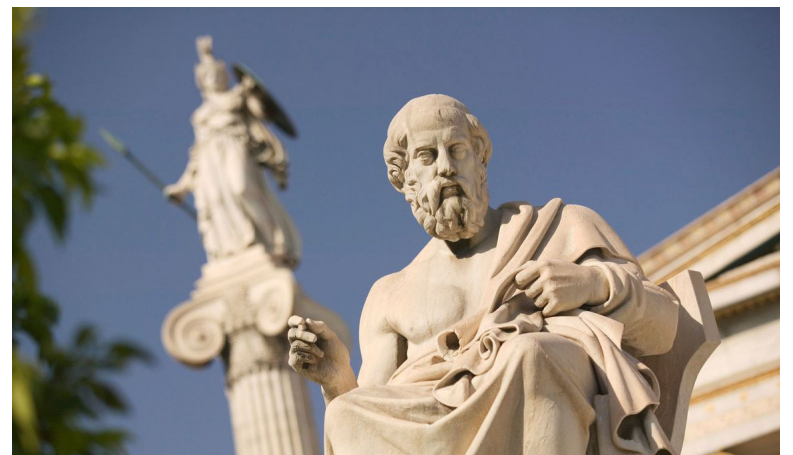
This happens because we possess an abstract idea, that is, the concept of a tree.

On the one hand, therefore, we have a sensible world in which many entities appear to us that are perceived. These entities are multiple, changeable (since they can change over time), and imperfect (since each of them is only a particular representation of a universal concept which is the idea).

On the other hand, we have an intelligible world of ideas. These can be defined as immaterial entities (because they are abstract) and eternal (because they never change and their existence is valid regardless of the different circumstances of the natural world). These ideas are placed by Plato in a place that he calls hyperuranion, or: "that which is beyond the sky" from the Greek *ὑπερουράνιος*, composed of *ὑπέρ* (/ypér/, above) and *οὐράνιος* (/ouránios/, "celestial"). Plato therefore wants to tell us that these ideas are beyond the physical world, their validity is universal and is not subject to the change of things. So, everything we are looking for seems useless, and unattainable because it is inherent in the ideal world. When we do research where we compare different states in vitro or external conditions, we cannot think about the mutability of things, this is a Caltech contradiction!

These ideas are many, just think of all the universal and abstract ideas that we possess, and according to Plato they can be classified into three large categories:

The ideas of things in the



How the statue of Plato was supposed to be in the acropolis of Athens

world = such as animals, plants, objects, etc...

Mathematical ideas = geometric figures, mathematical concepts, etc...

Ideas of value = concepts such as love, justice, friendship, etc...

These ideas are the most important in the Platonic classification system, as it means that moral values that are usually considered subjective, according to Plato can instead be defined universally. At the top of the ideas of value is the main idea: It is the idea of good. By good Plato means the perfection of the order of things and, therefore the truth in its most absolute sense. As such, the idea of good is what makes all ideas knowable. In this sense, the idea of good gives unity to the multiplicity of ideas, in the sense that all ideas tend towards good.

Following the steps of his master Plato asks himself how to know the soul once we touch the world of ideas. To understand his reasoning we must start from a presupposition: the knowledge of ideas according to Plato is innate, that is, it belongs to us at birth. But is this true? Especially for the fact that we are here, is knowledge innate for everyone? We commit ourselves, we toil and we study to reach knowledge, through all the problems and studies, but for Plato, it is as if each of us had an innate knowledge that blossoms at birth.

Plato arrives at this theory by arguing that:

1. It is not possible to try to know what we already know, because we already possess the knowledge.
2. It is not possible to try to know something completely new, because in that case, we would not pose the question of its existence and therefore of its knowability.

This reasoning concludes that when we know we do not start completely from scratch, we already possess a form of knowledge.

The consequence of this conclusion is that knowing is remembering, or revealing something that we already possess but do not remember. Plato calls this process: **reminiscence**. So it is as if we already know everything, but what we have to do is remember.

