





We are defined by connections.

Our memories, interests, and relationships all amalgamate in a complex network of nodes and edges, forming the basis for our actions and experience of the world around us.

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At Caltech, we forge connections with our peers and teachers, of emotional, intellectual, or occupational nature.







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Thread by thread, our web of knowledge grows

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A N D

purple avery techers of fame house socials nobel prizes mars 2020 chen neuroscience institute big t centennial



рнотоз words & design Various Eilleen Zhang

AVERY HOUSE MUSEUM OF HOUSE COLOR - - -

AHMUHC

Walls, but also Avery's house color. That is, until the spring of 2020—after a series of communications between Avery's excomm, house members, and administrators, Avery's official color switched from white to purple. In recent years, Avery's colors mostly included various shades of red, featured primarily on the triangle logo and various items of house outerwear, which are designed by Averites annually. Although red wasn't the official color, it was much easier to incorporate and work within designs and screen-printed items. A dilemma arose, however, when it came time for Avery seniors to order graduation stoles. Students usually choose stoles with colors based on the houses they were affiliated with, while unaffiliated students wore orange stoles. Most Avery seniors opted to have an orange stole rather than the neutral white one since red stoles were reserved for the Flems. Thus, talks about house color were initiated between the administration and the presiding Avery Chancellor, LC CHEN [21]. An official vote was soon sent out to the house. After hitting quorum on the vote and following the rules set by the Avery Constitution, the official house color was changed to purple.



ASSORTED TRIANGLES COLLECTION =

Creativity Integrity Tenacity VARIOUS AVERITES 2011 - 2021 Digital



The triangular Avery logo has remained relatively simple and consistent over the years. The leftmost triangle is also the logo printed on Avery plates in the dining hall. The center logo can be seen primarily in Rotation videos of the late 2010s, with the third purple logo emerging in 2020-21.

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POST-REBRANDING: DESIGNS BY THE NEW GENERATION

Phoenix Wings JIA YUE WU [24] 2021 Digital, digital on hoodie

"My design was based on the idea of phoenixes and 'rising from the ashes' after COVID," noted Wu, "so the idea was for a wing-like design on the back of a hoodie or shirt so it would be like our wings." The design also features multiple fiery swirls while incorporating the angular lines in the phoenix design and Avery logo.

AVERY

Eugene

JOSHUA ROBERTS [24] 2021

Digital on hoodie

In the spirit of Caltech collaboration, Roberts worked with his younger brother to design their own central phoenix emblem. "[We] wanted to work around the house mascot so we started with a couple base phoenix designs," said Roberts. They also wanted to incorporate the "A" in "Avery" and the house triangle motif in the background. "By merging these three main elements together in an organic way we ended up with the final design," he said.





"What inspired me the most was how geographically diverse Avery House was, yet we all managed to stay connected and have some resemblance of community through house activities and Caltech," said Tomono. The back of the design features the Caltech torch, connected to the Avery phoenix, which is then connected to a globe with a heart placed right over Pasadena. The front uses the triangle logo to form the "A" in "Avery", drawn in the same connected style. The design tries to convey the idea that "Avery is like a smaller, tighter-knit subset of the Caltech community but it still connects us to many different places around the world."



hats off to a new color These graduating Avery seniors in the class of 2021 are among the first to wear the new purple stoles at commencement. Left to Right: Evan Yeh [MSEE 21], Yongkyun Lee [21], David Zheng [21], James Park [21], Steve Guo [21], Lucy Chen [21], Vidhya Dev [21], Cindy Cao [21], Alice Jin [21], LC Chen [21], Rachel Lin [21].

WHAT'S IN A COLOR? THE PSYCHOLOGY OF PURPLE

Purple is often associated with royalty and wealth—in ancient times, the color was prized for its bold hues and its rarity in nature meant it was reserved for the upper class. For example, the Phoenicians' Tyrian purple came from a species of sea snail so rare that it was worth its weight in gold. It also represents strength, transformation, resilience, and creativity.



TECHERS OF FAME

A s the pandemic forced us indoors and online, social media became our escape from the routine Zoom calls and Slack messages. While most people scrolled through Instagram or watched YouTube videos during their free time, some took this opportunity to create and share original content. We spoke to four members of the Caltech community about what inspired them to post online and their experiences growing their online presence.

@SEANMCARROLL

SEAN CARROLL'S MINDSCAPE

When RESEARCH PROFESSOR SEAN CAR-ROLL isn't studying theoretical cosmology or field theory, he can sometimes be found producing content for his various platforms. His foray into online content creation began in 2004 when he established his blog *Preposterous Universe*. Since then, Carroll has ventured into the Twitterverse with the handle @seanmcarroll—boasting over 290,000 followers—and the audio space with the podcast *Sean Carroll's Mindscape* which reaches almost 200,000 plays every episode. Now, he is most active on Twitter and his podcast.

Matching the rapid-fire pace of Twitter communication, Carroll tweets almost daily. 280 characters mould into a short blurb about a thought-provoking article or a retweet of an interesting thread. Topics discussed range from complex physics findings to political controversies, where he focuses on making concepts digestible for a wide audience. His podcasting also does not lag behind—every week, new episodes consisting of conversations with experts about their work are released. What inspired him to start the podcast? "When the book was done, I couldn't just call people up to talk...but if I had a podcast, I could keep doing that!" exclaimed Carroll as he noted how easy it was for him to talk to Nobel Laureates while writing his book, *The Big Picture*. Taking advantage of these opportunities, he has conversed with many fascinating people including a professional-soccer-player-turnedengineer and an award-winning food historian.

The transition to work-from-home hasn't stopped Carroll from continuing these hobbies. Interviews from the past year have taken place via Zoom calls, and there was more time than ever for musings on Twitter. He hopes his stance as a physicist online adds to the diversity of perspectives.

Sean Carroll's MINDSCAPE

PREPOSTEROUSUNIVERSE.COM





@CHAKRAPARTYING

With Caltech sending students home in March 2020 and maintaining a virtual format for the 2020-2021 academic year, sophomore ISHA CHAKRABORTY [23] needed a way to spend her quarantine time with something fulfilling and relaxing. With an iPad and Apple Pencil in hand, she started her art account @chakrapartying on Instagram in July 2020. In the last year, she has made 120+ posts, gained over 10,000 followers, and started a business using her artwork.

The account began as a private archive of her sketches based on online drawing tutorials. Now, it is a dazzling portfolio showcasing her unique, ever-changing art style. The topics of her work range from current events and social issues to food and landscapes, often reflecting her mood and interests. Among her favourite works is a drawing for the #StopAsianHate movement in response to the Atlanta shootings that killed eight people, six of which were Asian women. On social media, Chakraborty shared her feelings as an Asian American as well as information on how to support the Asian American and Pacific Islander (AAPI) community. "Most of my audience is not Asian, but as a member of the community, it felt significant," she explained.

Though her audience is ever-growing, she tries not to let the numbers get to her head. "I've learned not to worry about the follower or like count too much because it takes away from what I enjoy about it," said Chakraborty. She hopes that @chakrapartying will remain a part of her relaxation routine even when an in-person school year returns.





I n addition to working through the challenging Caltech curriculum, sisters **AMY** [21] and **ANGEL WANG** [24] run the YouTube channel *A-Sharp* during their free time. Here, they have nearly 35,000 subscribers that look forward to their covers and translations of pop and K-pop songs.

Their first video dates back to August 2017 when they posted an English-translated cover of "Butterfly" by the Korean group BTS. Since then, they have dedicated time and effort to translating many more BTS songs, making karaoke versions for people to sing along with, and occasionally covering songs by American artists. Neither of them is fluent in Korean. However, as A.R.M.Y.s (members of BTS's fandom), they wanted non-Korean speakers to appreciate the lyrics more. Using various online resources, they write expressive English lyrics based on the original Korean verses, making BTS songs more accessible. Though this was and still is the main goal of the channel, feedback from their fans has made them realize that their work can be impactful in many more ways. "[Fans] tell us that they are comforted by our work and inspired by how we can convey the meanings in such beautiful ways," said Amy, noting that messages like this motivate them to continue.

This process of translating, singing, and uploading undoubtedly takes a long time and isn't easy to balance with everything else in their schedules. However, Angel describes this time as "really fun" since they "get to do something that [they] are both passionate about together." They both hope to continue working together on these videos, even after Amy graduates and continues on to her future endeavours.





of fame 🌒 🌑

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ZOOMER generation (

> DESIGN Katherine Chang WoRDS Shu Fay Ung Lucy Gao PHOTOS

Shu Fay Ung

By nown we are all pretty much experts on the art of socializing online. Wondering what platform to use? Go for Zoom if you're feeling conventional, Discord if you're wanting to be hip, or GatherTown if you're craving a simulation of the in-person socializing experience. Fancy some party games? Choices include *Jackbox, Among Us, Codewords,* and many more. How about virtual watch parties? Screen sharing through Zoom or Discord is perhaps the most straightforward way to go, or you could try specialty technology such as Kast. Thus, equipped with a vast knowledge base and tech-savvy members, houses have found creative solutions to stay connected and preserve traditions throughout the pandemic.

all things angelical In Ricketts' first ever virtual Open Mic Night, Angel Wang [24] dazzles the audience not just with her melodic voice, but also with her aesthetic background.





electrifying chords

Ali Çataltepe [23] gets creative with a dual-view recording of her performance in the first virtual Ricketts' Open Mic Night. The event was hosted by the legendary Alex Guerra [21].

avery rivia is a pretty serious

business among Averites. Hence, various Zoom and Discord trivia events were organized that pitted the Biggest Brains in Avery against one another. One was Jivia Does Trivia, a series of team-based trivia showdowns with multiple rounds of escalating difficulty. Another was "Are You Smarter than a CS Major?", in which each team designated a "CS major," a player not necessarily an actual CS major—who individually tackles questions first before collaborating with their team. The individual score attained by the "CS major" together with the team score determined the overall score. Trivia topics ranged from sports, movies, and music to science and technology.

...dabney.

🗕 fleming 🗕

lovers within book the house, the social team established a book club where participants recommended and voted on books to read, then engaged in biweekly snack-fueled discussions. Titles included Haruki Murakami's Kafka by the Shore, First Person Singular, and Khaled Hosseini's A Thousand Splendid Suns. Avid cooks expanded their culinary repertoire in the Flookout (Fleming Cookout), where they learned how to make Pad Thai from scratch under the guidance of TOM MANNION and Resident Associate **STEPHEN GRANT** [G6] through Zoom. During International Movie Nights, the casual cinephile was treated to a selection of international films, such as Shaolin Soccer (Chinese), 3 Idiots (Indian), and Parasite (Korean)all while enjoying the food of that culture. Other events organized by the social team were Flappy Hours (Fleming Happy Hours), a virtual alumni dinner, Fleming women's brunch, and a virtual Secret Santa.

ricketts **O** ffline or online, the show must go on! Thus, the Ricketts Open Mic Night moved its venue to Zoom, debuting virtually during Rotation. Its modus operandi switched to an emceed watch party of pre-recorded videos by students, occasionally featuring live performances where attendees could sing along. Transitioning into October, when a pandemic Halloween entailed spooky action at a distance, Skurves submitted photos of their costumes to a house-wide costume contest. All costumes were featured on Ricketts' Instagram account, and the winner received a gift card. Moreover, frosh got to flex their gaming skills in an Online Video Game Tournament organized in a March Madness-style bracket. The top gamer and the student with the best bracket prediction won prizes. To stay connected with alumni amidst the pandemic isolation, the social team also organized Beer and Brats, an alumni event over Zoom that allowed past and present Skurves to interact with each other.

M ovie nights were when Darbs enjoyed both Good and Bad FilmsTM, with selections including *The Room*, *The Princess Bride*, and *Spy Kids 2*. Of course, artistic activities were never left out of Dabney House socials. For one, the social team delivered art supplies to Darbs for Bob Ross Night, where participants followed along with an episode of Bob Ross' *The Joy of Painting* over Zoom. An online art gallery was even curated from submissions by Darbs, with pieces ranging from ink or digital drawings to crocheted sweaters, showcasing the breadth of artistic talent within the house. The audience's favorite piece—determined with the most votes—won a Bean Hat.

lloyd

Remote learning undoubtedly put many people under stress—the Lloyd social team knew just the solution for it. Rant Night, a Lloyd tradition during Thursday dinners where people rant about their week, evolved into Stitch+B*tch Night, where people complained while knitting, crocheting, or cross-stitching together over Zoom. Another outlet was the Burn Book—à la *Mean Girls*, the book compiled photos and funny comments about dumb things that Lloydies did during the pandemic, which was later read by the house. Furthermore, the social team attempted a watch party of *Saturday Night Live* hosted by Elon Musk ("to laugh at [the] show"). Alas, a blocked Zoom screen share of streaming service Peacock premium thwarted the party. Lloydies were also kept entertained with other activities such as virtual poker nights, crossword nights, trivia nights, and a beach trip for folks in the Pasadena area.

ruddock •

Keeping the competitive spirit alive, the social team migrated Ruddock's individual alley challenges along with the big annual alley challenge event, the Grand Amalgamated Alley Challenge (GAAC), online. Holidays such as Christmas were celebrated with a virtual secret Santa gift exchange that left people puzzled over the strange presents they received. Frosh—who experienced an especially tough first year of college—were also given extra care as the social team organized weekly virtual hangouts where frosh could interact with upperclassmen.

> house ••• socials ••

2020 nobel LAUREATES

 PHOTOS
 WORDS
 DESIGN

 Annette Buhl
 Catherine Ko
 Katherine Chang

Florence Montmare © Nobel Prize Outreach Catherine Ko Katherine C Haruna Tomono

andrea ghez portrait.





andrea ghez with her Nobel Prize medal. n December 10, in a virtual ceremony, Caltech graduate **ANDREA GHEZ [PH.D. 92]** was awarded the 2020 Nobel Prize in Physics alongside Roger Penrose and Reinhart Genzel, becoming the fourth female physics laureate. They were awarded for their work concerning black holes—while Penrose proved black holes as a consequence of Einstein's general theory of relativity, Genzel and Ghez observed them at the century of our galaxy. With these entities being "the most mythical and strange objects in physics" according to Professor Ulf Danielsson of the Nobel Committee for Physics, these Nobel laureates helped unravel a riddle in physics that has been pondered over for nearly two centuries, unveiling a plethora of new questions to be explored.

Shrouded in mystery and emergent at the intersection of space and time, black holes fascinated Ghez since her undergraduate years at MIT. At Caltech, however, her research focused on studying the formation of binary stars through speckle imaging under the late **PROFES-SOR GERRY NEUGEBAUER**. Joining this project with the prospect of eventually studying supermassive black holes, she learned many valuable research skills. "I really learned some discipline about what makes a good scientist—how to really respect the data and the data analysis," reflected Ghez. Doing science in the rigorous environment at Caltech gave her a high standard to strive for and encouraged her to analyze data precisely. **KEITH MATTHEWS**, the chief instrument scientist at Palomar Observatory who has worked with Ghez since her graduate years, recalled her tenacity and detail-oriented nature. "She was very determined...she certainly worked very hard and it was consistent," he applauded.

Since black holes have been confirmed to exist at the center of galaxies, researchers have been striving to understand the formation and evolution of the universe in greater detail. Ghez looks to continue research on supermassive black holes and is excited to follow the technological advancements that will enable more powerful data collection. As a female scientist, she feels that it is important that younger students can see "people who look like them" in the field and understand that it is possible for them to do research alongside other scientists. She encourages aspiring scientists to search for the thing that brings out their "authentic curiosity," discover ways to continually expand their horizons, and consider how they can give back and "open the path for the next generation."

Distinguished Alumnus of Caltech, CHARLES RICE [PH.D. 81] shared the 2020 Nobel Prize in Physiology or Medicine with Harvey Alter and Michael Houghton for the discovery of the hepatitis C virus (HCV). Hepatitis C is a viral, blood-borne chronic illness that affects the livers of over 200,000 people in the US alone today. However, thanks to Rice and his colleagues, hepatitis C is now the fastest identified and completely curable chronic viral illness ever. Rice's crucial breakthrough came when he included the tail of the virus when sequencing it. The virus's tail proved to be critical for growing viable copies of the virus in the laboratory for studies and completed the characterization of HCV. Rice went on to help develop a 99% effective cure for hepatitis C, allowing millions of people to be free from long-term liver damage. For his important work in the field, Rice was co-awarded the Lasker-DeBakey Clinical Medical Research Award in 2016 and thereafter received the Nobel Prize.

Rice's important work in completing the characterization of the virus was based on his solid foundation gained in the Strauss lab at Caltech. During his graduate and postdoctoral studies in biochemistry and virology under the tutelage of **PROFESSOR JAMES STRAUSS** and **ELLEN STRAUSS**, Rice worked with flaviviruses, a class of positive-strand viruses with genomic RNA. He pioneered meticulous sequencing methodologies for these RNA viruses and was able to obtain a complete sequence of the yellow fever virus genome with the help of "a bevy of SURF [Summer Undergraduate Research Fellowship] students [which he trained] into a potent sequencing team," according to Strauss.

charles rice's Nobel Prize medal.





andrea ghez's Nobel Prize medal.



rice with

his Nobel Prize medal.

charles rice portrait.

Rice's "magic hands" that equipped him to perform laboratory experiments with ease landed him a faculty position at Washington University School of Medicine in St. Louis. Eventually, he became Head of the Laboratory for Virology and Infectious Disease at The Rockefeller University, where he works today.

During his eight years at Caltech establishing the molecular biology of flaviviruses, Rice left a deep impression on the Strausses. "I felt very proud and he deserves it," praised Strauss when he heard that Rice was awarded the Nobel Prize. "Charlie was our best graduate student. His motivation, dedication, and abilities to do things he had what I would refer to as magic hands. There are people who can do experiments that work. In addition to that, he was a really supremely nice guy—one of the nicest people we've ever known." His kind heart won over many Caltech community members, including lab staff and undergraduates. A prime example of his exceptional popularity among the people was when Rice was chosen by the students of Blacker House to be one of their Resident Associates (RAs) even though RAs at the time were usually married couples.

In the larger scheme of things, Rice's characterization of HCV demonstrated the importance of bolstering scientific research and improving molecular biology techniques. His careful investigation of the virus directly enabled the creation of such an effective anecdote: "maybe something like what Charlie has done will show how important it has been to put money up front and not demand instant results—just to develop the system to the point where you understand and can study it and can develop vaccines," commented Strauss. While hepatitis C is the first and only chronic viral illness to be characterized and completely cured in such a short amount of time, let this not be the last. May the spotlight on the discovery of HCV pave the way for many more breakthroughs to come!



Mords
Arikosner
Daniel Neamati
Mitchell Watson
NASA/JPL-CaltechWORDS
Cindy CaoDESIGN
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n July 30, 2020, at 4:50 a.m. PDT, a rocket carrying the Perseverance rover left the surface of Earth from Cape Canaveral Air Force Station in Florida. In the midst of a pandemic that shuttered much of the world, the mission continued as planned, albeit with a few modifications to workplace practices.

Under the direction of Caltech's Jet Propulsion Laboratory (JPL), the Mars 2020 mission set out to seek signs of ancient life and explore the Martian geology, drilling and collecting rock samples to be returned to Earth in a future mission. The target landing site—Jezero Crater, once a Martian lake billions of years ago with the potential of harboring ancient life.

1:55 p.m. PST; February 18, 2021. The triumphant announcement came: "Touchdown confirmed. Perseverance is safely on the surface of Mars!"

