

# TECHNIQUES

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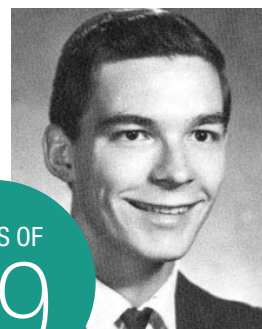
Breaking ground for the Dr. Allen and Charlotte Ginsburg Center for Quantum Precision Measurement, a new building that will foster breakthroughs in quantum science and technology, are (from left): Professor Fiona A. Harrison, California State Assemblymember Chris Holden, Caltech president Thomas F. Rosenbaum, philanthropists Charlotte and Allen Ginsburg, Pasadena mayor Victor Gordo, and Caltech provost David A. Tirrell (photo credit: Chris Flynn/Caltech). See page 7 for more information.

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## RECOGNIZE THIS ALUMNUS?

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CLASS OF  
'69

Caltech

## Couple Establishes Scholarship Fund for Middle-Class Students

For more than 87 years, JPL has opened doors to the universe. For Gail and William “Bill” Robinson, the famed lab managed by Caltech opened doors of opportunity.

From 1970 to 1977, Bill was an academic part-time employee at JPL, first doing technician work and later engineering design work. Bill enrolled at UCLA in 1970 and received his bachelor of science in electrical engineering in 1974.

Bill used his JPL earnings to finance graduate studies at UCLA and Loyola Law School, receiving his master’s in electrical engineering in 1975 and juris doctor in 1978. Combining technology and law, he went on to have a 45-year career as a technology trial lawyer specializing in patent and trade secret litigation.

JPL also offered Bill another benefit: the opportunity to meet Gail in 1975. The two have been married for more than 40 years.

### THE SKY’S THE LIMIT

Gail took a clerical job at JPL while on break from the University of San Diego in the 1970s and, after graduation, joined the lab full-time as a secretary. She rose through the ranks while also earning her master’s in business administration.

“I never felt that I couldn’t get ahead because of my gender,” Gail says. “JPL had a lovely collegial environment. I was well respected as a team member, and my voice was heard.” She is also proud of her role as a mentor to young women at JPL.

In the 1980s, Gail oversaw business operations for several missions and was business manager for the Mars Directorate and the Space and Earth Science Directorate. After those directorates merged, she worked as a business manager for Charles Elachi (MS ’69, PhD ’71), who became JPL director in 2001, and his successors. When NASA mandated a chief of staff position at each federally funded research and design center, Elachi appointed Gail to that role at JPL.

After more than 50 years of service, Gail retired this year.

### INVESTING IN YOUNG PEOPLE

The Robinsons reached the point in their lives where they needed to make decisions about their estate, which had grown over the years. With no children of their own, they decided that the best use of their money was to provide scholarships for middle-class students.

“We want to support the next generation of scientists, engineers, doctors, and lawyers,” Bill says. “I got out of law school with no money, but also no debt. You can’t do that today. We want to help kids with their education costs so they can get on with their lives after graduation.”

Gail agrees. “Engineers from middle-class families are saddled with student loan debt,” she says, adding that middle-class students and their families receive minimal need-based assistance but cannot cover the total cost of tuition. “When they graduate, they cannot afford a house in Pasadena or even a family. We saw this situation all the time at JPL, and it affected our recruiting.”

The couple’s \$5 million bequest to Caltech will endow the Gail and Bill Robinson Scholarship, which will support middle-class students who qualify for financial aid. The Robinsons are establishing similar endowments at UCLA, USC, and Loyola Law School.

### A CAMPAIGN FOCUSED ON STUDENTS

Caltech students graduate with less debt than their peers, \$16,787 compared to \$37,338. Still, Caltech wants to do better. The Institute recently launched the Initiative for Caltech Students, a fundraising campaign to raise an additional \$100 million in student scholarships.

Robust financial aid packages free students to follow their curiosities and passions while on campus as well as after they graduate, says vice president for student affairs Kevin Gilmartin, the William R. Kenan, Jr., Professor of English and holder of the Allen V. C. Davis and Lenabelle Davis Leadership Chair.