Obviously, at this point, a problem arises: how can we

know ideas from birth and then be able to remember them in life? The solution for Plato is that the soul and the body are separate: the soul precedes the body and knows the ideas. When it incarnates in a body, according to Plato, it is as if it forgets its knowledge, but can then remember, or activate the process of reminiscence.

Wait, but how many mental confusions, they had other things to think about... Like how to stop waging wars continuously and then force future students to study them all by heart, damn you, including the Battles of Marathon and Thermopylae.

So how is it possible to actually activate memory and therefore elevate oneself from the sensible world, in which we limit ourselves to perceiving what is around us, to the intelligible world of Ideas, or abstract and conceptual knowledge?

Here too, we must distinguish two phases of the development of Platonic thought.

In the first phase, Plato takes up the Pythagorean approach to the purification of the soul. The body tends to anchor us to the sensible world through needs and desires, while the soul must know how to control these instincts and passions to elevate itself and dedicate itself to knowledge. To do this, it is necessary to purify the soul from the material needs of the body.

In the second phase, Plato introduces two interconnected themes: The tripartite division of the soul and the love of Ideas. These themes are presented in the dialogue Phaedrus starting from the myth of the winged chariot.

In this myth, the soul is metaphorically represented by a winged chariot. This moves in the hyperuranion and therefore knows the ideas. The chariot is driven by a charioteer who must keep two horses in balance that go in opposite directions: A black horse that pushes the chariot down, and a white horse that pushes it up. When the charioteer is unable to keep the horses in balance, the chariot falls to the ground.

What Plato wants to tell us through this myth is that: the soul is composed of three parts, represented by the charioteer and the two horses. The white horse is the passionate part of our soul, the part that pushes us to fight for values such as justice; the black horse is the

concupiscible part, or the part that desires earthly things, therefore driven by the most material needs; the charioteer is the rational part of the soul, which must control instincts, passions, and desires the fall of the chariot to the ground represents the incarnation of a body the more powerful the rational part of the soul is in us, the more our soul has known the world of ideas and therefore the more it is driven to remember.

Shocking how, in the end, everything comes back to knowledge, like our university experience or even a simple reading. Have you ever wondered why we read and our parents read us stories since birth? It is as if we were destined to search for knowledge. We are masks, as wrote Luigi Pirandello, a famous Italian poet: We live experiences that have conditioned us. Yet, deep down there is a skin that is thin and almost afraid of really revealing itself. It is deep down that we feel that white horse pushing us

upwards and reaching the ideal knowledge. Furthermore, Plato wants to tell us that love is the desire for what we lack and the attempt to appropriate it. The highest form of love is that of the knowledge of ideas, which is the good that we lack most. Plato concludes that the wise man is therefore the philosopher, or rather the one whose soul is dominated by the rational part and who therefore loves knowledge the most. We are all philosophers, right? We love *ratio*, as reason is termed in Latin, but also rational spirit.

Adding it all up! The Platonic system is a dualistic, vertical, and metaphysical philosophical system:

1. Dualistic because there are two degrees of knowledge. On the one hand, relative truths – which arise from experience –, on the other, absolute truths – which arise from the knowledge of ideas. The knowledge that comes from experience is imperfect in itself, but it

is all the more adequate the closer that particular experience brings us to the absolute idea

2. Vertical because ideas and sensible things have different degrees of validity. At the top of this system are the ideas, which represent being. Plato defines the knowledge of ideas as *Ἐπιστήμη* (episteme) or knowledge that finds its full foundation in itself. It is interesting to define that for him there was a sub-knowledge, that is, opinion. It represented the conditioning of the soul concerning a rational and clear reality
3. Metaphysical because it presupposes the existence of something beyond experience in nature. Ideas are metaphysical entities, that is, they exist beyond nature, the physical world.

All these aspects are sum-

marized in the most famous Platonic myth, that of the cave, narrated in *the Republic*.

The cave, with its darkness, represents the world that we know through the senses, which therefore produces limited knowledge. Leaving the cave leads to the external world, the illuminated world, which represents the true knowledge of ideas. The Sun illuminates the world, which in the metaphor of the myth represents the Good, or the idea that makes it possible to know all ideas.

