

# TECHNIQUES

A publication of  
Caltech's Office of Gift Planning

SPRING 2022



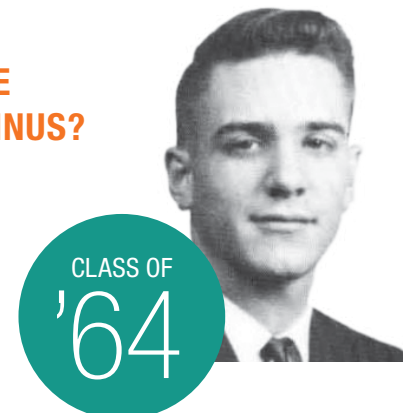
*Clockwise, from left: Nick Hutzler (BS '07); Pamela and James (BS '70) Taylor with Professor Katherine Faber; Sandra Kulli and Alya Al-Kibbi (Class of 2022)*

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**Caltech**

## New Professorship Will Fuel Research

Agility has defined the nearly 50-year career of David C. Gakenheimer (MS '66, PhD '69). He applied his skills and ingenuity to industries as wide-ranging as national defense, oil, and dentistry. Now, his bequest to establish a professorship at Caltech will help faculty be just as nimble in their research.

"It's getting increasingly difficult for faculty to get funding and try different ideas," Gakenheimer says. "I like the idea of funding someone who will do groundbreaking work. If they need the assistance, I am really happy to help."

### AN AMBITIOUS PHILANTHROPIST

Gakenheimer's multifaceted approach to philanthropy centers on breakthrough science and technology as well as student success. He has previously underwritten faculty research and endowed a graduate fellowship at Caltech.

With his \$4 million planned gift to establish the Dr. David C. Gakenheimer Professorship, he hopes to achieve both of those goals. The professorship will provide a Caltech scientist or engineer with funds to pursue promising but untested ideas. This flexibility, combined with the prestige associated with a named position, will help Caltech recruit and retain leading researchers and instructors.

Gakenheimer is funding his professorship through a bequest from his IRAs and a testamentary charitable remainder unitrust (CRUT) comprising his real estate holdings and non-IRA financial investments. His significant



David Gakenheimer (MS '66, PhD '69) and Tina Imamura

others will receive a reliable income stream for life, after which the remaining balance will underwrite the professorship at Caltech.

### A MOTIVATED STUDENT

From the moment he toured campus, Gakenheimer knew that Caltech's size, rigorous education, and people were the perfect fit for him, he says. Yet the austere budget and lifestyle of a graduate student had him equally convinced that he would not overstay his time. In fact, the motivated graduate student researched, drafted, and defended his thesis on elastic wave propagation in only three and a half years.

As graduation approached, Julius Miklowitz, professor of applied mechanics and Gakenheimer's adviser, recommended him for a position with the RAND Corporation. Gakenheimer was hired as a staff scientist and worked on national defense issues while the country was engulfed in the Vietnam War.

### A VERSATILE ENGINEER

When Cold War tensions eased, Gakenheimer shifted his focus and, after a series of corporate spinoffs, mergers, and acquisitions, joined the aerospace company Logicon. There, he led a team of scientists who did pioneering work in artificial intelligence (AI) and image analysis. He found that AI's power to enhance detection could be applied to a variety of fields. His team created sophisticated software that helped airport security workers better identify explosives in luggage and weapons on airline passengers. They worked on a new method that enabled oil refineries to reduce the release of pollutants while maximizing the quality of gasoline. And they developed technology to help dentists classify dental caries. Soon, Gakenheimer launched his own company to help dentists more effectively treat tooth decay. After 25 years, his product, the Logicon Caries Detector, continues to be used by dentists around the world.

Now retired, Gakenheimer credits his professional success to Caltech. "It was understanding the process of learning that served me well in life," he says. "I did not need expert-level knowledge on every issue I encountered in my career. I just had to think like a researcher and be fearless."

*"I like the idea of funding someone who will do groundbreaking work."*

—David Gakenheimer

## Torchbearers Legacy Society

Membership in the Torchbearers Legacy Society is extended to those who have provided for Caltech in their wills or living trusts, designated Caltech as a beneficiary of their life insurance or retirement accounts, or completed deferred gifts for the benefit of the Institute.

In recent months, the following people have joined the Torchbearers.

David C. Gakenheimer (MS '66, PhD '69)  
Deborah Robinson  
Shiyin Siou (BS '95) and Peichi Wu

### ESTATE GIFTS

From the estate of **William L.** (BS '41) and **Marjorie F. Deniston**, Caltech received \$10,000 in unrestricted support.

From the estate of **Emiko Kashiwabara**, Caltech received a partial distribution of \$14,500 to be added to the Naozo and Tsuki Kashiwabara Scholarship Fund.

From the estate of **Richard D. Lewis**, Caltech received \$1,000,000 in unrestricted support.

From the estate of **Myrven F. Gift Jr.** (BS '49), Caltech received \$63,700 in unrestricted support.