Members of the Caltech community celebrated from various corners of the world, united in a shared sense of accomplishment. The rover even made a guest appearance during Caltech's 127th Commencement this June. We spoke with three former JPL interns who worked on Perseverance to hear their thoughts on the mission and what the future has in store.

LEAVING THEIR MARKS



MITCHELL WATSON E213, while interning with the Planetary Sampling and Acquisition team, worked on the thermal vacuum testbed—a Mars environment simulator—which tested systems like the head rotation system of the main camera. He recounted how he incorporated his name into the back of a 3D-printed part during his internship: "While [the testbed] was up and operational and the Mars stuff was in it, there was a 'Moose' on the testbed." Despite the inevitable nervousness, his experience on landing day embodied his confidence in the technology. "Curiosity wasn't a fluke. We know how to land these things," he said.

perserverance An artist's rendering of the rover.



touchdown confirmed In the control room at JPL on February 18, the Mars 2020 team cheers after the announcement that the rover landed safely on Mars.



did you decode it? A surprise to many who watched the landing, there was a hidden message on Perseverance's parachute in binary code—"DARE MIGHTY THINGS"—JPL's motto. GPS coordinates of JPL's site were also encoded.

"IT'S LITERALLY GROUNDBREAKING . . . BECAUSE IT'S LIKE DRILLING INTO THE GROUND." - ARI ROSNER

A mong many projects, ARI ROSNER E211 worked on the design, implementation, and construction of door mechanisms for the rover's bit carousel, a mechanism that is used for drilling and caching during the sample collection process, during his JPL internships. Engineering contributions aren't the only marks JPL-ers leave on the rover, however. Rosner witnessed the entire ATLO (Assembly, Test, and Launch Operations) team signing their names on the inside of the backshell—a part that is jettisoned off during the landing process. He was filled with anticipation during the last few minutes of the landing while watching the live stream. When the good news finally came through, he felt "a huge relief, an indescribable feeling." Rosner is currently a full-time employee at JPL.

DANIEL NEAMATI **E2L3** worked on improving various aspects of Perseverance's sample tubes that will be cached and brought back to Earth in a future sample return mission. The experience of watching the rover land evoked a wide range of thoughts and emotions in him. There was the fear—Neamati was clenching the chair and looking at the clock throughout the landing—but there was also the humbling appreciation for the tremendous effort dedicated to the project and the realization that "if it crashes, that's it. There's no second rover . . . no control-Z." Indeed, it is only after landing that the real mission of executing tests and collecting data begins. Now that the rover has begun exploring, he looks forward to seeing the "groundbreaking" discoveries to come.







Our newest research building on campus, donated by Tianqiao Chen and Chrissy Luo

PHOTOS Caltech WORDS Shu Fay Ung DESIGN Selina Zhou

THE NEW IDEA FACTORY

t the intersection of Del Mar Boulevard and Wilson Avenue, a modern edifice with a glimmering facade of glass and copper establishes a new entrance to campus. In between reflections of buildings, people could be seen engaged in lively conversations, typing away on laptops, or hunched over workbenches performing experiments. As **PROFESSOR COLIN CAMERER** of behavioral economics describes, this is an "idea factory."

The Tianqiao and Chrissy Chen Neuroscience Research Building (CNRB) finally debuted to the Caltech community on January 29, 2021 after a little over two years of construction. It houses the Tianqiao and Chrissy Chen Institute for Neuroscience, which aims to deepen understanding of the brain's structure and underlying mechanisms at the most fundamental level, as well as address questions concerning the impact of disease and aging on its function. In Caltech's signature multidisciplinary fashion, researchers in fields ranging from neuroscientists, biologists, and chemists to physicists, computer scientists, social scientists, and engineers are brought together to achieve these common goals. The institute was founded in 2016 through the generous support of philanthropists Tianqiao Chen and Chrissy Luo and is currently directed by **PROFESSOR DAVID ANDERSON** of biology.

The CNRB provides a physical space to catalyze interactions between researchers of diverse expertise. The 5-story building features a bright, open space with floor-to-ceiling windows, state-of-the-art research and teaching laboratories, a multi-level vivarium, a neurotechnology lab, offices, collaborative spaces, and a 150-seat lecture hall. It is surrounded by outdoor terraces and gardens, most notably a "sunken garden" that brings natural light to labs located in the basement. A skylight also allows natural light to illuminate the interior, giving the space an organic texture.

Although the CNRB is just one new building, it can facilitate several serendipitous encounters that are the gateway to an endless well of scientific ideas. It is indeed exciting to wonder about the groundbreaking research that could emerge from within this glass and copper structure in the years to come.



DID YOU KNOW?

travertine stone

22,700 square feet of travertine stone clad the lower levels of the building, covering elevator fronts, the lobby, bridge, breezeway, and sunken garden. The stone was fabricated at the Marrioti family travertine quarry in Italy, now operated by the fourth generation of family ownership that spans over a century. Each piece of stone weighs 250 pounds and traveled 6,323 miles from Tivoli, Italy to Pasadena.

underground tunnel

The sub-basement of the building (specifically, Level B2) is connected to the Broad Center for the Biological Sciences via a pedestrian tunnel.

artwork

Tianqiao and Chrissy Chen commissioned artist-neuroscientist Greg Dunn to create a triptych for display in the main lobby of the building. The $5.5' \times 7.5'$ centerpiece, depicting a slice of the human brain, is a 22-karat gold microetching from Dunn's "Self-Reflected" series. (Microetchings comprise a large number of microscopic ridges engineered to reflect light in a specific way.) Two additional reflective gold leaf paintings flank the main work.









l.the cnrb Facade of the Chen Neuroscience Research Building (CNRB). 2.collab space Floor-to-ceiling windows provide panaromic view of the outside in one of the CNRB's collaboration spaces. 3.skylight Featuring 545,326 mosaic tiles, the skylight brings in ample natural light into the building. 4.self -reflected A 22-karat gold microetching of a brain slice by artist and neuroscientist Greg Dunn hangs in the lobby.



95° J92J centennial **100 YEARS OF HISTORY** PHOTOS WORDS DESIGN **Caltech Archives** Shu Fay Ung Katherine Chang

xactly 100 years ago, the first edition of The Big T was put to press. The current yearbook's origin stems back to the • publication of an annual by The Throop Tech, as The California Tech was then called, in addition to their monthly magazine publication. It was in 1920 that the annual took its form as an independent production from the Tech

1921 The first volume of The Big T is published by editor Arthur J. Garfield [22].

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1940 The 1940 edition is published by editors Wil-

1950 Themed Culture at Caltech, the 1950 edition is published by editor Jon Goerke [51].



920 •----• 1930 -40 -







L9L0 The 1960 edition is published by editor Joel Tenenbaum [62].

1930 The 1930 edition, with a theme inspired by natural evolution, is published by editor Frederick S. Scott [30].

and was christened with the name Orange and White. The 1921 editors, however, felt a change desperately needed to be made. "This year the editors were not in sympathy with the...title and changed it to the Big T, typical of our most famous tradition and 'undeniably our own," wrote editor **ARTHUR J. GARFIELD** [22], "whereas the other, though certainly adequate, savoured too much of an imitation of the U. C.'s 'Blue and Gold.'" (The Blue and Gold is the University of California, Berkeley's undergraduate yearbook.) This was perhaps a good call.

You might wonder, what is this "most famous tradition" that is "undeniably our own?" In 1915, both students and faculty executed a long-considered idea—carving the letter "T" on the side of Mount Wilson. Faculty dismissed students for an entire day, approximately 75 of whom—led by **PROFESSORS W. HOWARD** CLAPP and HARRY CLARK VAN BUSKIRK—cleared some "seventy thousand square feet of mountainside from its covering of greasewood, cactus, manzanita, and brush." The resulting "Big T" measured approximately 300 feet across the top and 400

tors unidentified)

feet long, making it large enough to see from Pasadena. Since then, freshmen embarked on an annual trip up Mount Wilson to maintain the "T." Known as the Big "T" Party, this tradition lasted for about 40 years; the last recorded trip occurred in 1954.

Although the original Big T has long faded from existence, its spirit remains carved into the paper that assembles the Big T. Hopefully, this piece of history will still be remembered in the many years to come.

the original big t A large "T"-measuring about 300 feet across the top and 400 feet long-was carved onto the side of Mount Wilson in 1915.



1970 With a cover design inspired by The Fevnman Lectures on Physics, the 1970 edition is published by editor Adrian C. Smith, Jr. [70].





2000 The edition at the turn of the millenial (edi-

2020-2021 The centennial edition, themed Connections, is published amidst the COVID-19 pandemic by editors Shu Fay Ung [21] and Eric Chen [21].



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1990 The 1990 edition is published editors Scott bv Kister [91], Alecia Craig Chen [91], Sosin [90], and Curt Hagenlocher [90]







N O T

rotation remote athletics renaming task force ernie's al fresco online labs vintage computing club disasters of 2020-2021



►<mark>-030</mark>



Caltech Rotation





words & design Shu Fay Ung

Kriti Devasenapathy

ou sit in a Zoom meeting staring at a grid of unfamiliar faces. A question lingers in the air: "So, do you have any questions for us?" Silence.

Some figures on-screen fidget in their seats; others keep frozen. There is also the mysterious participant hiding behind a name, from whom no response whatsoever could be elicited. Three seconds pass. Finally, a brave prefrosh decides to break the ice.

Sounds familiar? This was how most interactions in this year's Virtual Rotation went.

As the pandemic dragged into the fall of 2020, it wasn't initially clear if Rotation was going to happen at all. The Interhouse Committee (IHC), tasked with organizing Rotation, considered the possibility of postponing the event to next year and rotating two classes simultaneously. "Ultimately, we decided against it because a) it would leave the frosh without much of a support network during an already very tough year, and b) because rotating two classes sounds like a logistical nightmare," said IHC Chair KRITI DEVASENAPATHY [21]. As it became clear in the fall that in-person learning was not returning, the IHC eventually decided to organize a virtual Rotation in the winter term.

The Committee, comprised of Devasenapathy, **ADAM ABBAS [22]**, and house presidents, worked hard with house social chairs and the administration to make Rotation a reality. According to Devasenapathy, the main challenge was to balance students' and administrators' expectations for the event. On the administrative side, the IHC coordinated with Assistant Vice President of Student Affairs and Residential Experience FELI-CIA HUNT, Vice President for Student Affairs **professor kevin gilmartin**, and the Residential Life Coordinators (RLCs) on drafting proposals and approving the details. A large portion of their work was to prepare responses depending on the various possible levels of an in-person return to campus, as well as to create a timeline of when decisions were to be made. "The social chairs were the people who really carried the implementation," Devasenapathy acknowledged. "[The] IHC were the planners and the ones who got the ideas pushed through administrators, but the house excomms really brought them to life."

An online Rotation presented a unique set of challenges for both the frosh and upperclassmen. First, for those that suffered from poor internet connectivity, participating in house events became significantly more difficult. Second, enforcing Rotation rules as strictly as they usually were during normal Rotations was no longer tenable; the IHC accepted that some degree of violations would be







+ Invite

inevitable. "We decided that this was probably the lesser of two evils," Devasenapathy explained. "It's more important for people to start building relationships and connections than it is for a perfectly objective Rotation." Last but not least, there were the all-too-familiar moments of awkward lulls in conversation, unintentional interruptions, and technical mishaps.

The most difficult part about the whole situation surrounding Rotation, revealed Devasenapathy, was the knowledge that no matter how much effort was invested, there would always be students who found the experience inconvenient and inferior to an in-person Rotation. Nevertheless, it was perhaps the best that could be done given the circumstances. The absence of house structure to rely on for holding information sessions, providing academic and personal support, and helping with study sessions helped administrators understand the importance of the house system to Techers. "Hopefully in the future, they continue to provide the support that they committed to keeping the House System alive," said Devasenapathy. If anything, the experience has helped establish a framework for organizing Rotation or other similar events if another impediment to Caltech's normal function occurs.

"I hope Rotation in the future is in-person—there's truly nothing quite like the energy and excitement of a Rotation in person," expressed Devasenapathy.



WHAT DID YOU LIKE THE MOST ABOUT ROTATION?

- Meeting new people and talking to upperclassmen.
- Gather.Town

WHAT DID YOU DISLIKE THE MOST?

- Forced and awkward online interactions.
- Zoom fatigue.
- The difficulty of getting a good "feel" for the houses online.
- Inability to visit the houses physically.

WHAT WERE YOUR EXPECTATIONS OF ROTATION? DO YOU THINK YOUR EXPERIENCE AGREED WITH YOUR EXPECTATIONS?

- I had little to no expectations.
- The online format went way better than I expected.
- I expected to get a good feel for the type of people I might be living with, and it agreed with my expectations as far as getting to know people, but less so about what daily life might be like in the houses.
- I expected Rotation to be more of a fun event where everyone sees all of the houses and knows where they'll fit in. This Rotation felt more of a hassle than anything, getting on a Zoom super late at night just to sit awkwardly on Zoom with a few upperclassmen. This was definitely not what I expected of Rotation, but online Rotation is what it is.

DID ROTATION HELP YOU LEARN ABOUT THE CULTURE IN DIFFERENT HOUSES? • Meh, sort of.

- Yes, but they all seemed to blend together at one point.
- A little bit. Some houses more than others. There are some parts of houses that I'm just now learning that other people got from rotation, so I wish we could have talked about it more.

WHY ARE YOU HAPPY WITH YOUR HOUSE ASSIGNMENT?

- I think I rotated into a house that really fits my interests and personality.
- I love the Lloydies <3
- I'm not really sure but it seems fine.
- I got my first choice yay!!

WHY ARE YOU UNHAPPY WITH YOUR HOUSE ASSIGNMENT?

- I don't know anyone in the house and I don't seem to connect with them. During Rotation, I only ranked them so high because of two people.
- I'm still in a different time zone, and I feel like my house has deprioritized virtual events in favor of in-person meetups in Pasadena. I have yet to feel like a true member of the house since almost all of the meetings/events are super unfriendly to my time zone. I don't necessarily blame my house for this, but it is true nonetheless.
- I like my house fine but I feel cheated by the virtual Rotation.
- Some bad experiences with some upperclassmen and I also don't feel like I know anyone other than some freshmen.



STUCK AT HALFTIME

222222

WORDS Nivedita Kanrar Haruna Tomono Shu Fay Ung _____ **рнотоs** Various

Between the hours of 4-7 p.m., the rushing of student-athletes across California Boulevard to the Braun Athletic Center for practice used to be a common sight. Over the past year, however, this daily ritual has been upended as students were forced home due to the COVID-19 pandemic. After a few keystrokes that launched the Zoom application, athletes met their teammates and coaches through a screen, ready for check-ins or perhaps slightly awkward workout sessions.

032

Caltech's athletics teams had to come up with ways to adapt their operations in response to the pandemic. As athletes were scattered across the globe, isolated from one another, each experiencing varying levels of public health restrictions and access to facilities, training inevitably became more individualized. "That's been the most difficult thing—trying to individualize lots of different scenarios and situations because everybody has something different going on," says ANDY BRABSON, the head coach for swimming and diving. In planning workouts for his athletes, he took into account facilities they had access to and considered how they could mimic normal sessions with the resources available. He has also recommended cross training, encouraging athletes to focus on their weaknesses outside of the pool. While sports such as swimming lend themselves well to a more solitary mode of training, team sports that require considerable group dynamics have suffered. "Because not everyone is in the Pasadena area, we have been working on our own time," says LAUREN SUEZAKI [21], a guard on the women's basketball team. "I live with two other teammates so we try to work out with each other as much as we can."

As the majority of athletes kept fit on their own, teams stayed connected through regular Zoom meetings where participants gave progress updates and supported each other with academic, personal, and athletic goals. This support has been crucial as maintaining motivation became another challenge for teams. With the cancellation of athletic conferences, athletes, especially seniors, lacked competition to look forward to. "Maintaining motivation is tricky for both the coaches and students, focusing on the fact that we are at halftime of [the pandemic], not the fourth quarter yet, is hard to swallow,"comments BETSY **MITCHELL**, the Director of Athletics, Physical Education and Recreation (at the time of writing, December 2020). "However, we are at least over half way!"

By the beginning of the Winter term, it was still unclear how long halftime will last; the outlook for collegiate sports was similarly uncertain. Factors that affected future planning included the distribution of the vaccine in addition to evolving public health protocols surrounding the organization of athletic events. Nevertheless, the athletics department was prepared to work under the given circumstances. "We did have some good initial plans if we were going to run meets earlier this year-what those might look like in terms of what the officials were doing, how teams were going to be separated, disinfected, masks-all that, and what some of the practice protocols would be as well," Coach Brabson recalls. Whatever the conditions might be, the staff were confident of their ability to adapt and provide a good sports experience.

DESIGN

Shu Fay Ung

Mitchell is optimistic about the future development of the athletics program. "I think that basically the pandemic will be a big pause button, but that competitive sports will pick right back up where they left off," she says. Furthermore, she is confident about the prospective hiring of staff, including athletic trainers and a sports information director, who were unfortunately laid off earlier this year. More than anything, the pandemic has emphasized the importance of the human element in sports. It has demonstrated the nuanced connections that can only arise through in-person interactions and relationships between athletes, coaches, and trainers. "Sports done right are an important educational laboratory for young people, that won't change," Mitchell affirms.



L-distance swimming Swimmers Jessica Sun [21], Stella Wang [21], and Adam Kogan [21] meet for a socially-distanced swim at Braun gym. 2.3.4.200m huddle Unable to gather physically, athletes and coaches in the women's basket-



RETHINKING RECRUITMENT

The recruitment process is crucial in attracting athletic talent to Caltech. Coaches recruit by responding to prospective students who reach out, leveraging their knowledge of the youth sports landscape, and receiving recommendations from existing networks. As the pandemic raged on, the most notable repercussion in recruiting has been the inability for students to visit campus and interact with coaches and student-athletes in person. Instead, coaches got creative by organizing virtual campus tours and webinars on Zoom or FaceTime. The webinars proved to be useful for prospective

students to make a preliminary connection with teams, allowing them to learn about the squad and Caltech—so much so that this practice might continue in future recruitment cycles.

Another effect has been associated with Caltech's transition to a testblind admissions process. Without access to test scores, coaches lost a datapoint that helped them gauge the prospects of interested students at Caltech. This forced them to look at students more holistically, which helped increase the resulting applicant pool and hopefully allowed for the admissions net to be cast on more athletic talent.



-034

рнотоs Selina Zhou words

DESIGN

THE TASK OF RENAND

The tragedy of George Floyd a 46-year-old Black man who was killed by police officers in Minneapolis, Minnesota, forced institutions across the U.S. to reevaluate their position on issues concerning race, discrimination, and inequality. Caltech was no exception. Petitions and campus conversations urged for the renaming of campus assets that memorialized figures associated with the eugenics movement. They include Robert A. Millikan, Harry Chandler, Ezra S. Gosney, William B. Munro, Henry M. Robinson, and Albert B. Ruddock.

In response, the institute established the Committee on Naming and Recognition (CNR), a task force charged with the responsibility of exploring and offering recommendations for general policies related to space naming and other forms of recognition. The Committee is composed of students, postdoctoral scholars, faculty, staff, alumni, and trustees. Throughout several discussions that began in the summer of 2020, the CNR claimed to center their considerations on Caltech's mission, its values, its Honor Code, and its aspirations for the future. At last, on November 8, 2021, the institute announced the new names of buildings and honors. Let's take a look at the outcomes of this process and see how we're stepping forward, out from the shadows of the past.



venerable Façade of Grant D. Venerable House.