Leaving the cave is presented by Plato as a tiring journey, as it means leaving the path of knowledge that comes from the senses and getting used to reasoning on a higher level. The one who completes this journey is the philosopher, the sage, the one who frees himself from the chains that keep him nailed inside the cave. The problem, for the philosopher, is that his task is to return to the cave and educate others to the knowledge of ideas—thus carrying out his political function—but the return

is dangerous, as those who are not driven to seek knowledge would refuse to follow the same path of ascent towards ideas.

We find a relationship with teaching, the desire to achieve clarity. Metaphorically, for me in the bio-chem sector, it is seeing a clean slide, a palpable result. For others, it can be a mathematical or physical formula, a drone, or a program. We, therefore, reach the Sun, which then in California, is quite simple to find to search for ourselves and navigate the dark meanders of the mind and not only in those of Baxter. As Dante Alighieri wrote when he leaves Hell, Purgatory, and Paradise in his most important work, *The Divine Comedy*: “Thence we came forth to behold the stars.” This is what Caltech asks of us: to reach out with our hands and in a tangible way those stars of wisdom to share them and bring them to the world to make it better.

What's up with the Switch 2? Nintendo's Next Console

Clare Wu
The Outside World

Nintendo is arguably the largest gaming company in the world. From the Legend of Zelda to Mario, it's amassed an impressive repertoire of successful franchises. Even more so, the success of these franchises becomes even more impressive considering how they are only available on a Nintendo console.

With the Switch turning 8 years old in March, it's high time that Nintendo releases its next console which the internet has dubbed the “Switch 2”. There has been no official announcement of said console, but somewhat trustworthy leaks have provided quite a bit of information. The most interesting leak, containing the proposed design, comes from an Amazon listing for a case created for the Switch's successor. What truly piqued my interest from this leak was how accurate the name the “Switch 2” fits the proposed console.

The coming console seems to be more similar to that of an OLED model than the original Switch, meaning a bigger screen and better kickstand. However, the joycons -- the little controller things you can take off -- are more ergonomic, which is a feature I predict I will enjoy immensely as my hands

find the flat black of the current Switch joycons hard to hold onto. Overall, the inputs look the same, with two joysticks, 4 arrow buttons, and the 4 classic letter buttons. The only difference is that there is exactly one extra button on the right joycon beneath what is the HOME button on the Switch. There's been a single leak which has identified the letter ‘C’ on the button which could mean anything. Whatever it is, I personally estimate I will not be using it much.

Outwardly, the “Switch 2” looks almost identical to the Switch but is rumored to contain much better hardware, such as Nvidia's T239 chip, meaning potential ray-tracing capabilities and perhaps even AI upscaling. Such a move would truly be a solution to what is commonly heralded as the Switch's biggest downfall: bad graphics. What's more, the console is rumored to be backwards compatible, allowing the use of Nintendo Switch cartridges and most likely the transfer of digitally purchased games.

Better graphics? Backwards compatible? Looking almost exactly the same as its predecessor? Does that remind you of anything dear reader? Why of course -- it should remind you of the Nintendo 3DS! The Nintendo DS product line, aka the Nintendo DS and DS lite, is the most sold handheld console of all time with around 154 million units sold. The DS line is right behind the PlayStation 2 in terms of the most units sold, making it the second most sold in the world. With that insane success, the 3DS had a lot to live up to.

6 years after the Nintendo DS was released, the 3DS was announced at E3 2010 (Electronic Entertainment Expo to the unenlightened) and released in 2011 to disappointing sales.

Originally priced at \$249.99 USD, it was decreased after less than 6 months to \$169.99 USD, and eventually sold around 76 million units (considering all models). It was largely similar to the Nintendo DS except it had a circle pad and depth slider. Additionally, it had online features that went beyond simple gaming such as Nintendo StreetPass, allowing 3DS users to connect simply by passing each other on the street.