From the estate of **Robert L. Noland** (BS '41), Caltech received \$500,000 to be added to the Robert L. Noland Leadership Scholarship Fund.

## Forging a Caltech Connection

The Herbert W. Jones Scholarship will support Black students in the Division of Physics, Mathematics and Astronomy.



The first time Brenda Jones visited Pasadena, she was captivated. It was like no place she had ever been. A teenager at the time, she was vacationing with her parents from Tallahassee, Florida—and they found themselves unexpectedly engulfed by the Rose Parade.

Today Brenda’s appreciation for the City of Roses extends beyond floats and flowers. It is the place both she and Caltech call home.

Ten years later, after graduating from high school and earning a degree from Howard University School of Medicine, Brenda returned to the West Coast. She came to complete her clinical and research fellowships at the University of Southern California. When a postdoctoral appointment led to a permanent position, she settled down in Pasadena—a short drive to the USC Health Sciences campus northeast of downtown Los Angeles and, when her father came to visit, a short walk to Caltech.

“My dad was very much into science and supercomputers,” Brenda says.

### THE HERBERT W. JONES SCHOLARSHIP

Herbert W. Jones was a professor of physics at Florida Agricultural and Mechanical University for over four decades and served as chair of the physics department for 12 years. During his tenure, he co-authored two books and more than 50 scientific articles. He was a member of

the NAACP, the Urban League of Tallahassee, the Phi Beta Kappa and Sigma Xi Honor Societies, and the Alpha Phi Alpha fraternity. In 2000, the White House Initiative on Historically Black Colleges and Universities recognized him with the National Millennium Award for Research.

“When he came to California, my father would sometimes see colleagues at JPL, but more often he spent time at Caltech,” Brenda says. “It was a place we liked to go, and he enjoyed talking with his longtime friend Vince McKoy.” (Basil Vincent “Vince” McKoy was a professor of theoretical chemistry at Caltech from 1964 until his retirement in 2016. He passed away in 2020.)

After her father died in 2002, Brenda maintained the connection. “When I’m on campus,” she says, “I’m reminded of how much my dad admired Caltech.”

Brenda exercises at Braun Athletic Center, attends concerts and lectures from time to time, and occasionally walks or bicycles around the grounds. “It’s such a beautiful place, but, truthfully, I think one of my favorite things about Caltech is the prime rib at the Ath,” she confides with a laugh.

To commemorate the place her father revered, Brenda made provisions in her estate plan to establish the Herbert W. Jones Scholarship at Caltech. And to promote greater representation in what was, during her father’s time, an area of science lacking diversity, she stated a preference for supporting African American students entering the Division of Physics, Mathematics and Astronomy.

“My dad was always encouraging students to enter the STEM fields,” she says. “And now, in his honor, this fund will help make that happen at a very special place.”

## Torchbearers Appreciation Luncheon

Torchbearers gathered at the President’s Residence on March 26 for a special luncheon hosted by President Thomas F. Rosenbaum and his wife, Katherine T. Faber, the Simon Ramo Professor of Materials Science. The program included presentations by astrophysics undergraduate Alya Al-Kibbi and assistant professor of physics Nick Hutzler (BS ’07).

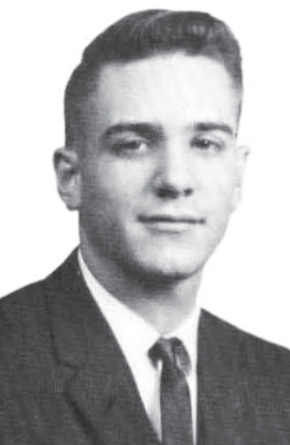
“We are excited to be able to entertain once again, with individuals like yourselves who care so deeply about Caltech,” said Rosenbaum, holder of the Sonja and William Davidow Presidential Chair and professor of physics. “All of you share an appreciation for what makes Caltech special—of where Caltech is going and what our future will be.”

Lebanon-born Alya Al-Kibbi, co-president of the 2022 senior class, told Torchbearers she was thrilled to have found her way to Caltech. “Working at NASA is every space scientist’s lifetime dream, and I got to do that for two years as a SURF student without even an undergraduate degree,” she marveled. “Thank you all so much for supporting this incredible institute. You are changing people’s lives.”

Professor Hutzler described how he uses circuit design, cryogenics, lasers, and molecular modeling to search for new particles and forces. Through Caltech’s Center for Teaching, Learning, and Outreach, he creates opportunities for high school students and teachers to help advance his research. He thanked Torchbearers for being generous, supportive members of the community. “It’s nice to feel surrounded—not just to be a lone electron, but to have a quantum cloud [of Caltech people] around me,” he said.