GRANT D. VENERABLE HOUSE

formerly ruddock house

D uring his time at Caltech, GRANT DELBERT VENERABLE took the center stage in countless organizations including the YMCA (currently known as the Caltech Y), the American Society of Engineers, the track team, the Exhibit Day committee, and *The California Tech*. He was also the president of Caltech's Cosmopolitan Club, which was formed to promote fellowship among students of different nationalities. Venerable received an undergraduate degree in civil engineering as Caltech's first Black graduate. He then went on to work as a mining engineer, before eventually owning and operating a hotel as well as an eraser manufacturing company. In advancing his name for consideration, The Ruddock House Renaming Committee noted that he "led a life that embodies the values and character of the house." caltech hall Caltech Hall with the "Robert A. Millikan Memorial Library" sign removed.

THE EDWARD B. LEWIS PROFESSORSHIPS OF BIOLOGY

formerly the albert billings ruddock professorships of biology

A Caltech Ph.D. alumni who later returned as a faculty member, **PROFESSOR EDWARD B. LEWIS** devoted his entire academic career to Caltech. His decades-long research on *Drosophila* genetics helped identify body patterning genes and demonstrated the spatial correlation between the positioning of controls genes on the chromosome and the fly body segments. This groundbreaking study on gene regulation of body patterning was awarded the 1995 Nobel Prize in Physiology or Medicine. Lewis's dedication to academic pursuits allows him to serve as a role model for all students, both present and future.

CALTECH HALL

formerly the robert a. millikan memorial library

As one of the most prominent buildings on campus, **PRESIDENT THOMAS ROSENBAUM** described the newly renamed Caltech Hall as recognizing "the generations (past, present, and future) of faculty, postdoctoral scholars, researchers, alumni students, and staff who contribute to the Institute and to society." Instead of honoring **ROBERT A. MILLIKAN**, Caltech's founding president and first Nobel laureate, the renaming is a reminder that one shouldn't aspire to just be an outstanding scientist or engineer—above all else, one has to be a decent human being.

THE JUDGE SHIRLEY HUFSTEDLER PROFESSORSHIP

formerly the robert a. millikan professorship

J UDGE SHIRLEY MOUNT HUFSTEDLER was the U.S.'s first female secretary of education and first female federal appellate judge. During her time as the Jet Propulsion Laboratory (JPL) Committee chair on the Caltech Board of Trustees, she advocated for JPL missions and programs. Moreover, she encouraged the institute to welcome more women and diversify the community. Her attention to issues such as childcare, women's issues, student life, and ethics and public policy all helped improve the Caltech student experience and create the community that we know today.

THE LEE F. BROWNE DINING HALL formerly the harry chandler

dining hall

As Caltech's director of secondary school relations for two decades, LEE FRANKE BROWNE developed outreach programs at Caltech that helped encourage underrepresented students to be involved in STEM. Specifically, he connected with hundreds of high school counselors in the region and helped improve graduation rates for underrepresented students. His spirit and awareness for community wellness will be memorialized on campus through this renaming process.

> renaming task force

рнотоs Michael Wong WORDS Michael Wong

Shu Fay Ung

DESIGN Shu Fay Ung

IT'S TACO TIME

This piece is a modified version of a tribute to Ernie Mercado, long-time owner of the popular campus food truck Ernie's Al Fresco, written by MICHAEL L. WONG [PH.D. 18]. Ernie retired in October 2020 after serving the Caltech community for more than 30 years. The original article has appeared in the Caltech Magazine and The California Tech.

t's a sweltering 104 degrees outside, but loyalty is its own shade.

The line for Ernie's Al Fresco stretches down the block outside of the Student Services building on Holliston, dozens queuing up for a daily dose of savory Mexican goodness. As the arriving truck rolls to a halt in front of the line, customers help raise the starboard overhang into place, revealing four signs made of manila folders with today's specials scribbled in Sharpie, two service windows effusing the smells of a well-worn kitchen, and one man in a black button-down shirt with an irresistible smile on his face.

"What can I get for you?"

The line moves quicker than expected. Ernie plays a masterful juggling act serving his on-site customers while preparing call-in orders from the Bluetooth headset in his ear. Adding artistry to industry, he takes the time to listen to personal requests. When he sees a familiar face, he remembers every food and flavor preference.

"I go probably a couple times a week," said **APRIL WHITE CASTAÑEDA**, [former] executive director of Human Resources at Caltech and an Ernie faithful for 15 years. "He's always messing with me, because he knows I have a real serious issue with cilantro and avocado, and so when I walk up to the truck, he'll say, 'Extra cilantro, extra avocado!""

Ernie holds a special place in the heart of the Caltech community. Those who work with White Castañeda in Human Resources have been talking about giving him a service award for years, despite the fact that he is not a Caltech employee.

The feeling is mutual. For Ernie, Caltech is a special place. He loves the academic environment—the staff, the faculty, and, most of all, the students.

"In every kid," Ernie said, "I see my daughter."

Ernesto Almeyda Mercado was born on December 4, 1949 in Guadalajara, Mexico. He immigrated to the United States 45 years ago and started running his food truck in the 1980s.

He began by catering to the Beverly Hills community, but just a few years after his truck began rolling, he found Caltech.

Ernie was first called to campus to temporarily cater a construction project for one of the facilities along Wilson Avenue. As expected, groundskeepers filed up to the truck for breakfast and lunch but so did some curious graduate students. Gossip and food reviews traveled at lightning speed. Before long, it was the graduate students who comprised the bulk of Ernie's patronage.

"[It was] destiny or something. You guys just started coming to the truck, and I started getting busy with you guys. I started canceling other accounts, and I decided to stay for the grad students."

Growing up poor, Ernie didn't have time for education. But he knows that education—from preschool to college—is the key to success. When he was asked to cater an event for the Caltech Childcare Center, he discounted his rates and donated half his proceeds to put back into the center. Through his food truck business, he was able to support his only child through college and graduate school at two prestigious universities.

"I have a daughter who went to Stanford, and she got her Ph.D. from the University of Michigan," he mentioned with obvious pride. "And I'm surrounded by all these people with higher education. That, to me, is a satisfaction that you cannot believe. To be able to cater, to be surrounded by all this—you guys."
lunch on the house Caltech graduates Peter Gao [Ph.D. 17] and Henry Ngo [Ph.D. 17] pose with Ernie after receiving their degrees. As per tradition, they wore their regalia to his truck and received a free lunch.



A CAMPUS =>---INSTITUTION

Ernie wakes up at five o'clock every morning, one hour after his chef rises to start working on the food. Everything that comes out of Ernie's truck is prepared the day of.

He commutes from his home in the South Bay area to Downtown L.A., where the legendary food truck is parked. Once inside the motorized kitchen, he stampedes through morning traffic to Pasadena, where mouths loiter on specific sidewalks with hungry intent.

At 11:30, Ernie pulls up by the side of the Caltech Student Services building to serve lunch. Nearly everything at Ernie's costs five dollars, so it's not surprising that some students have taken to calling bills of that denomination "Ernie's coupons." Those who arrive voucherless, however, are rarely turned away.

"Ernie's really good about, if people go, 'I don't have my cash today,' he'll let them run a tab," White Castañeda said. "I think, particularly for students, that can be really helpful because we know it's always a tight budget."

AARON WOLF [PH.D. 13], who graduated in 2013 with a Ph.D. in planetary science, frequented Ernie's throughout his seven years at Caltech. Wolf called Ernie "a quintessential part of the Caltech experience." When he received his doctorate in May 2013, he also received a free meal from Ernie's. "My favorite moment," said Ernie wistfully, "is when they graduate, and the students come with their parents. And they make it a point to come and present their parents to me. And most of them take a picture with me, with their full gown."

"YOU HAVE TO DO IT WITH YOUR HEART" =

Running a food truck is no easy task. "The most difficult thing? You can't take time off, can't get sick, you cannot die."

There is a large amount of stress in any food service occupation, and Ernie knows that hundreds rely on him each day. "That's why you have to like it, you have to do it with your heart," he said, "I run the business with my feelings. And so far it's been working."

When you're a student at Caltech, sometimes one simple smile is worth a thousand taquitos. Sometimes the thing you need most is to be reminded that someone cares about you as a person. Sometimes all it takes is a little encouragement from a man who's seen that same look of disaster before, on his daughter's face.

"You want a shot of tequila with that?" is Ernie's most famous quip.

"I try to get you guys to forget a little bit of the stress that you're going through," he said of his mission to cater to Caltech. "Your experiment is failing, okay, so what the hell? Have a burrito."



038

BE/EE/ME 189a

esign and Construction of Biodevices (BE/ $\mathbf{D}_{\text{EE/ME 189a}}^{\text{esign}}$ a major requirement for Bioengineering majors, is typically their first exposure to electrical engineering. Taught by TEACHING PROFESSOR JUSTIN BOIS [PH.D. 07], the fast-paced course features introductory modules on Arduino circuit design that culminates in two projects for the design and construction of computer-controlled biosensing systems. Dr. Bois adapted the course entirely to the new virtual format by bringing the lab into the home. He shipped students a 38-piece kit of materials, consisting of circuit components and biological laboratory tools like plastic pipettes and growth media, allowing students to perform most of the course's in-person assignments and projects remotely. This translated into a meaningful lab experience for students; though the distance made BE/EE/ME 189a even more challenging, senior Liana Merk exclaimed, "I loved it!" The first project consisted of building a pulse oximeter, which measures blood oxygen levels-useful for assessing the status of patients with pulmonary ailments like COVID-19. The second project was a design challenge for a spectrophotometer, a device that quantifies microbial growth. The best design was used to build spectrophotometers required for a bacterial growth module in the third-term freshman biology lab course Bi 1X, which was also taught remotely.

Perhaps the final campus gathering before the COVID-19 pandemic was "Millikan Wars," where students came together to witness and cheer on amphibious robots competing in an aquatic arena for Caltech's annual design competition. The competition serves as the final for the Engineering Design Laboratory (ME 72ab) class, a capstone course for junior mechanical engineering students on the design and construction of robots that complete specified competition tasks. In eager preparation for this competition, groups typically toil away in the campus workshop for months-a practice clearly not possible with remote learning. In the hopes of an in-person experience, many juniors have deferred taking the course until the 2021-22 academ-

levelling with oxygen Pulse oximeter built by Liana Merk.

> ic year, but the instructor, TEACHING PROFESSOR MICHAEL MELLO [PH.D. 12], has also provided an online version that allows students to complete their projects from home. In this virtual course, the role of the design process became especially important since the manufacture and modification of any parts that needed to be machined fell onto the TAs. To ensure the final products are as desired, students validated their designs and additional instructions in design reviews with TAs and Dr. Mello. Groups worked towards building three robots: one "kick the can" robot that uses sensors to autonomously detect and kick cans off a playing field, a second robot that can climb ramps at increasingly steep angles, and a wind-powered robot designed for speed.

> > Ph 77ab

Physics seniors are typically huddled in a lab in East Bridge as they complete the required Advanced Physics

NE 72ab



PHOTOS WORDS Various Nivedita Kanrar Shu Fay Ung **DESIGN** Katherine Chang

HANDS ONLINE

ab coat? Check. Goggles? Check.

Zoom? ...

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CANVAS

Techers all over the world have signed onto online classes for the 2020-2021 academic year. Regardless of the subject, remote learning has posed challenges for instructors and students alike. It has been especially difficult for laboratory classes due to their heavy reliance on in-person instruction. Notably, the training and techniques taught in these courses are integral to majors focusing on engineering and the experimental sciences. Given the long-term, unpredictable nature of the remote learning situation, many instructors restructured their lab courses for the virtual classroom to the best of their abilities.

Instructors took different approaches to the virtual analogs of their courses. Some instructors filmed themselves completing labs while tasking students to follow along, record data and analyze results; other classes brought the lab and workshop home by shipping required parts to students. Understandably, some courses require instruments only available in laboratories, so not all components could be restructured for remote learning, and courses were modified accordingly. This led to virtual adaptations varying significantly in content and difficulty in comparison to their in-person equivalents. Ph 77ab, an intensive laboratory course that illustrates important theoretical concepts via advanced experimental techniques, was reduced to a primer on LabVIEW, a software widely used in experimental physics. Thus, the virtual adaptation of Ph 77ab, though useful for experimentalists, significantly detracted from theorists' appreciation and utility of the course.

Yet, laboratory courses are not only valuable for equipment availability and the ability to execute techniques, but also for the personal interactions facilitated by the in-person laboratory setting. Namely, they offer the opportunity to openly and easily ask questions to instructors and collaborate with peers. These social environments provided by an in-person lab course are difficult to emulate in an online, distance-learning setting. Nevertheless, instructors attempted to recreate these organic interactions, mostly through live sessions via Zoom and various virtual communication platforms. Bioengineering senior **LIANA MERK** [21] appreciated breakout rooms in BE/ME/EE 189a lab sections where she could show circuits to instructors and troubleshoot code. Another key component of her lab course experience was the online forum Ed, where she could "learn from how other students were thinking about their approach" and contribute her own thoughts as well. Although it's impossible to fully replicate the in-person lab experience online, these efforts show that instructors and students can work together to foster a productive, meaningful learning environment even when apart.

For the summer of 2021, with the ability to safely resume in-person learning, the administration acted quickly to offer courses cancelled due to the pandemic—Analog and RF Circuits (EE 85) and Mechanical Prototyping (ME 13/113). As in-person instruction gradually returns, it is clear that online labs will not be missed.



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carriage return line feed

рнотоз WORDS Albert Tseng Eric Cher

DESIGN Eric Chen

hat fun is reading about why computers use these invisible characters-CR LF-to represent a new line, when you can watch an IBM Selectric typewriter physically return its print carrier and feed in paper? If you passed the right Avery room at the right time, you would have seen-and heard and felt-how ALBERT TSENG [21] answered this question. As president of the Caltech Vintage Computing Club, he remarked, "It's no fun just seeing something behind a glass case."

While the machines the club collects appear to be separated by eons from today's computers, they actually have much in common under the hood. Technology does not advance by revolutions and paradigm shifts—instead, the new is built atop the old, subsuming it under layers of abstraction. Deep in the heart of a modern top-of-the-line workstation lies the ability to support a VT220 serial terminal from the 80s, which in turn utilized control sequences that instructed mechanical teletypes where to print on a scrolling paper roll. Over the years, these machines have been retired from service, shelved, and discarded in the many piles of e-waste that originated the club. Remarkably, nearly as often as not, the devices still power on as if not a day had passed.

When these machines wake from their slumber, they usually find that they are obsoleted not by their dated components, but by the interfaces they present to users. While today's touchscreens and graphical user interfaces (GUIs) are far more user-friendly than the keyboards and terminals of the club's computers, they achieve this accessibility by obfuscating the inner workings of the processes they represent. Where once you were the owner of your computer and software, nowadays, you increasingly relinquish control of your machine to subscriptions and forced updates. Where computers once gave you legos and duct tape for you to hack through your unique problems, they now present polished monoliths that fend off attempts at modification.

Through restoring and eventually exhibiting the machines they find, the club's ultimate goal is to preserve not the technology, but the experiences of the past. A connection between this era and one bygone is maintained within the degraded motherboards and abraded wires, reminding us of what we gained-and what we risk losing-with the ever-thickening layers of abstraction that sit between us and our hardware today.



un-jammable To eliminate type bars that jammed normal typewriters, the IBM Selectric used a electromechanical system to print characters by tilting and rotating a "type ball." Despite its complexity, it was highly reliable, robust enough to survive a short accidental drop in transport, and easily repairable—traits that even Apple's recent typing machines have struggled with.

JK

IBM

.

5

no spaghetti code The practice of wrapping code after 80 characters is often attributed to early serial terminals only having 80 columns. Before 80 column serial terminals, however, there were 80 character punch cards. Good luck sneaking extra characters onto one of these.

look man no drivers! A HP 7550A line plotter can be controlled with an easily reverse-engineered serial protocol, allowing its precision to be harnessed for impressively detailed Caltech maps.

******** ? ? ?********* ? ? **?******



▶ - 042

The decades-old conflict between Israelis and Palestinians raged into the worst violence between the two groups in years. The 2021 clashes brewed from a series of connected incidents in East Jerusalem: (i) Israeli authorities sealed off the plaza outside Damascus Gate, one of the main entrances to the Old City of Jerusalem that acts as a social hub for many Palestinian residents; (ii) a court ruling threatened to evict families from Sheikh Jarrah, a Palestinian neighborhood in East Jerusalem; and (iii) Israeli police raided

the Al-Aqsa mosque as Palestinian worshippers gathered to pray on the holiest night of Ramadan. These incidents ignited protests that resulted in aggressive encounters between the two groups. Israeli forces and Hamas, the Palestinian Islamist movement that governs Gaza, have since launched rockets and airstrikes beginning on May 10, 2021 until a ceasefire 11 days later. More than 256 Palestinians (including 66 children) and 13 Israelis (including two children) were killed. On June 16, the ceasefire was broken and fighting resumed.

THE ISRAEL-PALESTINE CRISIS

O n January L, 2021, a mob of pro-Trump supporters stormed the Capitol as Congress assembled to count electoral votes certifying Joe Biden as the 46th president of the United States. The siege escalated shortly after Donald Trump ended his speech at his "Save America" rally near the White House, where he called on his supporters to head towards the Capitol. The mob violently clashed with law enforcement. As rioters occupied and vandalized the building for several hours, they also threatened the safety of lawmakers inside. Five people, including rioters and a police officer, lost their lives that day.

The insurrection was a shocking assault on one of the world's most famed democracies. It punctuated the effects of misinformation and the growing influence of far-right and extremist groups in the U.S. It ruthlessly exposed the racial double standards that govern the actions of law enforcement. It demanded appropriate action against those accountable lest the values of democracy are defied. The attempted coup had no precedent—let us hope there will be no repetition.

INSURRECTION AT THE CAPITOL

ERROR: 20-2

A racial reckoning descended on the U.S. amid some of its most divisive and socially isolating moments. The killing of George Floyd, an African American man, on May 25, 2020 in Minneapolis, Minnesota sparked widespread protests against police brutality and systemic racism across the U.S. and the world. It reignited the Black Lives Matter (BLM) movement, demanding justice for Floyd and countless other victims of racial violence: Daunte Wright, Breonna Taylor, Ahmaud Arbery, Rayshard Brooks...While the vast majority of BLM protests were peaceful, government interventions tended to utilize a disproportionate amount of force, which in some instances escalated social unrest.

2020 and 2021 also saw a rise in hate crimes against Asian-Americans fueled by feelings of resentment stemming from the pandemic. Victims experienced verbal and physical attacks in public, some of which resulted in fatalities. Such deplorable animosity was stoked in part by widespread misinformation and Donald Trump's racist rhetoric surrounding COVID-19's origin. A national outcry erupted after eight people, six of whom were Asian women, were killed in a shooting rampage at three spas in Atlanta, Georgia on March 16, 2021. This triggered a wave of Stop AAPI (Asian Americans and Pacific Islanders) Hate rallies denouncing anti-Asian sentiment across the country.

> WORDS Shu Fay Ung DESIGN Katherine Chang

3

et's face it—the period spanning 2020 and 2021 had not been the greatest time. Disaster after disaster seemed to ravage the world. Just when we thought it couldn't get any worse, we were slapped with renewed conflicts, absurd politics, and natural catastrophes. Here are some of the tragedies that shaped the years 2020-2021.

to it.