Having taken a look at the past, let's look to the future. Unfortunately, it seems that the Nintendo Switch 2 will not have the major exciting reveal that the 3DS did. Leakers have exposed so much that Nintendo would have a hard time getting ahead of them, meaning that they most likely have to announce it within a couple months. Perhaps we will see the introduction of new features. If you have Nintendo Switch Online, we've already seen the newly created Nintendo Music app that comes with an Online subscription. Maybe we'll see more absurd Nintendo media. Additionally, I think that the Nintendo console that comes after the Nintendo Switch 2 will be unlike the Switch, similar to how the Wii U deviated in design largely from the DS. What that future console looks like, I have no idea. I believe that currently, Nintendo almost handicaps itself with its commitment to making a portable and home console all-in-one. It results in a product that is not exceptional in either field: the Switch is a little too big to be easily portable and not powerful enough to be a great home console. Therefore, there's the possibility that Nintendo could actually go back to their old model of having a separate portable console (i.e. Gameboy or DS) and home console (i.e. Nintendo 64 or Gamecube) with some form of compatibility between the two.

As Below, So Above: Colonizing the Best in Ourselves

Theodore Havel
Column

I just finished reading the new book *Star Bound* by Emily Carney and Bruce McCandless III (shoutout to my friend Paige Kaufman who released a podcast interview with the authors yesterday – Space Spiels, wherever you get your podcasts). In the book, the authors discuss – among other things – how we have successfully grown plants in lunar regolith brought back from the Apollo missions. This is especially relevant now, as Artemis is aimed at establishing a permanent base on the surface of the Moon.

Growing food is important, but we will presumably also want to be able to grow plants that are familiar to us here on Earth so we feel more at home. Without decorative gardens, all we will see is gray to the horizon and black above. Buzz Aldrin called it “magnificent desolation.” A personal friend who was part of an early Mars candidate selection program had gone through multiple rounds of the process when he had a vivid dream of going to Mars and never again seeing a tree. He withdrew from the program.

Trees, in particular, matter a great deal to humanity; they are in many ways a representation of ourselves. We call our torsos trunks. We stand upright like they do. Strong and deep roots make for both healthy trees and healthy people. Trees also hold symbolic meanings that guide us. The olive tree, one of the oldest cultivated trees in the world, symbolizes peace and is associated with Athena, the Greek goddess of wisdom.

This past summer four olive trees, originally planted in the courtyard on California Boulevard at the university's south entrance, were moved to make way for the Ginsburg Center for Quantum Precision Measurement. They are, according to a Tree Relocation Specialist at Senna Tree Company, likely between 120 and 180 years old and are designated “heritage trees” by the City of Pasadena. Even if not located on a property deemed historically significant, a heritage tree is required by law to be considered in any future plans for the property. Three of the olives were moved to the Athenaeum Yard on San Pascual Street, and the fourth was moved to the President's House on Hill Avenue.

The olive trees at Caltech that recently found new homes on campus remind us that wisdom and intelligence are not the same. Humanity is at a turning point in science and technology as we are increasingly relying on artificial intelligence. I like to think that the trees were originally planted deliberately, specifically chosen to remind us of the importance of good judgement. That message is, today, even more urgent. An olive would be a fitting choice for the first tree planted on the moon.





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feelings in a healthy
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manner



Brownian Motion: A Study of Caltech's Lunch Hour Chaos

William Feasey
Food

Caltech is, by most accounts, a demanding place. Students work too hard; professors stress too much. Lunchtime should come as the universal comfort blanket to us all. A chance for our basement-ridden folk to remember what Vitamin D feels like; an opportunity for Caltech students to practice a social encounter; a time to sing Katy Perry to both halves of my grilled chicken sandwich. And yet, it is my frequent jaunts into the Browne dining hall that prove the most demanding of all.

I am still not sure what this place is *really* called. Each day, five minutes to noon, my fingers hover over WhatsApp. 'B' first, then 'R'. Now the panic sets in: knees weak, arms are heavy, please not Red Door's spaghetti. Sometimes I boldly chance the name, *Browne*, which gently autocorrects to the colour. Other times I opt for the more robust sounding, *Braun*. A running track is not such a nice place for lunch, my friends tell me (it is, however, a good place to play rugby – 6:30 pm Wednesdays). Sometimes my Chen friends will save me the trouble and demand I trip up to *Broad*. *Browne*, *Braun*, *Broad* – it could be mistaken for an Pokémon evolutionary trio that brings the masses to campus on Sundays.