From top: President Rosenbaum (left) with Torchbearers; Linda Josephson and Toni Perpall; Cathy Zhu, Luke Wang (PhD ’97), and Steven Wierenga (BS ’70); Richard Heinze, Dan Flaherty, and Dora Camp



## Recognize This Alumnus?

If you attended Caltech during the early 1960s—or were visiting from a nearby college—you may have met this alumnus at a Dabney mixer. If you didn't socialize with Darbs, you may have played with him in the band, in which case you surely will remember how the director, John Deichman, secured a gig on Disneyland's Main Street and scored each band member an entire book of E tickets. If you were among the 30 athletes or 200 fans who attended Caltech football games, you may have seen him perform with the band at the Rose Bowl.

Well prepared for Caltech, he found his classes challenging and his interactions with professors and peers stimulating. After receiving an undergraduate degree from Caltech in 1964, he earned a master's degree from Stanford University. He was then assigned by the Air Force to a laboratory in Albuquerque, NM. "As I worked on radars, provided technical support on Air Force contracts, and guided other research activities, I realized how good my Caltech background was," he says. After serving in the Air Force, he went back to school and earned a PhD. From there, starting with a stint at Bell Labs, he enjoyed a long and rewarding engineering career. Throughout it all, he remained grateful for his Caltech roots.

Together with Elizabeth (Sally) Erskine, **Douglas (Doug) Hill (BS '64)** established a scholarship at Caltech in 2021. "The Elizabeth Hampton Erskine and Douglas W. Hill Scholarship was Sally's good idea," Doug says.

Doug and Sally first crossed paths in 1961, when she, at the time a student at USC, attended a Dabney get-together. Each went on to marry someone else, but over the decades they continued to see one another when Doug and his family were in the area to visit his parents. Eleven years ago, Doug and

Sally reconnected and, as Doug describes it, "clicked right off the bat."

Sally's tie to Caltech predates Doug's. She was eight years old when her father, a Caltech alumnus, brought her to campus for her first Friday night science lecture. "My father, my [late] husband, and Doug—all the key men in my life—went to Caltech," Sally says. "What we talk about, think about, and value—the eternal quest for knowledge—all have been influenced by Caltech."

Education has played a central role in Sally's life. After receiving her master's degree, she took a job with the Los Angeles Unified School District, where she enjoyed a 40-year career as a secondary school administrator and executive staff member for a local Los Angeles district.

Both Doug and Sally want to sustain Caltech's need-blind admissions policy and make sure talented scholars have the resources they need to attend. So, in addition to including Caltech in their estate plans, Doug decided to provide immediate assistance to students by pre-funding a portion of the scholarship through a qualified charitable distribution from an IRA. "Endowing a scholarship fund appeals to me," he explains. "I like the fact that our support will continue in perpetuity."



Sally Erskine and Doug Hill (BS '64)

## Good News from Caltech



### BATTLE OF THE BOTS

In the welcome return of a Caltech tradition that began in 1985, robots vied in person (so to speak) for the ME 72 championship on March 10, 2022. The competition, which is the final exam for an undergraduate engineering design laboratory course, had been modified to accommodate an online format during the pandemic. This year, however, five teams met in person once again to test their mechanistic mettle with radio-controlled and autonomous robots. The square-off was sumo style: Round after round, contestants attempted to remain the last one standing within a five-foot-diameter ring on the Ramo Auditorium stage. You can see photos and read more on Caltech's website. Videos of the event, and of past years' competitions, can be viewed on YouTube.

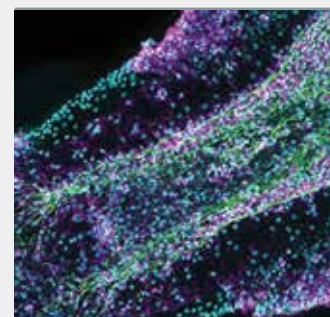
### NEW JPL DIRECTOR

Laurie Leshin (MS '89, PhD '95) has been appointed director of the Jet Propulsion Laboratory (JPL) and vice president of Caltech. She succeeds Michael Watkins, who retired in August 2021, and Lt. Gen. Larry D. James USAF (Ret.), who served as interim director. "Laurie Leshin stood out in an exhaustive international search because of her profound commitment to people, her strategic approach to scientific and technological opportunities, her deep appreciation of NASA's leadership in space exploration and Earth science, her mastery of complex organizations, and her ability to inspire the next generation of scientists and engineers," says Caltech president Thomas F. Rosenbaum, the Sonja and William Davidow Presidential Chair and professor of physics. *Photo courtesy of Worcester Polytechnic Institute.*



### REGENERATING BODY PARTS

Caltech researchers have discovered certain conditions that enable different laboratory animals to regenerate amputated appendages. Upon consuming a diet high in sugar and an essential amino acid, the moon jellyfish *Aurelia coerulea*, the fruit fly *Drosophila melanogaster*, and common laboratory mice—none of which previously have been shown to regrow limbs—all demonstrated some ability to regenerate appendages after amputation. The work suggests that the ability to regenerate is somehow innate across diverse species and can be triggered under the right conditions. These findings open up new models for studying how to induce regeneration. A paper describing the research, primarily conducted in the laboratory of Lea Goentoro, professor of biology, appeared in the journal *eLife*.





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