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On February L, 2021, Myanmar's military seized political power in a coup and overthrew the democratically-elected government led by Aung San Suu Kyi, leader of Myanmar's foremost civilian party. The insurrection followed the country's election in which Aung San Suu Kyi's party, the National League for Democracy (NLD), won 83% of the available seats in Parliament. Military leaders rejected this outcome with accusations of a fraudulent election. Millions have since gathered to protest against the ousting of civilian leadership; what began as a peaceful resistance quickly turned violent as the military escalated their forceful response against protesters. Over 800 protesters have been killed, including more than 100 on March 27, the bloodiest day of the crackdown. Protests are ongoing at the time of writing.

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Record-breaking wildfires ravaged Australia and the west coast of the U.S. amid one of the hottest and driest fire seasons in each country. Millions of hectares of land were set ablaze, destroying homes and endangering wildlife. Skies were lit an apocalyptic orange as thick smoke clouded the horizons. In Australia, bushfires burned more than 18 million hectares—roughly the size of Syria. New South Wales suffered the worst damage, with major cities such as Sydney and Melbourne suffocating in a smoky haze. In the U.S., fires ignited across California, Oregon, and Washington, burning more than 4 million hectares and producing hazardous levels of air pollution. Although wildfires are a common occurrence in these regions, climate change has played a significant role in escalating the severity of the fires in 2019-2020.

A rmenia and Azerbaijan clashed in a bloody war regarding the disputed territory of Nagorno-Karabakh, located in Azerbaijan, between September and November 2020. Killing at least 5000 people, it was the deadliest conflict the region had witnessed in nearly three decades. The war emerged from a simmering conflict that originated during the collapse of the Soviet Union: while Nagorno-Karabakh is internationally recognized as a part of Azerbaijan, its majority-Armenian population have rallied for unification with Armenia. With support from Turkish forces, Azerbaijan declared victory after a ceasefire and captured portions of Armenia and Nagorno-Karabakh. The conflict, however, might be far from over.

KARAB

I thas been over a year since the SARS-CoV-2 virus first emerged and spread like wildfire across the globe, infecting 178 million people and claiming 3.8 million lives. Social distancing became the new normal as masks took on a new significance medically, socially, and politically. Unemployment reached shocking heights, threats of eviction rained on tenants, and food insecurity swept the world into a hunger crisis. Students suffered as classrooms were replaced with tiles of faces on Zoom. Even beyond the pandemic, an impending mental health crisis looms with repercussions that will be felt for years to come. All of this has brutally revealed the inequality and injustice seeping in society, sparking mass protests and social unrest. The pandemic has undoubtedly engraved itself into historical records as one of the most defining events of the 21st century.

n August 4, 2021, an explosion caused by a storage of ammonium nitrate catching fire occurred in Beirut, Lebanon. From the epicenter at the port, shockwaves ripped through densely-populated neighborhoods and commercial centers, leaving a trail of debris, shattered glass, and collapsed buildings up to six miles away. The blast was even felt in Cyprus, more than 100 miles away. The disaster claimed the lives of more than 200 people, injured over 6500, and left at least 300,000 homeless as more than 70% of buildings were damaged. In the days following, the Lebanese government has drawn condemnation for their negligent handling of the chemicals and the corruption that led

HKEU



disasters of 2020-2021

research virtual games quarentine housing ditch day prefrosh experience caltech memes plants food

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words Nivedita Kanrar DESIGN Selina Zhou PHOTOS Catherine Kauber Stella Wang

REMOTELY RESEARCH

i thout a doubt research is one of the crowning jewels of Caltech's undergraduate program. Over 98% of Caltech undergraduates participate in a Summer Undergraduate Research Fellowship (SURF), an opportunity to work alongside some of the top researchers in their respective fields, and students often continue their research into the academic year. However, with the onset of the CO-VID-19 pandemic, undergraduates were instructed to leave campus and continue coursework from home indefinitely, and these in-person research opportunities quickly unraveled.

SURF was among the programs impacted by distance-learning, and the Student-Faculty Programs (SFP) office, which organizes SURF, worked quickly to help faculty transition approved projects to a remote setting. If that was not possible, the office assisted students with finding remote research projects with a different mentor. The majority of these new projects typically involved coding-an increasingly important skill not typically exercised in experimental or build projects. Given that SURF is a formative research experience that can impact career choices, mentors and administrators worked to actively support students via meetings, workshops, and virtual get-togethers. Altogether, these efforts retained 308 SURF students for the summer of 2021—approximately 90% of the typical SURF class size.

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Another victim of the pandemic was the experimental senior thesis project, which requires work in-person through their junior and senior years. With on-campus undergraduate research suspended through the 2020 Spring and Summer terms, many students had to adjust their expectations and goals for their theses. Some seniors returned for in-person undergraduate research in the Fall of 2020 but faced a vastly different research environment. Previously open, collaborative lab settings were transformed by COVID-19 safety protocols that mandated masks, social distancing, and limited lab occupancy.

The pandemic has clearly upended the norms of undergraduate research and has led to wildly divergent experiences for students. We interviewed two Caltech undergraduates to learn more about their research and summer experience during these unprecedented times.

CATHERINE KAUBER [23], a sophomore in Electrical Engineering, conducted her first SURF remotely with **DR. ASHISH MAHABAL'S** group. Her project was titled "Identifying Protein Products and Inhibitors to Target the 2019 Novel Coronavirus."

Physics major **STELLA WANG** [21] is completing her senior thesis, "Photoexcited charge carrier dynamics of graphene nanomaterials based on photoluminescence spectroscopy" with **PROFESSOR NAI-CHANG YEH'S** group at Caltech.

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BIG T: Your project is incredibly relevant to the current pandemic; tell us a bit about it. What was the motivation for the project?

CATHERINE KAUBER: Before the pandemic, I had been planning on doing a SURF characterizing the mechanical properties of granular materials. This project was not possible in a remote setting, so I worked with the SFP office to find a new mentor. I was lucky to find one offering a computational biology project, as that was another field I was interested in. Dr. Ashish Mahabal (Caltech PMA and Center for Data-Driven Discovery) had started a project looking at peptide based solutions to COVID-19 and agreed to mentor me. Peptide based solutions are promising because they have targeted and versatile applications and can be produced pretty quickly. Most of my project was spent identifying sequences and genes that are highly conserved across different COVID-19 genomes, as these make promising antiviral drug targets.

What skills did you learn during your SURF?

I learned a lot about computational biology and data science tools. This was the first long coding project that I had worked on, so I also learned more about proper documentation.

Given that this was your first SURF experience, did you find it meaningful?

I did think my experience was meaningful. My project, and I'm sure most of the other ones as well, involved a lot of coding. I think coding is a pretty important skill for any scientist to have, so I was grateful for that experience. I also thought my SURF helped me improve my scientific writing. Of course, I wish it was in person, since we missed a lot of the collaboration and fun activities that usually happen on campus during SURF, but the SFP office worked hard to try to preserve that.



CATHERINE KAUBER '23 *Electrical Engineering*

STELLA WANG '21 Physics



BIG T: Tell us a bit about your senior thesis work.

STELLA WANG: My senior thesis work is with the Yeh group (Caltech PMA) in experimental physics. In the summer after my sophomore year, I did a SURF with the group, where I studied a graphene material with weird opto-electronic properties [graphene nanostripe]. It luminesces and is a very absorbent material, properties unheard of in other types of graphene. My senior thesis continues this line of inquiry where I'm trying to more closely look into these effects.

Physics doesn't have a senior thesis requirement, so this is all pretty voluntary on my part. I am really interested in my thesis work and plan to pursue a Ph.D. in experimental physics [and] doing research similar to what I'm working on now.

The pandemic restricted in-person research through the spring and summer terms. How did this impact your project?

It's not really possible to do my project virtually, since my work is very based on synthesizing and growing the graphene material, and studying it under a microscope. I couldn't adapt my SURF for remote work, so I was really on the hunt for something to do over the summer. I'm not at all a computer science person but I got lucky with the Caltech Career website. An economics professor at Caltech was offering a remote project on studying organ donation matching markets that required limited coding skills, so I applied and got the position for the summer. I thought about doing a senior thesis for a long time, since I knew I wanted to go to grad school. But I really knew I wanted to do it when my SURF got cancelled and I knew I was losing a summer of research experience. I didn't officially have a plan for the thesis until term started though. It took awhile to get confirmation that I would be allowed to do the thesis/on-campus work. So it was a rush at the end of summer to submit a proposal and figure out a plan.

I moved back to Pasadena for Fall term and conducted research in person. I wear a mask at all times and have limited time in the lab. To minimize interactions and enable contact tracing, I have to schedule when I'm in, and stick strictly to that schedule. It's difficult because I have to police when I can go in, and these timings aren't really reliable.

What's the current status of your senior thesis?

As of mid-December, I gave a thesis presentation to my committee. A lot of things have broken, and I haven't gotten to do things that I was hoping to have done by now. The months of January to May will be very crunched. Even if we didn't have the COVID-19 pandemic, I honestly can't say the experience would be easier. Research always has things going wrong, and that's what makes it hard. If things went right then everyone would do it, and we'd have made a lot of progress by now. As a researcher, you get the skills to cope with roadblocks, and the pandemic is testing this at another level.

research 🔵 🔵

ver the past year online games have taken quarantine activities to the next level, helping countless students connect (admittedly sometimes impeded by slow Wi-Fi) with peers. As students transitioned to virtual learning and communities, various events also transitioned to a gamified experience.

Whether it be a casual night with friends, an intense tournamentstyled Interhouse showdown, or a quick ice breaker for incoming students, there seemed to always be the perfect game waiting in queue. Here, Wii dive into popular games that helped us make the Switch to virtual life.

AMONG US

So who is the imposter? Can you realllly trust anyone? Behind that colored astronaut suit, who are you, really? No, that cute plant on the top of your head really doesn't help.

With astronomical popularity, *Among Us* was undoubtedly one of the most publicized games during quarantine. As a crew prepares the spaceship for departure, certain players wreak havoc while trying to avoid suspicion, and it's up to the players to figure out who really is the imposter.

An easily accessible and low time commitment game, *Among Us* was the go-to for many virtual gatherings, ranging from house activities to lab socials alike.







Jenny Ji & Cindy Cao

Lucy Gao

Queue up! It's time to take a trip to Summoner's Rift. The 2009 multiplayer online battle arena game, *League of Legends*, found a new surge in popularity as the pandemic took its toll. As two teams of five players race to defeat the enemy team's Nexus, the game is all about strategy, execution, teamwork, and communication (toxic chats and Mastery emote flexes all included).



I f you haven't yet, start the journey now in the new openworld role-playing-game from miHoYo, the multibillion hit known as *Genshin Impact*. Featuring gorgeous artwork and breathtaking music, the April 2021 game became an instant hit as millions flooded to join the party.

Players are transported to the fantasy world of Teyvat, where the game tests their stamina as they explore and interact with their surroundings. Here in the world of *Genshin Impact*, Techers could master the elements—in a way much different than in Ch 1a—and control the fundamental forces in ways that violate the lessons from Ph 1a. A welcome escape from the stresses of classes, *Genshin Impact* also

helped reconnect students through its co-op mode and provided treasured interactions outside from collaboration on grueling sets.



As the first quarantine game to break the market, *Animal Crossing: New Horizons* catered to what every quarantined individual desperately wanted—a dream getaway from reality. Offering the chance to turn a personal island into an island paradise (or anything really, for that matter) with thousands of opuntless hours of creative play.

tions, the game presented countless hours of creative play.

With the possibility to hop between islands, *Animal Crossing* helped Techers recreate the experience of going between rooms and exchanging casual conversations. The Caltech Library even attempted to mimic the in-person experience by building a SFL (Sherman Fairchild Library? No—Stress Free Library) Island, offering a relaxing live stream in the Animal Crossing realm as an alternative to previous therapy dog visits and jigsaw puzzles. Check out https://www.youtube.com/watch?v=glTgBi5ruFg for a relaxing SFL play through!

Skribbl.io/



Round 2 of 4

ca_tech

#1	bruh Points: 2301	<u>S</u>
#4	potato Points: 1039	Q
#5	pitachip Points: 753	Q
#2	meme Points: 2218	C
#3	qwerty Points: 1337	
#6	bleagh Points: 502	E

T hanks to the pandemic, free online games such as *Skribbl.io* and *Codenames* became the starter pack for any ice breaker Discord session as they offered simple and easily accessible virtual interactions. Whether it be guessing what the interesting blob on screen really is or dancing around a field of word-based landmines, these simple yet surprisingly difficult games offered hours of endless fun.

To spice up the word banks, some Techers even added their customizable words to *Skribbl.io*. After all, what else can a

box mean other than QED? And how can it be that the curious looking mishmash of vegetables and unknown red blob isn't suggesting Red Door?

bruh is drawing now! pitachip: orange potato: what??? meme: uhhh meme: idk qwerty has guessed the word! qwerty: nice pitachip has guessed the word! potato has guessed the word! bleagh: ???? bleagh: catteck bleagh: catteck bleagh has guessed the word! The word was 'caltech'

virtual e

quarantine Housing

PHOTOS WORDS Various Jenny Ji _____ Cindy Cao

DESIGN Katherine Chang

A fter the undergraduate residences closed in March 2020, most students moved back home to their families. However, many have since decided to return to Southern California or move elsewhere, often living with small groups of friends, to recreate somewhat of a college residential experience off-campus

Upperclassmen tended to move in together with existing friend groups. "We all work together to make the house function in terms of group cooking, cleaning, and the works, and I like that," said **ANDY TONG [22]**.

YUYING LIN [22] recounted similar experiences. "Being off campus definitely requires me to think a lot about the food I'm going to eat, doing the dishes, and things like that which I didn't need to worry about on campus," said Lin. " I feel more like an adult living off-campus because I'm being self-sufficient and taking responsibility for all the aspects of my living." On the flip side, they were able to welcome a household cat that roams freely around the apartment—an impossibility on campus.





1.daily dinner dining Michelle Hyun [22], Chan Kim [22], Vanessa Mechem [22], Andy Tong [22], and Anish Senapati [11] made dinner together and would normally eat as a house unless someone had a class at that time.

2.on the streets of Korea Austin Harvard [22], Thomas Gallup [21], Esther Kim [21], and Andy Rothstein [21] posing for a group photo in Bukchon Hanok village in Seoul, South Korea.

3.beavers pretending to be bruins Alice Cheng [24], Bridget Yang [24], Angel Wang [24], and Sarah Yun [24] (not pictured) lived less than two miles from UCLA, so they visited it.

4.the Killroom^(TR) Eric Moreno [21], Richard Dargan [21], and Allyson Trussell [21] chilling on the couch in the Killroom living room in Pasadena, California.

A mong the housing options available, renting house-affiliated apartments is an attractive choice. An example is the "Killroom apartment," which has been inhabited by Skurves for so long that the original meaning of the name has been long lost. **ERIC MORENO [21]** was one of the residents of the "Killroom" during the academic year. He and his housemates originally wanted to be closer to campus in case it reopened, but although that never happened, he still enjoyed being able to walk around campus. "I would encourage everybody to spend at least a year off campus. Your Caltech experience will be radically different, and you will leave a more well-rounded person," advised Moreno.

> A cross the Pacific Ocean ANDY ROTHSTEIN Stayed with two other Techers in Seoul, South Korea. One of his housemates had spent a gap year in Korea, and when the pandemic hit, Rothstein decided to join him there. While navigating time zones was a challenge and he missed running into fellow students everywhere, he enjoyed his time in Asia. "For New Year's, we stayed up until sunrise and went on a hike on a mountain next to our apartment," reminisced Rothstein. "It was awesome seeing the first sunrise of the new year with the entire Seoul skyline."

BRIDGET YANG E24] met her roommates through social media and moved with them to West LA during winter term. "Living with other frosh really enhanced my learning experience as it was nice being able to attend online lectures and work on psets together," said Yang.

A staple of the pre-pandemic Techer lifestyle, late-night adventures were still common amongst groups of quarantined students. Whether it be midnight power outages-turned poker games or spontaneous hair-dyeing sessions, Techers made the most of their situations and carried on the spirit of Caltech life within their new confines.







quarantine housing 1.fairy dust Jamie Littman [22] (left) and Alex Bardon [22] (right) enchant Thomas Barrett [22] (center) in a themed costume contest during Page Ditch Day. 2.3.shopping spree Skurves spotted in Rodeo Drive, Beverly Hills. 4.young 'n old Avery alumni help guide underclassmen through Ditch Day activities. 5.screening fun Skurves attempt to form a pattern in Discord's grid view. b.pokemania Zimo Zhu [21] implemented a custom Pokémon game using a ROM hack as part of Avery Ditch Day. 7.family feud Housemates (left to right) Andy Tong [22], Josey Zhang [23], Alice Yang [23], Eilleen Zhang [23], Justin Hyon [23], and Akshay Gowrishankar [23] struggle through a grueling stack puzzle together. A.tree-bound Ruddock president Paulina Ridland [21] is duct-taped to a tree. 9.ready player one Circuit board designed by Julian Sanders [21] for Ruddock's Ready Player One stack. 10.bikini bear Isabel Swafford [22] showcases her best impression of a polar bear for Page Ditch Day's costume contest.

















WORDS Shu Fay Ung Jenny Ji

DESIGN

STILL NEVER DITCHING

or the second year in a row, Techers turned virtual for one of the most celebrated campus traditions-Ditch Day. While a typical in-person experience wasn't possible, Houses did their best to make the experience one to remember.

There was pressure for greater innovation this time around after a unique Ditch Day the previous year. While planning for Avery Ditch Day, JAMES PARK [21] recalled: "We bounced around a couple of ideas for a virtual Ditch Day: Jackbox games, online multiplayer games, etc., but all of them felt overused after nearly a year into the pandemic." To address this issue, the senior Averites eventually decided to produce an original interactive game complete with graphics and a storyline. "This meant that we had to build everything from the ground up," Park elaborated, "Website development became our highest priority, but there were also graphics to design, not to mention puzzles, music, character art, [and] story."

As conditions surrounding the pandemic improved, some stacks were able to incorporate in-person components into their activities. Senior Skurves took advantage of this, encouraged by the close proximity of several Ricketts House members who lived near campus. "There were a few virtual stacks that took our lil froshies on a virtual journey, and there were also some in-person (socially distanced) off-campus stacks," an anonymous senior commented, "I believe one was even in another state!"

Ditch Day usually takes weeks-if not months-of planning, and having to organize through the Internet only made this task harder. "Motivation, especially towards the end, was a huge factor. Managing an entire stack is pretty hard to do virtually, and with our large stack groups it could be a challenge to keep everyone engaged," said Park.

So, what was it that kept seniors going? "The frosh year, in particular, had a very tough virtual year, and I wanted to make sure that they could look forward to a fun Ditch Day," explained Park, "My main hope is that they (and the other underclassmen) feel inspired enough to work just as hard for their respective Ditch Days-there's no better feeling than watching people appreciate something you poured your heart into." In addition to preserving the tradition, successive generations of students work to improve upon the experience with each iteration. As a senior Skurve described: "Talking to alums before my time, consulting with my upperclassmen, and going through the process myself, I've realized that Ditch Days will become monotonically better, growing on the wisdom of their previous generations."

ditch 🔵 day 🔵 Caltech

Virtually-a-Frosh

Living Learning Groups

In previous years, freshmen spent their first weeks at Caltech exploring the campus, roaming Pasadena, and most importantly, meeting many new people in their various ventures. However, with the arrival of an unprecedented pandemic and resulting shift to fully online instruction, the Class of 2024 experienced a very different start to their Caltech careers. The long-standing tradition of Rotation was delayed, leaving frosh "homeless" during their first term. In place of house-based support systems, Living Learning Groups (LLGs) were created to provide frosh with various mental and social resources to assist them in adapting to Caltech. Based on frosh camp groups of previous years, LLGs were composed of eight freshmen and two upperclassmen Frosh Class Counselors (FCCs) and were assigned an RA and Title IX Advocate.