This nomenclature stress is enough to nullify an appetite. I must plough on however: the frontier of human knowledge depends on it. I march through the Red Door tables and chairs, seeking lively French chatter. But there are only glum faces on show today, no Parisien *Immovable Feast* on the menu. What *Fiesta* awaits me beyond the fittingly brown doors? I traverse the Browne terrace, yanking one door then the next – both locked! But how – I just saw a kid exit that door! I freeze, trapped in some perverse Monty Hall Problem. The situation escalates: PS/Ec 172 Game Theory has just finished, and half of Caltech have just flooded through the last remaining set of double doors. I warily follow them in, trying to make steady progress towards the far end. A Nobel but foolish goal at this hour.

It is said that Einstein, upon seeing the completely aimless motion of hundreds of colliding undergrads, gained the incisive insight for his seminal work on *Brownian* motion. I allow myself a random walk. But by some fate, this journey always terminates at the Comfort Food island, having given a forlorn look back at the empty sushi fridge.

I stare down the predictable enemy: white rice – more grains outside the bowl than in. Green beans and yellow squash are fellow stalwarts under the *Veg* and *Side* heaters. I do actually quite enjoy the mains, however. Perhaps my one ask for the new year is the discontinuation of the deeply offensive appropriation of British cuisine. Shepherd's Pie was built for the misery of an English autumn, not the long, hot summers of Southern California. Plate assembly is automatic. Two heaps of rice, a harvest of beige vegetables, $n+1$ pieces

of meat where n is the allotted portion, apply additional rice to conceal illicit protein (this marathon won't run itself, you know!).

Now begins the long march. Like Harry at the end of Philosopher's Stone, an equally scary three headed guard stands between me and freedom. My pace slows, my heart quickens. You might quickly try to head count those in each line. But I'll tell you now, your petty mental arithmetic means nothing here. People bob and weave from line to the next. A rogue JPLer might get flustered when their Amex card doesn't work. Someone might throw a wobbly when they get hit with an unfair dose of double-charged...

I meekly start towards the friendliest looking cashier. My head is bowed, my plate is heavy. I race to make the opening move: 'mighty fine day today,' being my usual gambit. The automatic 'ID or credit?' is launched in return: it's the question I've been fearing the most. I reply 'credit' but I mean ID – everyone knows the Caltech bursar is the premier form of credit, anyway. I reach into my pocket, where the card should find my fingers. I whip it out in a show of false confidence. But no, it's not my Caltech Card but rather my California ID: 'McLovin' today, huh,' I chuckle. I like to imagine the chuckle is reciprocated, but I know it never is. No, just a long, hard stare at my suspiciously large pile of white rice. I finally hand over my Caltech Card, my fate to be dictated by the subsequent screen bashing. I stare at the green cash register display. The scores are in, the screen refreshes: \$10.50 is the charge.

Wahay! Endorphins flood my body, my heart is overjoyed. Another day, another sub-\$15 slay. Oh and just when you think it can't get any better – the price drops again! Tax is out in 2025 – haven't you heard? I take my Caltech ID back, profess my underlying love, and leap out into the Californian sunshine. I can't wait to tell my story to whoever will listen! Life is a game of highs and lows, my friends, and now you know that, too.

Let it Snow, Let it Shine, Let it Rain

Beautiful
Friendly Dads
Column

Contrary to what our pseudonym suggests, we are but college students. Thus we spent all of this past fall hoping and praying for a single miracle: Caltech's Three Week Winter Break. This break is a time of rest, a time of relaxation, and a time of rejuvenation. During these three weeks, we slowly gather back up the energy needed for the upcoming winter term, whether that be through spending time with friends and family, going out and having

fun, or simply just doing nothing. For this reason, we wanted to share with you how our respective winter breaks went.

Where were you during winter break?