“Gail and Bill understand the challenge that recent college graduates face and want to help,” Gilmartin says. “I am deeply grateful for their scholarship fund, which will advance Caltech’s goal of eliminating institutional student loans.”



Gail and William “Bill” Robinson with their dog Skye

## 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 (BS ’75) and Brooke Atkinson

David (MS ’76) and Cynthia Bogue

Len Erickson (BS ’68)

James (PhD ’85) and Barbara Fillmore

David (MS ’72) and Julie Mantrom

Gail and Bill Robinson

David (MS ’67, PhD ’73) and Linda Vahey

### ESTATE GIFTS

The generosity and foresight of alumni and friends are crucial to Caltech’s success. Below are just a few of the many individuals who have recently supported Caltech through estate gifts.

**Samuel R. Suitt III** (BS ’61) contributed to the Undergraduate Scholarship Fund.

**M. Carner** provided support to the Cahill Center for Astronomy and Astrophysics.

**Judy and Joe** (BS ’47) **Rosener** contributed to the SURF Program and Ricketts House Fund.

**Jack and Florence Irving** provided unrestricted support to the Institute.

Uri (MS '69) and  
Paula (PhD '71) Bernstein



## Coming Full Circle

Paula and Uri Bernstein support scholarships with a bequest to the place where their relationship blossomed.

When Paula Bernstein (PhD '71) first came to Caltech from New York City in 1966, she planned to earn her PhD and return to the East Coast to be an academic chemist. Fifty-seven years later she's still in Los Angeles, recently retired from a long career as an obstetrician-gynecologist at Cedars-Sinai Medical Center and reinventing herself as a medical mystery writer.

Plans change—sometimes drastically—but one thing that has stayed constant from her early days at Caltech is the man by her side, Uri Bernstein (MS '69).

"I'm grateful to Caltech for giving me the love of my life," says Paula, who met Uri, a physics graduate student at the time, within days of arriving on campus.

### GAINING KNOWLEDGE

After earning a master's degree, Uri went on to complete a PhD at UCLA. He spent his career doing applied aerospace research, building on foundational knowledge he gained at Caltech.

"I learned the fundamentals of being presented with challenging problems and working with other people to solve them," he says. "Those are skills and work traits that have really benefited me in my career."

Paula went on to become a doctor after first entering the academic job market during the recession of the early 1970s. She says what she learned at Caltech translated well to her work as a physician.

"In my practice, I applied the same thought processes that I would apply to solving a scientific research problem to figuring out what was going on with a complicated patient," Paula says.

Plus, her Caltech experiences provided material for her medical mystery novels, the Hannah Kline Mystery Series. "In one of my novels, I use the substance I wrote my PhD thesis on—an arsenic compound—to poison someone," she says with a laugh.

### GIVING BACK

Now, in recognition of the place that played an outsized role in their lives, the Bernsteins have made a bequest to support scholarships as part of the Initiative for Caltech Students.

"Students are the bedrock of the institution," Paula says. "I would not want to see talented, brilliant students unable to come to Caltech because their parents can't afford it."

Uri adds that, as children of immigrants, he and Paula also see scholarships as a way to help families like their own.

"Technology and science are fields that a lot of new immigrant kids go into, and it's a way for them to gain upward mobility in our society," he says. "We want students from families of modest income to be able to get the benefits of a Caltech education."

Caltech has meant so much to them that the Bernsteins chose to celebrate their 50th wedding anniversary at the Athenaeum in 2018.

"Uri and I have really fond feelings toward Caltech because we had such a good time together there," Paula says. "It left us with a great foundation for what we did academically and professionally for the rest of our lives."

## Open Door, Open Heart

All people, including the timid, the brilliant, and the free-spirited, were welcome at the home of Jeffrey Goldsmith (MS '95). Every Monday and Saturday for more than three decades, he brought out his personal collection of 1,000 board games and encouraged friends to play.