Although LLGs went through orientation together, how they interacted throughout the fall term itself varied across different groups. FCC **REID BANCIELLA [23]** and his partner **MADDIE SWINT [23]** checked in weekly with their frosh and "mainly just hung around and talked about any questions they may have had. Most talks concerned SURFs, study habits, specific issues with classes, and things like that." Banciella's group was not unlike other LLGs that met regularly. As for groups without a set schedule, occasional game nights were the norm.

Aside from general meetings with their FCCs, prefrosh connected with those in their LLGs in different degrees of familiarity. Freshman HEIDI REDMOND'S [24] interactions primarily remained within her LLG: "I loved always having a group of people that I knew and would meet with every week, especially in a virtual setting when it's hard to meet new people and you could go a long time without seeing others face to face (at least virtually)." As for CLAIRE ZHANG [24], she collaborated on sets with her whole LLG before branching out to frosh outside of her group as the term progressed. "I talk to some members in my LLG outside of collaboration settings pretty often," Zhang explains, "[and] by the end of term, I interacted with both frosh in and outside of my LLG."

At its core, LLGs adapted to meet the needs of frosh. "I hope that I've been able to provide helpful information to the frosh, and it generally seems that they are receptive to the information that we, as FCCs, share with them," remarks FCC **TYLER COLENBRANDER [23]**. "I'd also give the frosh themselves a lot of credit since they've adapted well to these unusual circumstances and seem to be making the most of it."



Discord Hubbub

ndeed, most of thevirtual interactions amongst the Class of 2024 were spearheaded by the freshmen themselves on Discord, a messaging platform that evolved into the central social and academic hub. Started by BELLA **MENDOZA** [24] as a place for "people who didn't take AP chemistry in high school ... to connect and work on the first Ch 1a set," the server "Shafted by our high school study club" (nicknamed "Shafted") grew to be integral to the frosh experience. "The format with virtual study rooms seemed to really click, so we expanded to other core subjects and typical frosh classes, like





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Ch 3a and CS 1," explains Mendoza as she reflected back on the rapid growth of the hubbub.

Whether it be exchanging ideas through the various text chats, grinding through a tough set together on virtual whiteboards, or hopping in a voice channel to check answers, the Discord servers enabled a dynamic collaboration space. According to KYLA YU-SWANSON [24], the servers "are doing a phenomenal job connecting the students compared to other universities... and give a sense that there are lots of other students who are friendly and willing to help if anyone needs it."

These study servers were not only key to freshman academic success but also helped to connect the frosh socially. Students sparked lively discussions in the general channels, and those connections continued in the more informal servers like "Cultech." **NICO ADAMO [24]** shares that "'Shafted' and 'Cultech' really were my Caltech experience this year. They were a place where you could talk through sets with people, or occasionally just launch into 300+ message-long tirades about the weirdest stuff imaginable...I ended up meeting some of the brightest and funniest people I ever have. I don't know what I would have done without them." Moreover, frosh got together to hatch class pranks as they exercised their sense of mischief. One distinctive prank was executed during the first and only synchronous Ch 1a lecture: students set their Zoom backgrounds to a funny edit of **PROFESSOR NATE LEWIS** wielding a Minecraft diamond sword. The picture is now the iconic "Shafted" server image. All in all, "Shafted" and Discord in general were able to bring frosh together who were once strangers but are now an especially tight-knit class with interesting connections fostered by the unique circumstances.



Socially-distanced Meetups



Despite the ample interactions occurring online, many frosh craved in-person interactions with their fellow classmates. Fortunately for some of them, they were a mere drive away from one another. Working creatively around each state's COVID-19 restrictions, several meetups in various states across the country were informally planned prior to the start of the fall term. At these outdoor gatherings, prefrosh played various sports, explored nearby parks and landscapes, and got to meet each other face-to-face for the first time.

Those in the Pasadena area were able to visit Caltech's campus as part of their meetup. For **SASHA TOLSTOFF [24]**, it was a way for her to confirm that the school was where she belonged. Being on campus "felt like the warm and cozy feeling of coming back home after a long trip out of town" she says, where "everyone embraces each other's weirdness." Furthermore, she appreciated the warm and welcoming atmosphere created by the other prefrosh and feels that "the students are what bring the light and the energy to the campus, and the campus is the torch that kindles it, much like the Caltech logo!"

Undeniably, everyone is excited about the time when they will be able to meet the whole class in person, collaborate together, and add to the light that makes Caltech shine as brightly as the torch does.



(?)

ACTIVE NOW



virtual backgrounds to a photoshopped image of Professor Lewis on the first live Zoom call. 2-masked together Prefrosh from Illionis stand together for a picture.

3.volley it up Texas Techers play volleyball together.

4.techers at bay Prefrosh from the SF Bay Area hang out at the beach.

5. campus visit Pasadena-area prefrosh pay a visit to the Wedding Cake.

b.lo-fi lewis Nico Adamo [24] created a lo-fi and Elton John remix of Professor Lewis's Ch 1a lectures as a way to practice producing music. Spread. a look into discord The general spread is modelled after "Shafted" server.



Haruna Tomono

prefrosh ••• (1) experience ••• (1)



PHOTOS Amy Wang Alexander Zlokapa

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words & design Shu Fay Ung

ABOARD ABROAD

n March 23, 2020, the United Kingdom (UK) went into a COV-ID-19 lockdown. As travel came to a halt, so did the dream of studying abroad for several students. Techers enrolled at the University of Cambridge—the only study abroad program at the time—were forced to return home one week earlier than their original end date. On the other hand, the Cambridge students who were meant to spend the summer of 2020 conducting research at Caltech were forced to postpone their exchange to the summer of 2021, when both in-person and remote research attachments were planned.

As the pandemic persisted through the summer and into the fall of 2020, a growing cloud of uncertainty loomed over the 2020-2021 study abroad programs. Initially, the decision was to cancel them. Administrators reversed their conclusion, however, after students and parents expressed their interest in proceeding with studying abroad. All destinations except the University of Melbourne, which was restricted since Australia sealed their borders, continued accepting Techers for their programs. In the end, nine students traveled overseas to institutions including the University of Cambridge, the University of Edinburgh, and the Technical University of Denmark (DTU), while some others chose to defer their term abroad to 2021-2022.

On the contrary, because of online learning, there was a lack of exchange students enrolled in Caltech this past academic year. LAUREN STOLPER, the director of the Fellowships Advising and Study Abroad (FASA) office, lamented that the pandemic has stifled the sharing of culture from incoming exchange students. Thus, she looked forward to hosting 12 exchange students at Caltech in the summer of 2021 and the 2021-2022 academic year. Juggling between quarantine policies, vaccination status, and visa matters in organizing their arrival to campus is no easy task. "The real problem is getting visa appointments," Stolper revealed. "It's like a lottery-you have to be lucky to get one of the appointments."

The application window for 2021-2022 study abroad programs has closed. Among the successful applicants, seven will be going to the University of Cambridge, five to

DTU, two to the University of Edinburgh, one to École Polytechnique, and another to University College London. Stolper described the process of sorting out the logistics as "lots of wheels churning." For countries that required quarantining upon entry, the FASA team had to ensure that students arrived earlier than their program start date and were provided with food and accommodations. Possible changes to the allocation of financial aid due to the supplemental cost of quarantine also had to be considered.

The FASA team has undoubtedly worked hard to give students a chance to obtain unique educational experiences abroad even during a pandemic. Stolper looks forward to 2022 when things hopefully return to normal, and international travel is able to resume safely. With the availability of funding, the FASA office will continue to support students eager to expand their Caltech experience with foreign exchanges.



HEY, MUKKER!

chemistry, and sustainability at Edin-

burgh. Additionally, she took a chemi-

cal engineering course at Caltech by

correspondence. "It was great to expe-

rience a different type of learning be-

cause the content was much less theo-

retical," she commented. There was no homework and grades were assigned

based on the final or projects, which al-

lowed for a flexible schedule and ample

time for Wang to explore Edinburgh,

St. Andrews, and London. Of course,

the threat of contracting COVID-19 was omnipresent. "In fact, one of my

flatmates tested positive, so our entire

12-person flat had to quarantine for two

weeks," she said. To facilitate contact

tracing, individuals signed into a mobile

application whenever they arrived at an

indoor venue, which kept track of their

to study abroad, and even though it was

during COVID, I'm glad I made the de-

cision to experience the wonderful city

and make great friends there."

"I'm so grateful that I got the chance

location history.

MY WANG [2]] has always A wanted to study abroad. In her senior year, she knew she had to take her last chance to do so despite the pandemic, enrolling in the fall term at the University of Edinburgh. "At the time, pandemic conditions were better in the UK, so I thought that I would be able to have a fuller college experience in Edinburgh with hybrid-learning than being completely remote with Caltech again," she explained. "Furthermore, even with more restrictions than usual and fewer travel opportunities, I could still become immersed in a different culture and lifestyle." She ultimately chose Edinburgh based on the recommendation of upper-0 classmen and the alignment of courses with her graduation requirements. "Plus, Edinburgh gives major Harry Potter vibes," she added. Wang took courses in chemical engineering,

plodge Porter's lodge. Where Cambridge students collect keys and mail.

3.ancient grounds A courtyard in St. John's College, Cambridge. **4**.golden hour Amy Wang posing for a shot on the Tower Bridge in London. **5**.geometric architecture The Great Court of the British Museum. **b**.going around Wang (middle) with fellow Caltech exchange students Sarah Zou [22] (left) and Charlotte Park [22] (right) on the London Eye. **7**.lunch with a view Wang and alumnus Jonathan Chan [20] enjoy a meal at Duck & Waffle in London.



study •• 「

MEET AT PLODGE IN FIVE?

A LEXANDER ZLOKAPA **E213** spent his Fall term roaming the historic grounds of the University of Cambridge and its surrounding city. An aspiring physicist, he was attracted to the university's long tradition of research in physics. "It's hard not to be inspired by the many physicists who worked there! Especially after a few months of remote learning and research, I was eager to explore Cambridge as safely as possible," he said. He took four physics courses, which incorporated a mix of online and in-person components. Zlokapa particularly enjoyed "supervisions"-Cambridge's equivalent of recitations where one to three students work with a graduate student, lecturer, or professor through assigned problems. "We had to present our problem set solutions to our 'supervisors' on a whiteboard. I really liked the chance to discuss material directly in such settings, and the small number of people made it both safe and maximally educational!"

Despite extensive testing and rapid quarantining, the risk of contracting SARS-CoV-2 remained high. In his hall at St. John's College, one of Cambridge's residential colleges, approximately half of the residents tested positive at one point. Self-isolation protocols were strictly enforced. To avoid unnecessary exposure, food was arranged to be delivered to the students' rooms. "I was very careful, so I luckily remained safe the entire time!" Zlokapa exclaimed. He engaged in socially distanced activities with Cambridge students, such as going on walks, having tea, and visiting local museums. "One of my favorite places was the Cambridge Market Square...The market has been around since the Middle Ages, and it's right next to the Cambridge University Press bookstore, which is the best bookstore I've ever seen. Everyone was very nice, from the Italian cheese vendor to the old English baker who queried my thoughts on Brexit," he recounted.

/R/CALTECHMEMES

PHOTOSWORDSDESIGNVariousLucy GaoCatherine Ko



/r/CaltechMemes

Join

About Community

During the pandemic, students everywhere looked to memes as a source of cheer and connection on the internet. Here are some favorites sourced from Caltech discord servers that can hopefully put a smile on your face.













at home in **n a t u r e**

s campus continues to lie in quietude, Caltech's undergraduate students remain scattered across the country and beyond. Sceneries unique to each student's pandemic residence replace typical views of wisteria in the Church-Kerchoff courtyard or pink blooms around Turtle Pond. Those in places with climates more temperamental than Pasadena's witness fiery, orange foliage and experience chilling snowfall. Others notice a sense of beauty in the plants growing outside their windows or in their backyards. Whatever the case may be, everyone seems to appreciate the outdoors a little more this year as they readjust to a new normal. Despite the ever-changing state of the world, nature serves as a beautiful reminder that life goes on.

h.falling Vibrant, orange leaves adorn the trees along a peaceful path in Burlington, Vermont.
c.sunshine A yellow hibiscus basks in the golden sunlight some-where in Hawaii.
budding A deep purple bud be-gins to bloom, welcoming the warm weather

gins to bloom, welcoming the warm weather. 4.silky The smooth petals of a blush pink rose open, inviting pass-ersby to take a breath of its sweet scent. 5.waterdrop Beads of water gather atop lotus pads after a misty San Francisco shower. b.starburst Warm sunlight fil-ters through a forest of ferns as the sun sets at the end of the day.





З







рнотоз Catherine Ko Ananth Malladi Haruna Tomono

WORDS & DESIGN Haruna Tomono





LOCKDOWN FOODIE

Albert Tseng

DESIGN

Chris Wang

PHOTOS Alycia Lee Albert Tseng Chris Wang

been, being at home has returned us to old but familiar tastes. Here are some of Techers'

s tough as the remote year has favorite recipes during quarantine that helped sustain them through tough times. We hope you'll find them as tasty as they did!





ALYCIA LEE @ALEAFCIA

y favorite quarantine recy ravorroe quarenter pipe is a marbled cacao & black sesame cake I made to celebrate graduation. This marbled cake is pure-but healthy-decadence. Every calico slice is a unique color blend of cacao dark brown and black sesame speckled gray, which gives the cake its namesake look. In addition to the impressive aesthetics, the richness of flavors in this cake is unparalleled: the earthiness and bitterness of cacao meshed with the nuttiness of black sesame is truly an endorphin releaser in every bite. Marbled baked goods are so fun to make too as the process involves artistic ingenuity to achieve the staple patterned look and texture.

What's even sweeter than this cake

are the memories and accomplishments I celebrated upon graduating from Caltech. My undergrad years comprised an unforgettable experience—I will forever cherish the good (and occasionally stressful) times, and the people I've met along the way. A belated congrats to the class of 2021!

Be sure to check out @aleafcia on IG for more healthy & unbeleafably good recipes! I've created vegan, zero sugar, whole grain, dairy-free, and/or gluten-free recipes on @aleafcia for muffins, breads, pies, and cakes. I also love to share my breakfast bowls (oatmeal & smoothie bowls), and salads too. Would love to see more Caltech faces on IG!

MARBLED CACAO & BLACK SESAME CAKE

The recipe is vegan, refined sugar-free, uses 100% whole wheat flour, and the frosting can be made dairy-free.

Prep time: 20 minutes Cook time: 35-40 minutes Servings: 6-8 slices

Ingredients

- Cake • 2 ½ cups whole wheat flour
 - 1 tsp baking soda
 - 1 ½ tsp baking powder
 - Pinch of salt
 - 2 ripe bananas
 - 1 cup unsweetened almond milk ٠

 - $\frac{1}{3}$ cup + 1 tbsp BareOrganics superfoods cacao powder (use
 - my code and link on my IG @aleafcia for 20% off) ¼ cup black sesame powder

 1 cup of plain, nonfat Greek yogurt (or a dairy-free yogurt of Frosting / topping

- Spoonful of NuNature Superfoods cacao and date spread (use my code and link on my IG @aleafcia for 10% off)
- Made In Nature choco crunch figgy pops
- Dessicated coconut

• Grease a 9" pie pan or cake pan with oil or line with parch-Instructions

- Combine whole wheat flour, baking soda, baking powder,
- Mash the bananas, then add to a separate bowl and mix with and salt in a mixing bowl. unsweetened almond milk and avocado oil.
- Combine dry and wet ingredients. Mix until uniform.
- Spoon half of the batter into another mixing bowl. In one bowl, add $\frac{1}{3}$ cup cacao powder and mix. In the other bowl,
- add black sesame powder and mix. Alternate between spooning the cacao batter and the black sesame batter into a greased 9" pan to create the marbled
- Bake at 350°F for 35-40 minutes. Once done, let it cool for 20
- minutes before adding frosting. For the frosting, mix Greek yogurt with 1 tbsp cacao powder
- Frost the cake, and add toppings of your choice (I've added dessicated coconut and choco crunch figgy pops). Enjoy!

CHAR SIU (CHINESE BBQ) PORK

A traditional Cantonese style of BBQ meat. Serve with rice or noodles, or use it as filling in steamed buns.

Prep time: 20 minutes Cook time: 1 hour Serves: 8 people

Ingredients

- 3 pounds of pork belly (juicier and fattier) or butt (leaner) ٠
- Honey
- Hot water

Marinade

- 3 tbsp paprika
- 3 tbsp regular soy sauce
- 1.5 tbsp dark soy sauce
- 1 ½ tsp salt
- 1¹/₂ tsp garlic powder
- 3 tsp sugar
- 3 tsp five spice powder
- 6 tbsp Shaoting Wine

Instructions

- Slice the pork into strips roughly one to two inches thick and three to four inches wide. Don't trim the excess fat as it adds flavor during roasting.
- In a small bowl, mix all of the marinade ingredients well.
- Reserve 2 tbsp of marinade in a separate bowl. ٠
- In a large baking dish, place the pork strips and rub with the marinade. For more flavorful pork, pour the marinade and lave it in the dish. If doing so, be sure not to overmarinate.
- Cover and leave in the fridge overnight, or for at least 6 •
- Prepare a charcoal grill and heat to 300°F.
- Brush the pork strips lightly with oil.
- Cook the pork on the grill, turning occasionally, until internal temperature reaches 150°F.
- Dilute 2 tbsp of honey with 1 tbsp of hot water and 1 tbsp of
- When the pork is almost ready, glaze with the diluted honey mixture. Glaze multiple times to taste.





My favorite quarantine recipe is these cat ice-box cookies! Although it requires some wait time, the rest of the prep is easy, and they're super cute! They'll store for a couple days in an airtight container as well :)



ALBERT TSENG @SHREKTRIC.SUCCULENTS

These cute cookies are easy to make, but look and taste good! CAT ICEBOX COOKIES

Prep time: 1 hour Cook time: 15 minutes

Servings: 10-15 slices

150 g room temperature unsalted butter Ingredients

Dough

- 60 g powdered sugar

- 1g salt 3 g vanilla extract • 1 egg
 - 290 g cake flour (10 g reserved)

 - 30 g almond powder 1 g baking powder

 - 3 g cocoa powder 3 g dark cocoa powder
 - •
 - Milk

Decorations • Dark chocolate

• White chocolate • In a large bowl, gently stir the butter until it's fluffy. Slowly add powdered sugar and salt to bowl. Mix well with a

Instructions Add the egg and vanilla extract, and mix well with a whisk.

- Sift in 280 g cake flour, 30 g almond flour, and 1 g baking powder. •
- Remove 1/5 of the dough and split it further into two halves. Mix one ball with the normal cocoa powder. Knead gently with

- with one ball with the normal course powers. Allow Sentry with your hands. As the dough is sticky, gloves are recommended. Repeat with the other half using black cocoa powder. Add 10 g cake flour to the unused dough, and knead it.