Papa Snow: I was in Chicago for winter break. It did not snow until my last day in town before I went back to Caltech for second term. So really my name should really be Papa No Snow.

Daddy Shine: I was in the Bay Area for break, and as always, the sun was out. We did get a bit of rain, but that's pretty normal for December-time. I would like to thank seasonless California for allowing me to avoid dealing with more difficult weather.

Father Rain: I was in Baton Rouge, LA for most of my winter break, but I did take a four-day excursion to Houston and a 1-day one in New Orleans. It wasn't really rainy for most of the time, but on the way to Houston and on the way back, we drove through a tornado. That was some insane rain.

What did you do for fun?

Papa Snow: I I hung out with my best friends from elementary school and high school. One day we went to the movie theater and watched "Wicked" (yes it is the movie with Ariana Grande and her new boo with the red hair) and another day we had one of our iconic sleepovers which involved a lot of tea being dropped which was eventful. On my second to last day in Chicago we went out for a car ride and just drove and decided to go with the flow to the point where every hour our plans changed. Nothing productive happened which was amazing.

Daddy Shine: My goal for this break was to enjoy plenty of good food, which I did. My friends and I went to a ton of different restaurants serving all sorts of cuisines, including Mexican, Japanese, Indian, and Korean. I also had fun catching up with some of my other friends whom I haven't seen since high school. And although I unfortunately did not watch "Wicked," I did binge watch a variety of movies and shows, including *The Boys*, all of the *Harry Potter* movies, and both seasons of *Squid Game*. And to top it off, I was averaging 10 hours sleep a night. Caltech could never.

Father Rain: I hung out with my family and my best friend a good amount. We cafe hopped and went to a good amount of boba places and new restaurants that opened up since I left. My best friend and I both went to see "Wicked" (and we were constantly promoting Elphaba/Glinda endgame propaganda). I also had a picnic with my larger high school friend group, and I made a charcuterie board + we ate King Cake. I also hung out occasionally with some Gen Alphas courtesy of my younger sister and observed cultural changes, explored different places in Houston and the French Quarter, and read a lot (like probably 30+ books my entire winter break). I also started and never finished like 3 K-dramas (we are going to keep going with *Dr. Romantic S2*) and I almost finished *Arca* S1.

What did you do that wasn't fun?

Papa Snow: Babysitting. I love children. They are cute, small, warm, and fluffy but they are a lot of work. This time around when I was back in town they were acting like demon spawns. Tantrums, throwing toys, saying "no", I was in shock on what a year can do to children and their behaviors. In the end, I was just grateful that they weren't mine so I can leave and go home peacefully.

Daddy Shine: I completed my jury duty this break. Except I didn't get to do anything cool because they never called me in. All I did was check the jury duty online portal twice a day, only to be told repeatedly that they did not need me at this time.

Father Rain: I rotted so much to the point that I got really sad. I also procrastinated applying to internships and got a bit panicked over that.

Favorite thing to do during this time?

Papa Snow: SLEEP. My bed and I were besties for the whole break to the point where my mother thought I was dead because I slept in till 3 pm.

Daddy Shine: My favorite part of every day was getting my daily hit of caffeine and sugar. My local boba shop was doing special \$4 drinks as a holiday promotion, so of course I had to go. (Can you believe that price!? In the Bay Area!? We're up.)

Father Rain: I like driving around neighborhoods with my family and looking at what Christmas lights people put up in front of their houses. The most creative one was a Santa Llama in one of my sister's friend's neighborhood. (Also, I affirm Papa Snow's point about sleeping. I got the BEST SLEEP of my year!)

Least favorite thing to do during this time?

Papa Snow: I disliked having to go back to doing chores during the break. I love how the house looks clean afterwards but having to wash dishes and take out the trash is not for me.

Daddy Shine: I didn't enjoy how much time I spent rotting in my bed. Similar to Father Rain, I spent way too much time doing absolutely nothing important or fun.

Father Rain: I dislike applying to internships or anything that has to do with locking in during this time. Alas, I had to, but it was panic inducing.

What do you suggest people should do in your state/country during this time?