Yet, the real joy for Goldsmith was the community he created. "Everyone fit in at his house," says friend Alison Maker.

Maker's spouse, Dave Dickie, was Goldsmith's roommate and JPL coworker in the mid-1980s, when game nights began. At first, the lifelong friends welcomed colleagues to the gatherings. After Goldsmith began studying computer science at Caltech, he invited fellow students as well.

Goldsmith created an environment where people could be themselves, and Caltech offered him the same, Dickie says. "He was happy at Caltech because he was with his intellectual equals."

Bridge was Goldsmith's other passion. He was active in the Caltech Bridge Club, first as a player and later as a volunteer coach. He even became a bridge grand

master, one of the highest ranks in the card game, and helped others achieve that title.

Goldsmith had lived with cancer for three years when the disease began to spread aggressively. Maker and Dickie helped him fulfill his bucket list, from seeing violinist Lindsey Stirling in concert to attending the Gathering of Friends, a major, invitation-only gaming event. Goldsmith also visited Saratoga Springs, New York, to see the famed race course and take a dip in the area's mineral springs.

After Goldsmith died in October 2021, Maker, who is an attorney, also ensured that her friend's estate went to Caltech. The bequest came with no restrictions because Goldsmith trusted his alma mater, Dickie says.

"Jeff wanted his gift to be a good investment," Dickie says. "If you really want to make a difference and push the limits of technology and science, there's no better place to send your money."



Jeffrey Goldsmith  
(MS '95)

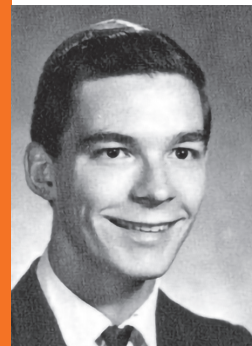
## Meet Laura Elbaum & Lizzie Knol



**Laura Elbaum** (left) joined Caltech in December 2021 as a development assistant. She provides administrative support to the gift planning team, coordinates staff travel and Torchbearers events, and assists with marketing. Prior to Caltech, Laura worked as a faculty assistant at UCLA School of Law. For the past two years, she has enjoyed getting to know Torchbearers and supporting the day-to-day activities of the Office of Gift Planning.

**Lizzie Knol** (right) joined the Office of Gift Planning in July 2022. A native of Santa Monica, Lizzie received her JD and bachelor's degree from Indiana University and previously worked at the Indiana University Simon Comprehensive Cancer Center. In her role as a senior gift planning officer at Caltech, Lizzie assists donors with gifts that require special consideration, such as including the Institute in their estate plans. On campus, Lizzie has joined the Caltech Women's Club and the Athenaeum.

## Recognize This Alumnus?



This alumnus lent his bass voice to the Caltech Glee Club, performing bright Broadway tunes as well as somber Gregorian chants for audiences throughout California. Over four years, his fellow crooners felt like family. When he married in 1969, members of the Glee Club sang at his wedding.

In the classroom, this native of Portland, Oregon, studied mathematics and computer science with the late professor of applied philosophy and computer science Frederick Thompson. Providing a glimpse into the future of artificial intelligence, Thompson designed a system architecture that enabled people to retrieve information from computers using human language instead of programming language. This innovation, known today as natural language processing (NLP), powers search engines, smart home devices, and ChatGPT.

This alumnus taught middle school math following graduation. Soon after, he was drafted into the army and lent his programming and mathematics skills to help the military scale down operations during the Vietnam War. Soon, he returned to Caltech for graduate school. Reunited with Thompson's group, he wrote instructions that parsed adjectives and adverbs from English sentences and translated the information into a format Thompson's system could understand. However, 1970s-era computing power made progress frustratingly slow for this alumnus.

He left academia for industry and had a remarkable career at Xerox Corporation. As a senior programmer and manager, he helped create the Xerox 8010 Star Information System, a forerunner of the modern personal computer. This was the first commercial product to include a mouse and a graphical user interface, enabling users to navigate by clicking icons, buttons, and menus instead of typing commands.