 - Place the white dough on a sheet of parchment paper, and shape it into a log. Slightly flatten the upper area so it resembles a Take two thirds of each colored dough, and roll it into a thin log Take two unitus of each colored uough, and ton it into a unit og the same length as the white log. Place these on top of the white log these roll the three logs into a calindrical chang. Chill in the
 - .
 - lue same length as the white log. Flace these on top of the white log, then roll the three logs into a cylindrical shape. Chill in the forecast for at locat one hour Shape the remaining dough into long, thin triangles the same
 - length as the log.
 - length as the log. Brush the top of the log with milk, then stick on the triangles. Cut into slices about 1 to 1.5 cm thick. Arrange on parchment ٠
- Allow cool for 10 minutes. Melt chocolate in a double boiler, and paper on a baking sheet. Bake at 160°C for 15 minutes. use a piping bag to add decorations!
- food 🌒 🌑

X O R

commencement afterlife clubs and organizations athletics houses students yearbook staff



onto the next stop

J une 12, 2020, seemed not so long ago, when—for the first time in Caltech history—a commencement ceremony was celebrated online. While we all hoped to be able to gather and celebrate the next class of graduates in person, COVID-19 continued to impede that possibility. Thus, after a year of remote learning, the class of 2021 capped off their undergraduate journey with the second virtual commencement ceremony.

ОЬь

Thanks to the vaccine, the pandemic situation this spring was more optimistic than the last. As vaccines became widely available and vaccination rates increased, the coronavirus' rampage in Los Angeles County was temporarily tamed, and students petitioned for an in-person ceremony following the reopening of California and the example of neighbouring schools such as the University of Southern California. In the end, the institute organized a limited in-person commencement celebration on campus in accordance with updated local health protocols. Up to 300 fully vaccinated bachelor's, master's, and doctoral degree candidates gathered at the South Athletic Field to view a screening of the virtual ceremony in the company of their peers.

"These are the best of times, and these are the worst of times," remarked distinguished speaker Norman R. Augustine, retired Chairman and CEO of the Lockheed Martin Corporation. He, along with several other speakers, commended the resilience of this year's graduates in earning their degrees under the trying times that surround the pandemic. The challenges do not end there, however. Struggles, disappointments, and failures are inevitable down the road. "What matters is...'do you get back on your horse?"" quoted Augustine from former General Electric CEO Jack Welch. Alumnus **MASON SMITH** [09] also advised graduates to "truly cherish the struggle, that feeling of being lost or unsure before everything comes together and you get the right solution." One is set apart from others through one's degree of comfort with difficulty, which can enable one to tackle formidable problems and take the road less travelled.

Graduating students and their families were invited to enjoy a celebratory toast with **PRESIDENT THOMAS ROSENBAUM** and **PRO-FESSOR KATHERINE FABER** ON Zoom following the ceremony. Participants joined the call from all around the globe, toasting champagne or wine as they congratulated the new graduates.

Nevertheless, the Caltech chapter in the lives of graduates has not completely ended. In the fall of 2021, the institute has planned an in-person celebration for both 2020 and 2021 graduates together with their friends and family. At last, graduates will experience the long-overdue walk across the stage accompanied by the reading of their names. Hopefully, the event will be able to resolve the Caltech storyline of the newly minted alumni with a satisfactory period.





1.2. cloudy with a chance of confetti Graduates celebrate with confetti and a toast of champagne.







3.virtually together The virtual commencement ceremony was screened to an audience of graduates. **4.rix red** Graduates of Ricketts House gather for a photo. **5.orange is the black** Matthew Kim [21], Jethin Gowda [21], and Matt Riker [21] pose for a photo while sporting Caltech's traditional orange stoles. The only impossible journey

is the one you never begin.

It's ok to leave this Earth without knowing what Green's function is actually for.

Commencement speaker Maryam Ali [05]

Now the world awaits you.

Commencement speaker Christopher Blaszczak-Boxe [M.S. 01, PH.D. 11]



AFTERLIFE



-068

Your communities Hashtags you follow ^ # Avery # Blacker # Dabney # Lloyd # Page # Ruddock # ARC # ASCIT # IHC # CCF Show more

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Start a post

Caltech likes this.



Alex Cui • 2nd Incoming ML Research Scientist @ Waabi | ex-Uber ATG, Facebook | UofT, Vector, Caltech

俞

Home

2

Mv Network

. . .

. . .

Jobs

Upon graduating with a degree in computer science, Alex Cui [21] will be working as a machine learning research scientist at Waabi, a startup developing self-driving technology. He will concurrently pursue a master's degree in Computer Science at the University of Toronto, supervised by professor and CEO of Waabi, Raquel Urtasun. As a frosh, he was one of the people involved in building a giant Santa hat on top of a "library to be named"—a cherished memory of his. Cui will also fondly recall the late-night noodle hours with his Bechtel suitemates and tossing apples on a fork during Blacker's house dinners.





Arushi Gupta • 2nd Caltech Math Major ('21)

Not a stranger to cryptic mathematical theorems or equations, Math major Arushi Gupta also has some enigmatic plans (not to be revealed!) in store after Caltech. However, she is probably not a mystery to many—Gupta led the Academic and Research Committee (ARC) during 2020–2021 and worked hard to alleviate students' academic concerns. Her favorite memories are rotating into Dabney and making the divine trip to Chouse (the late Coffeehouse staffed by students) with friends after working on Ma 5 (Introduction to Abstract Algebra).

Х

About this spread

Messaging

The year 2021 witnessed another batch of Caltech seniors evolve into "ghosts" amidst a global pandemic. Here, we spotlight six seniors who have proceeded into the afterlife. They represent six student houses, four options, and a future of endless possibilities. Regardless of their differences, they have one thing in common—Caltech will always hold a special place in their memory.

Notifications

Me

7

LinkedIn News

- Roompicks make a rugged return 1 day ago • 924 readers
- Campus reopening planned for the Fall April 12, 2021 • 857 readers
- Looking into the online void: virtual classes take toll on mental health February 4, 2021 · 1033 readers
- Houses adapt Rotation to online format February 4, 2021 · 756 readers
- Caltech connected: how frosh are being supported during remote learning October 27, 2020 · 691 readers



X

New message



The Big T

What will you miss from Caltech? What won't you miss?

LC Chen

I will miss how accessible everyone is at Caltech in terms of physical proximity and time. Additionally, I will miss just how willing students are to help each other out. Hopefully, I will not miss trying to force my sleep-deprived brain to think, but I will definitely miss the nights and mornings I worked with others in that dazed state. :)



Liana Merk

I will miss the people!! Definitely a cheesy answer, but what really made Caltech special was being surrounded by some of the most amazing, kind, and humble people ever. They are what made those 3 a.m. Hameetman grinds bearable. I won't miss the feeling of being guilty for not working—I think life after Caltech will have a much healthier work-life balance.



Alex Cui

I'm going to miss (press "F" to pay respects) the warmth of the fireplace and people surrounding it, the N-capacity tree swing, and the three-story-tall dance platforms. Also, the spontaneous conversations with Techers and their inner mad scientists about their craziest (but possible) ideas. I won't miss the tofu slabs and being in the suburbs.

New message



What will you miss from Caltech? What won't you miss?

Logan Apple

I'll miss the community, both from a social and academic standpoint. The house system is uniquely well-suited in bringing people together, whether for fun or working on sets; it's not so easy outside school to find so many likeminded friends. Now, at the end of my time at Caltech, it's amazing to me how quickly it all went by.

I think the pressure and regularly overbearing workload won't be missed. At times, it felt like I was rushing through material to keep up with my schedule rather than really taking the time to understand it, especially before junior year.

Andrew Zhou

I will miss my friends, the Arnold lab, the tennis team, the house system, and Du-par's pancakes. I won't miss open time exams.

Arushi Gupta



I will miss the community, the jacarandas. I won't miss the all-nighters.





Liana Merk • 2nd Watson Fellow | Incoming Harvard Biophysics PhD Student Los Angeles Metropolitan Area 8 shared connections

As a recipient of the Thomas J. Watson Fellowship, bioengineering major Liana Merk [21] will conduct an independent project studying fermented foods around the world—particularly, yogurt. "I am curious how people think about microbes and how this influences the use of fermentation in the local diet," she explains. Her endeavor also has many cultural aspects. While Merk will be striving to understand the spread of microbial cultures across borders, she will also be familiarizing herself with several cultures around the globe. After this project, she will pursue a Ph.D. in Biophysics at Harvard.

Throughout her time at Caltech, some of Merk's favorite moments were found at the beginning of a new academic year. "When everyone gets back from summer and work hasn't really kicked into full swing yet...the rush of getting to catch up with everyone, meet[ing] new frosh, and seeing friends for the first time in a few months was always a real joy." Plus, it was in these periods that she discovered some of her favorite restaurants and spots around Pasadena. "Shoutout to Roots & Rye and the Altadena Crest hiking trail."



LC Chen • 2nd Caltech CS Greater Seattle Area 24 shared connections

LC Chen [21] graduated with a degree in computer science. She will be joining Snap Inc., the tech company behind Snapchat and Bitmoji, as a software engineer planning to contribute towards projects involving machine learning for advertisement technologies. As a devout Christian, she has embraced a significant role in the Caltech Christian Fellowship (CCF) and will continue her religious work through volunteering with her church. Her favorite memories at Caltech? "House trips! I really enjoyed bonding with friends and new house members at nice locations away from school." Cleaning out the Avery House storage closet and working with people on ASCIT and the IHC also rank among her best memories. She recalled helping organize ASCIT's Midnight Donuts: "seeing people at midnight make their way out of their rooms to pick out a donut was very satisfying."



Andrew Zhou • 2nd Incoming Churchill Scholar at the University of Cambridge | Caltech Chemistry '21 Pasadena, California, United States 13 shared connections

Connect

Connect

Connect

Chemistry major Andrew Zhou [21] was among the 17 students selected as Churchill Scholars in 2021. He will be pursuing a master's degree in Biochemistry at the University of Cambridge, working on reprogramming cells to synthesize proteins with unnatural amino acids. After a year abroad, he will enroll in medical school and hopes to become an oncologist. "Cancer is such a devastating disease, and I want to help people when they need it most," said Zhou. His favorite memories at Caltech include sharing a Bechtel suite with seven of his closest friends, attending Techstock headlined by Bryce Vine, going to Interhouses, representing Caltech on the tennis team, playing pick-up basketball, and exploring Los Angeles.



Logan Apple • 2nd Incoming Software Engineer at Microsoft Pasadena, California, United States 49 shared connections



The third computer science major featured in this spread, Logan Apple [21] will be joining Microsoft as a software engineer on its Xbox team. He has immersed himself in the cultures of Dabney and Ruddock throughout his time at Caltech, notably embracing the role of President in the former. It was a duty that entailed enduring targeted yells of "PAAAANTS!" in addition to helping make virtual Rotation 2021 a reality. "Some of my favorite memories were from Dabney and Ruddock Interhouses, both creating them and enjoying the party after we were done!"



CLUBS & ORGS

DESIGN Chris Wang **РНОТОS**



AAIA

-070

ROSTER: Amrita Mayavaram [23], Athena Kolli [24], Calle Junker [23], Ellande Tang [G4], Helen Wexler [G2], Hope Arnett [24], Isabella Dula [22], Jules Penot [24], Kaila Coimbra [23], Kemal Pulungan [24], Kristine Chelakkat [21], Leah Soldner [24], Luis Pabon [22], Malcolm Tisdale [23], Nathan Ng [24], Parul Singh [24], Polina Verkhovodova [22], Raha Riazati [24], Rithvik Musuku [24], Sarah Yun [24], Sorina Lupu [G2], Sydney Richardson [22], Tanmay Gupta [24].



ASCIT ACADEMICS AND RESEARCH COMMITTEE

2019-2020

CHAIR: Arushi Gupta [21]. SECRETARY: Daniel Neamati [21].

HOUSE REPS: Schuyler Dick [22], Olivia Grobowsky [22], Margaret Lee [22], Albert Nazeeri [21], Daniel Neamati [21], Eric Smith [22], Nathan Suri Jr. [22], Amy Wang [21]. **AT LARGE:** Anjini Chandra [22], Ray Sun [20], Alice Jin [21]. **FROSH REPS:** Shubh Agrawal [22], Sophie Howell [22], Simon Lequar [22], Noah Yared [22].

2020-2021

CHAIR: Megan Wang [21]. SECRETARY: Mohini Misra [23].

HOUSE REPS: Sophie Chan [23], Schuyler Dick [22], Aanica Gonzales-Rogers [23], Alex Hong [23], Anna Li [23], Mohini Misra [23], Marcos Perez [23], Maggie Sui [23]. AT LARGE: James Bowden [23], Anjini Chandra [22], Hannah Hu [22], Nathan Suri Jr. [22].

FROSH REPS: Halle Blend [24], Turner Bumbary [24], James Chen [24], Vibha Padmanabhan [24].



BOARD OF DIRECTORS

ASCIT BOARD OF DIRECTORS

2019-2020

PRESIDENT: Varun Shanker [21]. ARC CHAIR: Arushi Gupta [21]. IHC CHAIR: Sarah Crucilla [20]. DIRECTOR OF OPERATIONS: Rachel Sun [21]. TREASURER: Yuying Lin [22]. SOCIAL DIRECTOR: Irene Chang [22]. SECRETARY: LC Chen [21].

2020-2021

PRESIDENT: Yuying Lin [22]. ARC CHAIR: Megan Wang [22]. IHC CHAIR: Kriti Devasenapathy [21]. DIRECTOR OF OPERATIONS: Aditi Venkatesh [23]. TREASURER: Eilleen Zhang [23]. SOCIAL DIRECTOR: Ayooluwa Odemuyiwa [22]. SECRETARY: Katherine Chang [23].



BOARD OF CONTROL

ASCIT BOARD OF CONTROL

2019-2020

CHAIR: Allison Wang [20]. SECRETARY: Cole Brabec [21], Nicholas Currault [21].

2020-2021

CHAIR: Nicholas Currault [21]. SECRETARY: Simon Lequar [21], Timothy Yao [22].





CONDUCT REVIEW COMMITTEE

ASCIT CONDUCT REVIEW COMMITTEE

2019-2020 снага: Harel Dor [20].

-072

2020-2021 CHAIR: Nicholas Currault [21].



CHEMISTRY CLUB

ROSTER: Stephanie Cortez [22], Emily Du [22], Patryk Kozlowski [22], Izzy Muise [21], Jolly Patro [23], Sabrina Rui [22], Jen Yu [22], Tianyi Zhang [22], Andrew Zhou [21].
Caltech CHESS CLUB

CHESS CLUB

ROSTER: Yannis Angelopoulos* [Faculty], Julio Arroyo [24], Michael Bregar* [23], Luis Camargo-Carlos [22], Duncan Chadly* [G4], Hannah L. Chen* [23], Ryan Clark* [22], Saren Daghlian [24], Angus Gruen* [G3], Dillon Holder* [21], Daniel Israel [22], Raffey Iqbal* [24], Tony Kukavica* [21], Pranav Kulkarni* [G2], Ananth Malladi [22], Conor Martin [G4], Jack Maxfield *[21], Limbert Palomino* [22], Henry Peterson* [G2], Dan Rostovtsev* [21], Ilya Sherstyuk [22], Jason Shi* [22], Adriano Testa* [G3], Alexandros Tsamopoulos [G2], Vignesh Varadarajan* [21], Jeff Zeidel* [G4], Kostia Zuev* [Faculty Advisor] *Asterisk* (*) denotes members of the team roster that participates in competitions.

Caltech ENGINEERS WITHOUT BORDERS

ENGINEERS WITHOUT BORDERS

ROSTER: Camila Buitrago [22], Schuyler Dick [22], Gabby Dituri [23], Hannah Fan [23], Abigail Jiang [23], Anna Li [23], Jack Nguyen [22], Anjali Patil [21], Jillian Reed [22].





FERMENTATION CLUB

ROSTER: Holly Barnhart [G2], Jordan Benjamin [G2], David Bonan [G2], Andreas Butler [G2], John Chapman [G1], Noel Csomay-Shanklin [G2], Emily de Jong [G2], Sadie Dutton [G2], Hamilton Evans [G1], Bryce Hickam [G3], Polina Khapikova [G2], Danika Nimlos [G2], Mike O'Connell [G4], Sergio Parra [G3], Michelle Qian [G2], Max Saccone [G4], Steven Stradley [G2], Greg Stroot [G2], Arjuna Subramanian [G2].



INTERHOUSE COMMITTEE

ASCIT INTERHOUSE COMMITTEE

2019-2020

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CHAIR: Sarah Crucilla [20]. SECRETARY: Alicia Tirone [20]. AVERY CHANCELLOR: Adrian Huang [20]. BLACKER PRESIDENT: Benjamin Cassese [20]. DABNEY PRESIDENT: Amrita Rhoads [20]. FLEMING PRESIDENT: Almita Rhoads [20]. FLEMING PRESIDENT: Eli Pinkus [20]. LLOYD PRESIDENT: Andrew Rothstein [21]. PAGE PRESIDENT: Alex Wuschner [20]. RICKETTS PRESIDENT: Alex Guerra [21]. RUDDOCK PRESIDENT: Rupesh Jeyaram [20].

2020-2021

CHAIR: Kriti Devasenapathy [21]. SECRETARY: Adam Abbas [22]. AVERY CHANCELLOR: LC Chen [21]. BLACKER PRESIDENT: Irene Crowell [21]. DABNEY PRESIDENT: Logan Apple [21]. FLEMING PRESIDENT: Chad Thut [22]. LLOYD PRESIDENT: Michelle Hyun [22]. PAGE PRESIDENT: Nerys Huffman [21]. RICKETTS PRESIDENT: Alex Guerra [21]. RUDDOCK PRESIDENT: Paulina Ridland [21].



MUSLIM STUDENT

MUSLIM STUDENT ASSOCIATION

ROSTER: Adam Abbas [22], Hamza Abdul-Ghani [22], Alya Al-Kibbi [22], Harris Beg [24], Ali Cataltepe [23], Adnan Contractor [23], Eman Elsheikh [22], Nora Griffith [21], Aanica Gonzales-Rogers [23], Tiba Hamza [24], Sarah Hashash [24], Alveera Khan [21], Maisha Khanum [24], Dongyi (Lambda) Lu [G4], Omar Mehio [G4].



PHYSICS CLUB

FROM TOP LEFT: Andy Rothstein [21], Shu Fay Ung [21], Helena Guan [22], Gabby Dituri [23], Lorenzo Van Munoz [22]. NOT PICTURED: Shubh Agrawal [22], Sara Anjum [G2], Isaiah Curtis [22], Adrian Lopez [22], Eric Moreno [21], Zihao Qi [21], Gabriel Woolls [21].