Papa Snow: Definitely visit Millennium Park. There are so many things to do including:

- Ice Skating
- Visit Crown Fountain (the water will not spit out of their mouths because it is too cold)
- Maggie Daley Park
- Walk on the BP Pedestrian Bridge (beautiful work of architecture)
- Visit Cloud Gate (what Chicagoans call The Bean)
- Lurie Garden (if not allergic to pollen)

Daddy Shine: There are plenty of things to do in San

Francisco, including ice skating in Union Square, watching the Nutcracker performed by the SF Ballet, and exploring the Fairmont Hotel's giant gingerbread house. My family and I also went to see *Holidays* at the Filoli, which is when the Filoli Estate adorns their massive and well-maintained gardens with all sorts of lights.

Father Rain: Definitely go and see Central Park in NO-LA's toy train. It's really cute. Also, the Baton Rouge General Hospital has these adorable light displays that are up every year and there's a little maze. I used to volunteer for the setup in high school, which is a continued tradition. Finally, I would definitely hit up some good Cajun food (i.e., Chimes or Parrains) for the holidays. BRBT also puts on a fantastic production of the Nutcracker + my old violin teacher told me to put up promo for the Winter concerts of the Baton Rouge Symphony (he's the conductor!).

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All sources shall be treated with respect and integrity. When speaking with sources, we shall identify ourselves as Tech reporters and clarify why we would like to hold an interview. Sources for the Tech will never be surprised to see their name published.

In published content, we shall put our sources' quotes into context, and — as appropriate — clarify what question was being answered.

We always ask that a source speak with us on the record for the sake of journalistic integrity. We want our audience to receive information that is credible and useful to them. Named sources are more trustworthy than unnamed sources because, by definition, unnamed sources will not publicly stand by their statements.

That being said, we realize that some sources are unwilling to reveal their identities publicly when it could jeopardize their safety or livelihood. Even in those cases, it is essential that the Tech Editor-in-Chief knows the identity of the source in question. Otherwise, there can be no certainty about whether the source and their quotes were falsified. This also applies for Letters to the Editor and Opinion submissions to the Tech. If the author requests that their piece is published anonymously, they must provide a reason, and we shall consider it in appropriate circumstances. No truly anonymous submissions shall be published. Conversely, no submissions shall be published with the author's name without their consent.

When we choose not to identify a source by their full name, the article shall explain to readers why.

Corrections Policy

We strive for promptness in correcting all errors in all published content. We shall tell readers, as clearly and quickly as possible, what was wrong and what is correct.

Corrections to articles will be immediately updated on the online version of the Tech at tech.caltech.edu. If appropriate, corrections will also be published in the following Tech print issue.

Honor Code Applies

In any remaining absence of clarity, the Honor Code is the guiding principle.

The California Tech CalGuesser

#18



Every issue we'll show you a different location on campus. Find the place and find the QR code hidden there to sign the log book and **maybe win a fabulous prize???**

"On campus" is defined as the convex hull of the buildings shown on caltech.edu/map/campus.

The QR code will be hidden somewhere within the pictured area.

CalGuesser #17 – December 3, 2024

Congrats, you found it!
Leave your name/pseudonym, year/department, and date found :)

KKan @1:11pm 12/3... this is fun!

Alexi Stapf Fleming/Lloyd 27' 12/9 bomb threat got me out of bed early enough to try to find this

GW hayduke / BBE / 18:16 12-9

LAST ISSUE'S WINNERS!

Announcement from Caltech Graduate/Postdoc Union

On January 10th, CGPU-UAW, the union for graduate student workers and postdoctoral scholars at Caltech, launched a Hardship Fund for UAW members impacted by the massive, ongoing wildfires that erupted last week in the LA area. If you are a postdoc or graduate student, follow the QR code to donate to the fund, learn more about how to apply, and check out more resources about how to stay safe. You can also follow the link here:

<https://caltechgpu.org/wildfire-support/>

Grad students and postdocs affected by the Eaton Fire can access resources and apply for hardship funding here:



The California Tech

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Advertisement for hardship funding with QR code and icons for fire, house, and person.