LeRoy (BS '69, MS '75) and Anita Nelson

"Twice in my life, I've been at places that were at the cutting edge of technology," he says. "To be a part of it was so much fun."

Now enjoying life funding and managing a private foundation, this alumnus shares his love of engineering with elementary and middle schoolers in Los Angeles, California. He has helped launch more than 400 student robotics teams at more than 300 schools in low-income communities.

This alumnus understands what it is like to have the talent but not the financial resources to succeed. His father was a railroad worker, and his mother was a food server who later opened a restaurant. Together, they could not afford their son's college tuition. Thankfully, the Institute and the Alfred P. Sloan Foundation awarded him scholarships.

To ensure that new generations of talented students can follow their dreams at Caltech, Torchbearer **LeRoy Nelson** (BS '69, MS '75) and his wife, Anita Nelson, have made a \$2 million bequest to the Institute. Their commitment will bolster the undergraduate scholarship fund they endowed in 2019. The couple's gift also advances the Initiative for Caltech Students, a fundraising campaign to enhance the student experience. Among other priorities, the initiative seeks to raise \$100 million in scholarship funds and eliminate the need for student loans.

"I received some fantastic scholarships that enabled me to become a first-generation college graduate," LeRoy says. "That generosity is one of the main reasons I give today and why I want to help Caltech students."



## Good News from Caltech

### GINSBURG CENTER GROUNDBREAKING

On August 10, philanthropists Allen and Charlotte Ginsburg joined Caltech president Thomas F. Rosenbaum, Pasadena mayor Victor Gordo, California State Assemblymember Chris Holden, and other distinguished guests and members of the Caltech community to break ground for the Dr. Allen and Charlotte Ginsburg Center for Quantum Precision Measurement.

The Ginsburg Center will accelerate the exploration of quantum phenomena at all scales as well as the invention of instruments to measure these phenomena with unprecedented sensitivity.

### SPACE SOLAR POWER DEMONSTRATOR WIRELESSLY TRANSMITS POWER IN SPACE

A space solar power prototype was launched into orbit in January and has demonstrated its ability to wirelessly transmit power in space and beam detectable power to Earth for the first time.

The prototype was developed by a Caltech team led by Ali Hajimiri, Bren Professor of Electrical Engineering and Medical Engineering. "To the best of our knowledge, no one has ever demonstrated wireless energy transfer in space, even with expensive rigid structures," Hajimiri says.

## Facing Capital Gains Tax? Avoid It with a Gift of Appreciated Assets

The IRS gives two tax breaks to donors who contribute appreciated property such as securities and real estate:

- a charitable deduction
- the avoidance of capital gains taxes on the transfer to Caltech

When you buy low and give high, you can leverage the impact of your donation to a greater degree than you could with cash—and also receive tax benefits. In short, you make a gift that costs you less than the benefit it delivers. The table on the right illustrates the advantages that can result when gifting appreciated assets outright.

*\*Based on an income tax rate of 37 percent and a capital gain tax rate of 20 percent.*

*Please note that this information is provided for illustrative purposes and is not intended as tax or legal advice. This example is based on certain hypothetical assumptions (including date of gift, amount of gift, type of funding asset, and estimated taxation rate), which may or may not be similar to the facts of the ultimate gift. Always consult an accountant, attorney, or other professional adviser regarding your specific tax or legal situation.*

### REDUCE TAXES AND GIVE MORE BY DONATING APPRECIATED ASSETS

Sell Asset and Donate Cash Proceeds to Caltech		Donate Asset Directly to Caltech
\$10,000	Value of Asset When Purchased	\$10,000
\$100,000	Current Value	\$100,000
\$18,000	Long-Term Capital Gains Tax	\$0
\$82,000	Gift Amount	\$100,000
\$30,340	Total Tax Savings*	\$55,000

Many generous Caltech supporters have also funded life income gifts with real estate and appreciated securities. Often, these donors have been able to give more than they could have given with cash, avoid immediate capital gains taxes, and generate retirement income for themselves or provide for loved ones.



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