TOTEM

-076

ROSTER: Alya Al-Kibbi [22], Logan Apple [21], Harris Beg [24], Aida Behmard [G4], Celine Boucher [23], Katherine Chang [23], Celia Chari [G4], Myra Cheng [22], Chloe Choi [23], Yoojin Chung [21], Zevin Condioette [G2], Sophie Dai [20], Serena Delgadillo [22], Grace Ding [21], Gabby Dituri [23], Sarah Dunbar [23], Tal Einav [Ph.D. 19], Rosita Fu [21], Shir Goldfinger [23], Nora Griffith [21], Bilge Gungoren [23], Uli Herget [PD], Philip Hon [VS], Isabella Hurvitz [23], Julie Inglis [G1], Neymi-ka Jain [22], Jenny Ji [23], Abigail Jiang [23], Alice Jin [21], Hemani Kalucha [G2], Elin Kang [23], Riana Karim [21], Ishani Karmarkar [21], Heidi Klumpe [G7], Katrina Korovina [21], Rachael Kuintzle [G5], Shalini Kurinchi-Vendhan [23], Anna Lapteva [23], Amanda Li [21], Yuying Lin [22], Grace Liu [23], Joy Liu [24], Tony Liu [21], Beau Lobodin [22], Xiaoqi Long [22], Ana Moiseyenko [G2], Siqiao Mu [21], Aru Mukherjea [21], Ankita Nandi [24], Bryan Nguyen [G], Ayooluwa Odemuyiwa [22], Vibha Padmanabhan [24], Katherine Pan [23], Vivienne Patwardham [21], John Pederson [G2], Elora Pradhan [23], Juan Quiroz [24], Michael Rose [23], Louise Schul [23], Rachel Shi [22], Tarini Singh [21], Ollie Stephenson [G5], Aubrey Stevens [23], Miles Stevenson [23], Katherine Stiefel [G1], Kristina Stoyanova [23], Maggie Sui [23], Jennifer Sun [22], Nathan Suri [22], Jasmine Terrones [22], Arielle Tycko [23], Alexis Wang [24], Vanna Woo [22], Sulan Wu [21], Alice Yang [23], Vivian Yu [21], Aileen Zhang [21], Eilleen Zhang [23], Josephine Zhang [23], Vivian Zhang [24], Ruoyun Zheng [21], Shirley Zhu [21].

CLUB LIST

AI Robotics Ethics Society AIAA APIDA+ Aarya Archery Club **Beaver Buddies** Black Ladies Association of Caltech Black Scientists and Engineers of Caltech (BSEC) Bridge Club **Bridges at Caltech** CHMMC Management Club **Caltech Alpine Club** Caltech Amateur Astronomy Club Caltech American Institute of Chemical Engineers (AICHE) Caltech Anime Society Caltech Badminton Club Caltech Ballroom Dance Club Caltech Bike Lab Caltech Biotechnology Club Caltech C (Chinese Association) Caltech Canadian Club Caltech Cervantes Club Caltech Chemistry Club Caltech Chess Club Caltech Christian Fellowship (CCF) Caltech Consulting Club Caltech Cricket Club Caltech Data Science Organization Caltech Dhamaka Caltech Disability Coalition Caltech Effective Altruism (CITEA) Caltech Entrepreneurship Club Caltech FPV Drone Club Caltech Feminist Club Caltech Fishing Club Caltech Graduate Christian Fellowship Caltech Hillel Caltech Jam Room Caltech Japanese Student Association Caltech Latino Association of Students in Engineering and Sciences Caltech Letters Caltech Materials Research Society Caltech Math Club Caltech Premedical Association (CPMA) Caltech Questbridge Scholars Network Caltech Racing Caltech Robotics Team Caltech Sovereignty Club Caltech Surf and Windsurf Club

Caltech Tai Chi Club Caltech Tango Club Caltech Toastmasters Caltech Triathlon Club Caltech Ultimate Frisbee Club Caltech Vintage Computing Club Caltech Wood Bat Baseball Club Catholic Small Faith Community Chabad at Caltech **Cheese Society** Christians on Campus at Caltech Club Latino Dance Dance Revolution Club **EXPLICIT** Engineers Without Borders Caltech Chapter Entrepreneurship and Management Club **Fermentation Club** Fluid Dynamics Hacktech IEEE **MEDLIFE Muslim Student Association NeuroTechers** OASIS Out of Context **PARSEC Rocketry** PRISM Paddling Club Philosophy of Yoga **Physics Club** Propulsion, Aeronautics, and Rocket Systems Engineering at Caltech (PARSEC) Puzzle Club Quiz Bowl **Robogals** SAGE Council (Sexual Assault and Gender Equity) Science Fiction and Fantasy Club Science Olympiad Club Socialists of Caltech Society of Women Engineers Student Investment Fund TechLit TechReach Techers for a Sustainable Future (TSF) The Intermission Orchestra at Caltech The Pipettes Totem **UAV Engineering** Women in Physics, Mathematics, and Astronomy

> clubs & ●●● clubs & ●●● → organizations ●● →



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MEN'S BASEBALL

MEN'S BASEBALL

ROSTER: Dawson Beutler [22], Gautam Chawla [24], Will Cook [22], Matthew Cox [24], Stephen D'Aquila [24], Will Dembski [23], Patrick Donohoe [24], Pierce Governale [22], Dillon Holder [21], Leo Jenkins [24], Arya Mevada [23], Ryan Ruscansky [22], Spiro Stameson [22], Christian Stromberger [23], Matthew Szedlock [22], Jack Warren [23], Mitchell Watson [21], Steven Yee [23], Volunteer Assistant Coach Hank Whitehead, Assistant Coach Keith Castillo, Assistant Coach David Higuera, Head Coach Kevin Whitehead.



MEN'S BASKETBALL

BACK: Assistant Coach Steve Ledesma, Head Coach Dr. Oliver Eslinger, Kyle McGraw [23], Ethan Eason [22], Chase Pagon [23], Aaron Ayres [20], Ross Carter [20], Pavlos Stavrinides [23], Calvin Huh [21], Spencer Schneider [21], Riley O'Neil [22], Ben Juarez [23], Volunteer Assistant Coach James Covell, Volunteer Assistant Coach Neel Sitaramya.

FRONT: Richard Wang [23], Jack Pierson [23], Marcus Gee [21], Alec Andrews [20], Gokul Srinivasaragavan [21], Stephen Hei [22], Bret Johnson [20], Noah Barnes [22], Michael Li [21].

NOT PICTURED: Volunteer Assistant Coach Spencer Levy.



WOMEN'S BASKETBALL

LEFT: Helen Siavelis [23], Head Coach Bridgette Reyes, Claire Perhach [24], Madelyn Stroder [19], Claire Zhang [24], Charlotte Lafayette [23], Grace Peng [20], Lasyasree Tenneti [24], Faith Pinney [23], Milan Robinson [24], Assistant Coach Dennis Ko, Nika Haleftiras [19], Elizabeth Eiden [19], Madeline Schemel [19], Megan Santhumayor [24], Alexa Lauinger [20], Lauren Suezaki [21], Sahana Saikumar [23], Hope Arnett [24]. **RIGHT:** Claire Zhang, Faith Pinney, Sahana Saikumar, Hope Arnett, Milan Robinson, Helen Siavelis.



MEN'S SOCCER

MEN'S SOCCER

ROSTER: Julio Arroyo Ibarra [24], Joe Como [21], Josh Finnerty [23], Brandon Guo [24], Derek Ing [24], Daniel Israel [22], Rohan Iyer [24], Sam Klauer [23], Daniel Li [24], Rohan Mirchandani [21], Joon Park [23], Eli Seiner [24], Mohamed Soufi [22], JD Walker [21], Hector Wilson [24], Travis Xiang [23], Anas Zouhar [24], Volunteer Assistant Coach William Denman, Volunteer Assistant Coach James Iles, Assistant Coach Paul Hennessey, Head Coach Duncan Gillis.



WOMEN'S SOCCER

BACK: Catherine Kauber [23], Eve Fine [23], Jackie Wang [23], Schuyler Dick [22], Bella Hurvitz [23], Jocelyn Kho [22], Zoe Rock [22], Cameron Scantlin [24].

HEAD CUTOUTS: Rachel Sun [21], Krystin Brown [21], Nayla Abney [21], Netra Ravishankar [21].

FRONT: Netra Ravishankar, Nayla Abney, Krystin Brown.

NOT PICTURED: Volunteer Assistant Coach Hillary Downs, Volunteer Assistant Coach Danielle Jones, Head Coach Ellery Gould.



MEN'S SWIM AND DIVE

MEN'S SWIM AND DIVE

ROSTER: Lucas Abounader [24], Juan Arvelo [23], Reid Banciella [23], Thomas Barrett [22], Rahul Chawlani [24], Daniel Contaldi [23], Jay Dong [24], Thomas Gallup [21], Xander Hall [24], Barron Han [24], Austin Harvard [22], Naci Keskin [24], Adam Kogan [21], Joshua Lee [23], Shoonhsin Li [23], Jeffrey Ma [22], Tyler Mapes [24], Nathan McAlister [23], Krish Mehta [23], Daniel Nee [23], Andrew Pasco [24], Christopher Pukszta [24], Eitan Rapaport [23], Joshua Roberts [24], Rafael Santiago [22], Samuel Senzon [24], Isaac Smith [23], JD Walker [21], George Wythes [23], Leo Yang [24], Timothy Yao [22], Wentao Zhang [24], Volunteer Diving Assistant Jayden Pantel, Volunteer Assistant Coach Christy Rogers, Volunteer Assistant Coach Wyatt Ubellacker, Assistant Coach Guillermo Yanes, Assistant Coach Ute Zimmerman, Head Coach Andrew Brabson.



WOMEN'S SWIM AND DIVE

WOMEN'S SWIM AND DIVE

ROSTER: Alice Cheng [24], Olivia Durrett [21], Olivia Grobowsky [22], Emily Pan [24], Katherine Pan [23], Anastasia Popova [23], Joy Shi [24], Jessica Sun [21], Isabel Swafford [22], Brea Swartwood [24], Maddie Swint [23], Haruna Tomono [24], Stella Wang [21], Brooke Williams [24], Vivian Zhang [24], Volunteer Assistant Coach Christy Rogers, Volunteer Diving Assistant Jayden Pantel, Volunteer Assistant Coach Wyatt Ubellacker, Assistant Coach Guillermo Yanes, Assistant Coach Ute Zimmermann, Head Coach Andrew Brabson.





MEN'S TENNIS

FRONT: James Wei [21], Varun Shanker [21].

NOT PICTURED: Matthew Gonzalgo [22], Rishi Gundakaram [23], Ishaan Kannan [24], John Kim [23], Patryk Kozlowski [22], Victor Li [24], Kyle McCandless [24], Andrei Staicu [24], Daniel Wen [24], Jake Will [22], Kevin Yu [21], Andrew Zhou [21], Nathan Zou [23], Head Coach Jason Cohen.



WOMEN'S TENNIS

BACK: Beatriz Avila-Rimer [24], Teresa Huang [24], Anna Tifrea [22], Ankita Roychoudhury [21], Sarina Liu [21], Sasha Tolstoff [24], Athena Kolli [24], Michelle Hyun [22]. **FRONT:** Jennifer Yu [22], Nina Solovyeva [23], Emily Zhang [24], Halle Holzbauer [24], Leah Soldner [24].

NOT PICTURED: Head Coach Mandy Gamble.



MEN'S TRACK AND FIELD

MEN'S TRACK AND FIELD

ROSTER: Emile Timothy Anand [23], Ryan Chan [24], August Chen [22], Shrikeshav Deshmukh [23], Erik Imathiu-Jones [23], Ezra Johnson [24], Ian Johnson [24], Kyle Lethander [24], Joey Litvin [24], Julen Lujambio [23], Patrick Martinez [23], Spencer Morgenfeld [21], Jordan Ostby [24], Malik Paulino [23], Marcos Perez [23], Gaurav Phanse [22], Kellen Rodriguez [22], Jerome Seebeck [22], Alexander Way [23], Volunteer Assistant Coach Brian Gunnarson, Volunteer Assistant Coach Bijan Mazaheri, Volunteer Assistant Coach Gina Sereno, Assistant Coach Cedric Hill, Assistant Coach Caleb Weidert, Head Coach Ben Raphelson.



WOMEN'S TRACK AND FIELD

WOMEN'S TRACK AND FIELD

ROSTER: Alex Bardon [22], Alexandria Burr [24], Katelyn Chu [24], Lauren Conger [G1], Molly Crotteau [21], Tea Freedman-Susskind [23], Lauren Garriques [23], Claire Hu [21], Natalie Lelieur [22], Jamie Littman [22], Moya Ly [22], Pippa Richter [23], Megan Robertson [24], Margaret Trautner [G1], Jessica Ye [21], Volunteer Assistant Coach Brian Gunnarson, Volunteer Assistant Coach Bijan Mazaheri, Volunteer Assistant Coach Gina Sereno, Assistant Coach Cedric Hill, Assistant Coach Caleb Weidert, Head Coach Ben Raphelson.





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CROSS COUNTRY

CROSS COUNTRY

ROSTER: Emile Timothy Anand [23], Alex Bardon [22], Alexandria Burr [24], Ryan Chan [24], August Chen [22], Katelyn Chu [24], Lauren Conger [G1], Molly Crotteau [21], Shrikeshav Deshmukh [23], Tea Freedman-Susskind [23], Lauren Garriques [23], Claire Hu [21], Ezra Johnson [24], Ian Johnson [24], Johanna Karras [21], Katelyn Lee [23], Natalie Lelieur [22], Kyle Lethander [24], Jamie Littman [22], Joey Litvin [24], Julen Lujambio [23], Patrick Martinez [23], Spencer Morgenfeld [21], Jordan Ostby [24], Malik Paulino [23], Marcos Perez [23], Gaurav Phanse [22], Pippa Richter [23], Kellen Rodriguez [22], Margaret Trautner [G1], Alexander Way [23], Volunteer Assistant Coach Bijan Mazaheri, Volunteer Assistant Coach Gina Sereno, Head Coach Ben Raphelson.



WOMEN'S VOLLEYBALL

LEFT: Sydney Richardson [22], Lauren Li [19], Krystyna Maruszko [21], Dallas Taylor [23].

RIGHT, BACK: Angel Wang [24], Gabriella Twombly [24], Alison Noyes [22], Alice Kutsyy [24], Carolyn Lu [24], Krystyna Maruszko. **RIGHT, FRONT:** Halle Blend [24], Sydney Richardson, Isabell Yang [21], Dallas Taylor.

NOT PICTURED: Helen Brackney [24], Hannah Fan [22], Alexandra Klipfel [22], Charley Lafayette [23], Claire Perhach [24], Madeline Shao [24], Gabriella Twombly [24], Megan Wang [22], Volunteer Assistant Coach Jerry Lucio, Volunteer Assistant Coach Kathy Torres, Assistant Coach Lea Taylor, Head Coach Tom Gardner.



MEN'S WATER POLO

MEN'S WATER POLO

ROSTER: Rahul Arun [21], Juan Arvelo [23], James Bowden [23], Max Bricken [23], Nick Clausen [21], Steven Csaposs [21], Wei Foo [23], Matthew Hajjar [23], Eric Han [24], Austin Harvard [22], Alex Janosi [21], Perry Samimy [24], Neil Sanderson [21], Alex Wang [22], John Wang [21], Assistant Coach Lindsay Garcia, Head Coach Jon Bonafede.



WOMEN'S WATER POLO

WOMEN'S WATER POLO

ROSTER: Sophie Devoe [22], Isabella Dula [22], Tyler Fox [24], Olivia Grobowsky [22], Emma Gurcan [24], Yuying Lin [22], Erin O'Donnell [24], Amanda Piyapanee [23], Zoe Rock [22], Riya Shrivastava [24], Riley Tam [24], Polina Verkhovodova [22], Sarah Zou [22], Assistant Coach Lindsay Garcia, Head Coach Jon Bonafede.





CHANCELLOP

































BLACI

2020 -







VOBY



orthwhile unless difficult.





TWITCH PLAYS BLACKER HOVSE



















Douse

Rotation

Pumpkin Drop

Dabney



Interhouse









VP







Danny Wendt Secretary



Vanna Woo Social VPs & Simon Lequar



Andrea Steward Hands Arocha





Dress Dinner







2020





Fleming House

Flexcomm:

President: Chad Thut VP: Varun Shanker Secretary: Ankita Roychoudhury Treasurer: Rachel Sun Soc 1: Zoe Rock Ath 1: Johnny Seebeck Soc 2: Polina Verkhovodova Ath 2: Matthew Szedlock























when you play the game of lloyd you win or you die











-096









EXCOMM Mikey Gonzalez Hannah Grauer Vanessa Mechem Jae Yoon Kim Rahul Chawlani

































-098

RICKETTS

HOVSE

X











Rhymes with...



-100



























Alley 1



Alley 2



Alley 3





Alley 4



Alley 5





Mohith Manoha...

Alley 6



Alley 7



Excomm



FRESHME **CLASS OF 2024**

Abounader, Lucas Acosta, Jacob Adamo, Nico Aedo, Cole Afriyie Buabeng, Leo Agarwal, Agnim

⊢705

Arellanes, Sarah Arnett, Hope Arora, Nishka Arroyo Ibarra, Julio Avila-Rimer, Bea Ayala, Carlos

Batchev, Michael Beg, Harris Bhanushali, Nachiket Blank, Eve Blend, Halle Boggaram, Sravani

Borcherds, Charlotte Bose, Rik Brackney, Helen Brooker, Riley Bumbary, Turner Burnell, Bryan

Burns, Amelia Burr, Alex Campos, Nathan Canestraight, Virginia Castro, Gilbert Chan, Ryan

> Chang, Kevin Chang, Sean Chawla, Gautam Chawlani, Rahul Chen, Albert Chen, James















































Chen, Pearl Chen, Stephanie Cheng, Alice Cheng, Carl Choe, Emily Chu, Katy

Chun, Kaulana Clark, Tommy Coffin, Lily Costarelli, Valentina Cox, Matthew Daghlian, Patill













Daghlian, Saren Dalia, Neha D'Aquila, Stephen Dara, Suchitra Datta, Rajeev Del Angel Aguilar, Carlos

Dey, Sreemanti Diaconu, Andrei Dong, Jay Donohoe, Patrick Dubin, Aaron Dugue, Zack

Esrubilsky, Emil Estrella, James Flashner, Joshua Fowler, Ian Fox, Tyler Gao, Anita

Gao, Lucy Gauld, Kevin Gawlowicz, Amanda Ghatare, Adishree Gomez, Joaquin Gottlieb, Alice

Guo, Brandon Gupta, Shivansh Gupta, Tanmay Gurcan, Emma Hall, Xander Hamza, Tiba

Han, Barron Han, Eric Hashash, Sarah Hassibi, Kimia Hejna, Josh Holzbauer, Halle





































Huang, Andrew Huang, Jerry

Huang, Terry Ing, Derek Iqbal, Raffey lyer, Rohan

Jain, Sahil Janwani, Neil Jenkins, Leo Jenkins, Owen Jimenez-Lozano, Nico Johnson, Ezra



Johnson, Ian Kabboul, Sarah Kadakia, Shevali Kannan, Ishaan Kant, Manav Kavrut, Necef

Keskin, Naci Khanum, Maisha Kim, Joseph Knabe, Esme Ko, Catherine Kolli, Athena

Koutsoukos, Alexander Krivka, Adam Kumar, Asav Kurinchi-Vendhan, Rupa Kutsyy, Alice Lanzendorf, Lucas

> Lee, Stanton Lethander, Kyle Li, Daniel Li, Depei Li, Eileen Li, Victor

Lin, Damon Litvin, Joey Liu, Joy Lu, Carolyn Maheshwar, Ashvin Mapes, Tyler

> Martinez, Jose Maust, Haydn McCandless, Kyle Mendoza, Bella Miller, Josiah Min, Ellen















































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Mina, Joseph Mireles, Bertha Mortari, Anna Musuku, Rithvik Nagles, Daniel Nakamura, Kai

Nandi, Ankita Ng, Nathan Noble, Ceci ODonnell, Erin Oribio, Tyler Ostby, Jordan















Padmanabhan, Vibha Pan, Emily Pasco, Andrew Patel, Ekta Patel, Sneh Patil, Pranav

Penot, Jules Peres, Julian Perhach, Claire Pham, Khanh Phillipps, Luke Pochana, Krishna

Prabhutendolkar, Aditee Pranis, Olivers Pukszta, Chris Qin, Derek Quiroz Jaraba, Juan Ramos, Maddie

Raush, Dennis Redmond, Heidi Reese, Kyle Riazati, Raha Rim, Patrick Roberts, Joshua

Robertson, Megan Robinson, Milan Rolfness, Alex Rolfness, Jonah Rollins, Asha Rushlow, Maya

Saha, Josh Saha, Snigdha Samimy, Perry Santhumayor, Megan Satya, Pranay Scantlin, Cami







































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Shrivastava, Riya Shyamsundar, Kaushal Singh, Parul Siri, Jay Soedarmadji, Saraswati Soldner, Leah

> Sridhar, Vishvesha Staicu, Andrei Sulett, Katelyn Sun, Andy Swartwood, Brea Tam, Riley

Tavakoli, Nassim Tenneti, Lasya Thai, Vinny Thompson, Kate Tolstoff, Sasha Tomono, Haruna

Torres, Angelina Truong, Kayton Twombly, Gabi Vera, Sophia Wang, Alexis Wang, Angel

Wang, Clara Wang, Jesse Wen, Daniel Wexler, Tomas Williams, Brooke Williams, Leo

Wilson, Hector Wu, Jia Yue Wu, Lena Yang, Brian Yang, Bridget Yang, Leo

Yang, Lynn Ye, Zitian Yun, Sarah Yu-Swanson, Kyla Zeng, Ben Zhang, Claire



































































Zhang, Emily Zhang, Tao Zhang, Theresa Zhang, Vivian Zhou, Christopher Zhu, Ann

Zouhar, Anas





SOPHOMORES **CLASS OF 2023**

Adang, Max Aguiar, Gabriel Amaro, Eric Anand, Emile Arvelo, Juan Ateyeh, Abdullah

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Avelar Menendez, Angel Banciella, Reid Bi, Daniel Blagden, Chase Blanchette, Chase Borkar, Mihir

Boucher, Celine Bowden, James Bregar, Michael Bricken, Max Brown, Matticus Caceres, Antonio

Caceres, Hernan Cachaldora, Joseph Chakraborty, Isha Chan, Sophie Chang, Irene Chang, Katherine

Chavez, Diego Chea, Sandra Chen, Cynthia Chen, Hannah Chen, Hannah Chenanda, Reeya

Cho, Ellie Choi, Chloe Chotzen-Hartzell, Devin Chung, Norman Coimbra, Kaila Colenbrander, Tyler














































Contaldi, Daniel Contractor, Adnan Corrales de Oliveira, Jonathon Cruz, Brian Cua, Miles Daigle, Bobby

de la Fuente Campos, Jose de la Torre Roehl, Isabel de Mello, Lucca Dembski, Will DeVault, Audrey Dicker, Evan











Didden, Tighe Ding, Rachel Dituri, Gabby Dunbar, Sarah Dzingeleski, David Elmengad, Ismail

Elsheikh, Eman Fabre, Gabe Fine, Eve Finnerty, Josh Foo, Wei Freedman-Susskind, Tea

Freeman, Bruno Frias Franco, Diana Gardner, M Garriques, Lauren Gessesse, Mahider Glynn, Allison

Goldfinger, Shir Gomez, Annabel Gonzales-Rogers, Aanica Gonzalez, Michael Gorokhovsky, Elia Gowrishankar, Akshay

Grauer, Hannah Griffith, Leah Grossmark, Tomas Gundakaram, Rishi Gungoren, Bilge Guo, Amy

Hajjar, Matthew Haraszti, Alexandra Hayes, Logan Herrera, Mel Hetherington, Val Hiremath, Sujai



sophomores 🔵 🔴

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Hurvitz, Bella Hyon, Justin Ibarra, Maxx Imathiu-Jones, Erik Jasinski, Nick Ji, Jenny

Huang, Wesley Hunt, Aelin

-110

Jiang, Abby Jimenez Berumen, Erick Jrade, Ely Juarez, Ben Junker, Calle Kang, Elin

> Kangaslahti, Sara Kantipudi, Rohit Kauber, Catherine Kim, Jae Yoon Kim, John Klauer, Sam

Koh, Jin Ming Koval, Juliette Kunnam, Shwetha Kurinchi-Vendhan, Shalini Kyi, Albert LaFayette, Charley

> Lai, Alexandra Lam, Bill Lapteva, Anna Lee, Iris Lee, Joshua Lee, Katelyn

Lewis, Laura Li, Anna Li, Shenyi Li, Shoonhsin Liu, Grace Lopez, Nathan

Lujambio, Julen Ma, Andrew Madisetti, Sonali Martinez, Patrick Mayavaram, Amrita McAlister, Nathan

































































McCabe, Gavin McDonald, Robin McGraw, Kyle McNichols, Tyrone Melisso, David Mesic, Esmir

Mevada, Arya Misra, Mohini Mohan, Prashanth Moran, Noah Mostafa, Basel Muller, Veronica













Nee, Daniel Nguyen, Tyler O'Neill, Sandra Ooi, Xin Hui Pagon, Chase Palumbo, Elsa

Pan, Katherine Park, Eunice Park, Joon Parker, John Patro, Jolly Paul, Eli

Paulino, Malik

Quintana, Daniel Rajagopalan, Kavya Rapaport, Eitan Resca-Candini, Galileo Alessio Richter, Pippa Rodriguez, Kellen

Rodriguez, Makena Ronis, Joshua Rose, Michael Rosenberg, Reuben Rossi, Iyla Rubi, Nicolas

Pawlak, Joshua Pearson, Winter Perez, Marcos Peticco, Martin Pham, Amy

Pierson, Jack Pinney, Faith Piyapanee, Amanda Pomraning, Geoff Popova, Anastasia Pradhan, Elora





































Smith, Isaac Solovyeva, Nina Soro, John Springer, Emily Sreeram, Shiva Stavrinides, Pavlos

Stevens, Aubrey Stoyanova, Kristina Stromberger, Christian Sui, Maggie Swann, Aiden Swint, Maddie

> Taylor, Dallas Taylor, Kaden Teng, Felianne Thai, Kenny Toyota, Justin Tran, Aaron

Tran, An Tycko, Arielle Vale, Max Valverde, Michael Vazsonyi, Leah Venkatesh, Aditi

> Vo, Amy Wang, Alex Wang, Jackie Wang, Richard Warren, Jack Way, Alex

Whitworth, Amelia Woodward, June Wythes, George Xiang, Iris Xiang, Travis Yang, Alice

Yee, Steven Zapata-Sanin, Christian Zhang, Eilleen Zhang, Josey Zheng, Emily Zou, Nathan



















































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JUNIORS **CLASS OF 2022**

Abadi, Sebastien Abbas, Adam Abdul-Ghani, Hamza Addington, Olivia Agarwal, Arushi Agrawal, Shubh

Alexander, Matthew Alic, Nezir Al-Kibbi, Alya Anderson, Josh Banerjee, Joeyta Bardon, Alex

Barnes, Noah Barrett, Thomas Basava, Hrishika Bauer, Matt Beatty, Zoe Bento, Trinity

Beutler, Dawson Bishop, Caleb Buitrago, Camila Caldwell, Jack Camargo-Carlos, Luis Caplin, Ann

Chandra, Anjini Chang, Happy Chang, Nick Chea, Peter Cheetham, Ruby Chen, August

Chen, Steve Chen, Victoria Cheng, Allie Cheng, Myra Chiu, Katie Chun, Colin



















































Chung, Jennie Clark, Ryan Colborn, Jennah Cook, Will Corado, Alex Cortez, Stephanie

Cruz, Kaylor Davis, Luc Delgado, Luca Deshmukh, Shri Devoe, Sophie Dick, Schuyler

Du, Emily Dula Razzolini, Isa Eason, Ethan Ernst, Olivia Feldman, Aaron

Fontani Herreros, Alex Gogoi, Axel Gonzalgo, Matthew Gorou, Katerina

Governale, Pierce Graham, Forrest Gray, Cameron Grebin, Nastya Grobowsky, Olivia Grosso, Joshua

Guan, Helena Gudavalli, Sirisha Gutierrez, Andres Hakim, Rashida Hamkins, Kiran Hari, Meena

Hayama, Thomas Heflin, Nicole Hei, Steve Hensley, Hagan Hewitt, Marguerite Hoffmann, Thomas

Howell, Sophie Hu, Claire Hu, Hannah Huang, Kevin Hwang, Saehui Hyun, Michelle























































Kim, Chan Gi Kim, Jiwoo Klipfel, Alex Kozlowski, Patryk Kulits, Peter Kwa, Thomas Kwok, Sofia

> Lee, Maggie Lelieur, Natali Lequar, Simon

Lin, Yvette Littman, Jamie Liu, Antonia Lobodin, Beau

Lopez, Adrian Ma, Jeffrey Malladi, Ananth

Mann, Ethan Marx, Kevin McCoy, Austin Mechem, Vanessa Melton, Hayward Mitchell, Paro

> Moul, Jonathan Nassimi, Jessica Natarajan, Ajay Nguyen, Brian Nguyen, Jack











Noyes, Alison Nuzen, Melba Odemuyiwa, Ayooluwa Olaya, Diego Oliveira, David On, Alvin

O'Neil, Riley Ortiz, Noah Palomino, Limbo Pan, Alex Park, Charlotte Park, Emily

Pegues, Toussaint Peng, Daniel Perrin, Isaac Phanse, Gaurav Phat, Bannhat Pineci, Anthony

Popken, Max Port, Tyler Pulido, Randall Rao, Jyotsna Reed, Jillian Richardson, Sydney

Riedel, Teresa Rock, Zoe Rui, Sabrina Ruiz, Mario Ruscansky, Ryan Santiago, Raffy

Seebeck, Johnny Senapati, Anish Shahidullah, Archie Shao, Eugene Shenoy, Anish Sherstyuk, Ilya

Shi, Jason Silier, Olivine Silvera, Liam Sivakumar, Aditya Sloan, Julia Soufi, Mohamed

Stameson, Spiro Stevenson, Miles Stickels, Max Su, Victoria Sun, Carol Sun, Jennifer

















































Terrones, Jasmine Thut, Chad Tieu, Vincent Tifrea, Anna Tirumala, Kushal Tjandrasuwita, Megan

Tong, Andy Trussell, Allyson Valencic, Luka Van Munoz, Lorenzo van Nieuwstadt, Saskia Verkhovodova, Polina

Veys, Yasmin Vinogradsky, Anya Vytheeswaran, Jagath Wan, Jenny Wang, Chris Wang, Megan

> Wendt, Danny Wendt, Ray Weng, Kyle Werst, Will Wichterman, Remy Will, Jake

> > Winzey, Kevin Woo, Varyn Yam, Elizabeth Yan, Serena Yang, Elaine Yang, Isabell

Yao, Timothy Yared, Noah Yoon, Eunice You, Mei Yi Yu, Jannie Yu, Jennifer

Yu, Kevin Zhang, Cecilia Zhang, Justin Zhang, Tianyi Zhou, Selina Zou, Sarah



















































SENIORS **CLASS OF 2021**

Abney, Nayla Adams, Kasey Adams, Sara Agarwal, Ashima Amaolo, Alessio Andrews, Cece

Apple, Logan Ardavin, Nicholas Arun, Rahul Bao, Anthony Bao, Richard Bathwal, Rahil

Berrigan, Brendan Blazes, Sam Boubezari, Ali Brabec, Cole Braun, Liana Briones, Jack

Brodsky, Krystal Brown, Krystin Brown, Michael Camplisson, Isabella Cao, Cindy Catanzaro, Dominic

Chan, Andrew Chelakkat, Kristine Chen, Eric Chen, LC Chen, Lucy Chitta, Pavan

> Choi, Jessica Chung, Terry Clausen, Nick Como, Joe Crotteau, Molly Crowell, Irene











































⊢750











de Castro, Gianfranco Delgado, Daniel Dev, Vidhya Devasenapathy, Kriti Dibble, Jeremiah

Ding, Grace Dominguez-Kuhne, Marcus Drango, Kali















Durrett, Olivia Einoder, Nicolae Escobar, Sergio Fish, Sara Gallmeier, Elisabeth Gallup, Thomas

Garcia, Alexei Getsova, Monika Gokuli, Mahi Gonzalez Hermosillo, Ruy Gowda, Jethin Griffith, Nora













Guerra, Alex Guo, Steve Gupta, Arushi Han, Eric Han, Ryan Heath, John

Hess, Andrew Ho, Andrew Holder, Dillon Hommerich-Dutt, Ankush Hu, Laura Huang, Audrey

Huang, Christie Huang, Yuehan Huffman, Nerys Huh, Calvin Iovine, Mike Janosi, Alex

Jaszewski, Ethan Jerez Terceros, Maheck Jin, Alice Jusuf, James Kang, Jaeyoung Karmarkar, Ishani





















Karras, Johanna Khan, Alveera Kim, Esther Kim, June Kim, Matthew Kim, Minjae

−755

Kim, Yu Jin Kitagawa, Lily Koe, Nora Kogan, Adam Korovina, Ekaterina Kou, Frank

> Kreider, Sarah Kukavica, Tony Kulkarni, Sanjana Kumar, Vinayak Kyme, Daniel Lamkin, Tye

> > Lee, Alycia Lee, Daniel Lee, Regina Lee, Su Min Lee, Yelim LeMar, Lexy

Li, Amanda Li, Mike Liang, Erich Liang, Sherry Lin, Rachel Liu, Lauren

Liu, Sarina Liu, Tony Liu, Victoria Loveridge, Tegan Lowinger, Elaine Lucas, Andrew

Lushtak, Sam Manohara, Mohith Maruszko, Krystyna Maxfield, Jack Merk, Liana Mirchandani, Rohan

Mondello, Allessandra Moreno, Eric Morgenfeld, Spencer Mu, Qiaoqiao Mudide, Shiva Muise, Izzy











































































Mukherjea, Aru Murphy, Catrin Mutic, Maya Nazeeri, Albert Neamati, Daniel Obernolte, Hale

Ora, Camilla Ordentlich, Ethan Ortega, Abraham Owen, Sam Pabon Madrid, Luis Pandey, Mayank















Park, James Patil, Anjali Patterson, Riley Patwardhan, Vivienne Pham, Tynesha Porter, Tara

Prater, Kenyon Pratuangtham, Sarida Qi, Zihao Qian, Emma Qin, Hongsen Quach, Brandon

Ramirez, Andrew Rangaswamy, Anirudh Ravishankar, Netra Rebollo, Malia Ren, XinYi Ressler-Craig, Jacob

Ridland, Paulina Riker, Matt Rosa, Kevin Rosner, Ari Rostovtsev, Dan Rothstein, Andy

Roychoudhury, Ankita Rupprecht, Michael Sander, Caleb Sanders, Julian Sanderson, Neil Santos, Louis

Shang, John Shankar, Aditi Shanker, Varun Shao, Stephanie Shi, Rachel Singh, Amritpal







































Stutt, Alex Suezaki, Lauren Sun, Haoyuan Sun, Jessica Sun, Rachel Tang, Dawn



Ung, Shu Fay Varadarajan, Vignesh Vinson, Jamie Walker, Jd Wang, Amy Wang, Betty

Wang, John Wang, Stella Watson, Mitchell Wei, James White, Ryan Wong, Katie

Woolls, Gabriel Wu, David Wu, Jennifer Wu, Sulan Xie, Yuanzhe Yao, Michael

Ye, Angelina Ye, Jessica Yeluri, Akshay Yu, Christine Yu, Erika Yu, Kevin

Yu, Vivian Zeitlin, Matt Zhai, Albert Zhai, Amy Zhang, Isabella Zhang, Tina



















































































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Zheng, David Zheng, Ruoyun Zhou, Andrew Zhou, Angelica Zhou, Daniel Zhu, Shirley

Zhu, Zimo Zlokapa, Alexander





from the editors

PHOTOS WORDS DESIGN Various Eric Chen Eric Chen Shu Fay Ung

he COVID-19 pandemic became the central point of reference for everyone in 2020-2021. As students, we endured Zoom University together. Some of us dragged ourselves to online lectures, waking up just five minutes before; others caught up with lecture recordings viewed at 2x speed, wondering if they'll ever adapt to the normal pace of speech again. The sounds of tapping chalk, shuffling paper, or squeaking chairs during office hours were replaced with crisp voices in headphones, punctuated by moments of awkward pauses and anechoic silence. Instead of frantically dashing to turn in homework at the last minute, we worried about the timestamp of submissions on Canvas or Gradescope. Our world shrank from cafe conversations, boardroom meetings, and family dinners to a 15-inch screen. It was not clear whether we were weathering the pandemic, or whether the pandemic was weathering us.

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Nevertheless, given the difficulties of remote learning, we did not stop collaborating with each other. Though not in house lounges, alleys, or Red Door, but via screen shares, digital whiteboards, and countless group chats. We held discourse on Discord, debated on Telegram, and organized on Messenger. Houses coordinated virtual social events. We did not stop supporting one another, whether it be through regular Zoom check-ins or deliveries of letters and care packages. In our attempts to fend off isolation, we reached for friends and loved ones through our devices, across time zones, and over miles of Internet cables. We stuck together the best we could.

It is in recognition of these shared efforts and experiences that we title the 2020-2021 edition of the *Big T Connections*. For a little over a year (better late than never, right?), we stuck together to make this book possible. We navigated Zoom fatigue, mild sleep deprivation, and severe boba withdrawal to bring the book to fruition. As the editors-in-chief, we are incredibly indebted to the dedication of an amazing team of writers, photographers, and designers that enabled the publication of *Connections*. Thank you and kudos to you all! We pass on the torch to **CHRIS WANG [22]** and **SELINA ZHOU [22]**, confident that the *Big T* is in good hands (and in excellent tastes of boba).

As we turn over the last few pages of this book, we are excited to see where the Big T will head in the next century of its existence. So here's to you, and the connections that make us and keep us going.





co-conspirators Co-Editors-in-Chief Shu Fay Ung (top) and Eric Chen (bottom).



staff

cindy cao [2]] lc chen [2]] nivedita kanrar [22] chris wang [22] selina zhou [22] katherine chang [23] jenny ji [23] eilleen zhang [23] lucy chen [24] catherine ko [24] haruna tomono [24]

staff photo The incredible people behind the scenes of *Connections*. If you look close enough, you might spot the elusive Eric.

portraits

can you match the drawing to the person?











J. Selina Zhou Z. Chris Wang
B. Silleen Zhang ⁴. Catherine Ko
S. Lucy Chen L. Katherine Chang
J. Jenny Ji B. Haruna Tomono
P. Shu Pay Ung L0. Eric Chen

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One year is many things. To some, it is another 365 days of friendship. 0

CHRIS WANG

CHRIS WANG

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SHU FAY UNG

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It is also the final year of college life, defined by the last hellos and goodbyes.

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sleep.

SHU FAY UNG

AVERY HOUSE

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As time comes and goes, weaving characters and stories into the fabric of our experience,

It leaves intertwined layers of sentiment, meaning, and wisdom waiting for us to unravel.

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