

# TECHNIQUES

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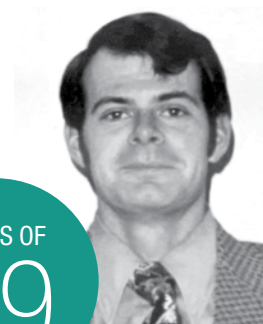
*The Resnick Sustainability Center Dedication (from left): student Madelyn Gilbert, Pasadena Mayor Victor M. Gordo, Caltech President Thomas F. Rosenbaum, Trustee Stewart Resnick, Lynda Resnick, Director of the Resnick Sustainability Institute Jonas Peters, and student Isabella Kedikian. See page 7 for more information. Credit: Chris Flynn/Caltech*

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CLASS OF  
'69

**Caltech**

## Optimizing the Future

From the early years of NASA flight missions through the development of the space station, Dr. Hamid Habib-Agahi has been a witness to history in his almost four decades of working at JPL, which is managed by Caltech for NASA. When asked what he appreciates the most from his career in risk and cost analysis, it is not a specific project that comes to mind. He remembers the people.

“When you come in as a newcomer, they’ll work with you. Without telling you, they’re educating you,” says Habib-Agahi. “At JPL, everything is open. They pick up your hand and they raise you up. People are the greatest assets that JPL has.”

It is the importance of investing in people that helped guide his decision, in partnership with his wife, Manijeh, to make several life income gifts to Caltech. Life income gifts, including charitable

gift annuities and charitable remainder trusts, provide donors with both the satisfaction of supporting a cause they care about and a steady lifetime income for themselves or a loved one.

Habib-Agahi’s analysis determined that supporting Caltech graduate students is a strategic investment in the future of science. As a result, he has chosen to create the Hamid and Manijeh Habib-Agahi Economics Fellowship Fund through his giving. He hopes the fund will allow Caltech graduate students to focus on their research without having to pursue outside employment for additional income.

Habib-Agahi credits the start of his own JPL career to James “Jim” Quirk who served as a mentor when he was pursuing a PhD in mathematical economics at Purdue University.

Quirk would leave Purdue to become a professor at Caltech, helping establish the Institute’s PhD program in economics. He encouraged Habib-Agahi to join him there.

Fortuitously, Habib-Agahi already had experience with Caltech, having worked with Olga Tausky-Todd, the first woman to receive a full professorship at Caltech and a pioneer in computer science. “I really liked the atmosphere,” he says of his time at the Institute in the mid-1960s. While Habib-Agahi was waiting for a possible faculty opening, Quirk suggested that JPL would be a good fit, given his background in engineering, management, and economics.

That advice led to a career in risk analysis, probabilistic cost model development, systems analysis, and resource optimization within JPL. Habib-Agahi actively sought out projects with the Department of Energy and the Department of Defense on environmental issues to expand his team’s portfolio, work that would eventually include the early development of the space station. In the mid-1980s, NASA tasked Habib-Agahi’s team with developing quantitative models to support design-to-life-cycle cost. They created an integrated set of engineering and cost models, resulting in new tools housed in JPL’s Project Design Center.

Nearing retirement nearly a decade ago, Habib-Agahi gave one of his last presentations at the NASA Glenn Research Center. To his surprise, he was presented with the William S. Rutledge Lifetime Achievement Award. Beyond the contributions of his professional work, Habib-Agahi’s legacy also will include his support of future graduate students at Caltech.

“If I’m going to contribute anything, this is the best place to make a contribution,” he says. “This gift is in honor of the exceptional experience I have had with Caltech faculty and JPL colleagues. This is a smart investment in the future.”



Dr. Habib-Agahi (third from left, bottom row) with colleagues at JPL

## 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:

Bob (BS '72, MS '72) and Jane Bell

Richard Burton (BS '70)

Gary Fuis (PhD '74)

Ronald Koretz (BS '63)

David (BS '80) and Jane Rumph

Frank Winkler (BS '64)

Charles Young (BS '73)

### 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.

**Elizabeth R. Sage** provided unrestricted support to the Institute.

**John** (BS '52, MS '53) **and Oonagh Boppart** provided unrestricted support to the Institute.

**Radha Murthy** contributed to the scholarship fund in the Aeronautics Department.

**Frederick C. Harshbarger** (MS '53, PhD '57) provided support to graduate fellowships.

**John Domingo** (BS '55, PhD '63) provided unrestricted support to the Institute.



## The Gift of a Bright Future

At seven years old, Jay Frogel (PhD '71) fell in love with astronomy. He would grab his friend, a pair of binoculars, and a telescope and stare at the stars above the Catskills in southern New York. Together, they looked for constellations and marveled at the mysteries of the Milky Way.

“It was fascinating to me,” Frogel says. “I had no idea what it meant to be an astronomer, but I knew I didn’t want to do anything else.”

He fulfilled his childhood dream and more. As an astronomy professor at The Ohio State University, Frogel advanced his field by developing new techniques in infrared astronomy, which studies astronomical objects using their emitted heat energy. He brought distant and older stars and galaxies into greater focus and advanced understanding of the structure, function, and evolution of spiral galaxies, the most common galaxy in the universe. Later, as vice president for science at the Association of Universities for Research in Astronomy, Frogel promoted research and collaboration through the management of world-class observatories and telescopes.

What he remembers most about his career journey is not his hard work or awards but the support he received along the way. First, his parents encouraged his passion by buying him amateur astronomy books and taking him to New York City’s Hayden Planetarium several times a year despite their modest income. Then his roommates stepped in when he struggled with the coursework as a first-generation college student at Harvard University. And when he became a graduate student at Caltech and was unsure of his research focus, professors such as the late Wallace Sargent and Nobel Laureate Kip Thorne, the Richard P. Feynman Professor of Theoretical Physics,



Emeritus, guided him to observational astronomy. There he met the late Gerry Neugebauer, one of the founders of the field of infrared astronomy.

Recognizing that no one achieves success alone, Frogel and his wife, astrophysicist Susana Deustua, are helping Caltech undergraduates turn their dreams into reality. The couple has established the Jay A. Frogel and the Susana E. Deustua Scholarship during their lifetime, with an additional estate provision for Caltech designated to the same undergraduate scholarship.

“I received a NASA fellowship at Caltech and was able to devote nearly all of my time at Caltech to doing the research needed for my thesis,” says Frogel, who retired in 2011 and now devotes his time to travel and photography. “I don’t want finances to interfere with students’ learning. I’m happy to make college more affordable for deserving students.”

The scholarship states a preference for female Hispanic students. Deustua, who is Hispanic, has worked in science for three decades and believes the need for more diversity in the field remains just as great.

“The first hurdle in getting more young women to go into physics and astronomy is making sure they can afford college,” Deustua says. “If you really believe in something, then you should support it, and that’s what we’re doing.”

## A Simple Recipe for Success: Work Hard and Give Back

“My uncle Jerry said, ‘Caltech made me the man I am today,’” quotes his niece, Esther Warkov. Warkov believes Caltech gave Jerard Werner (BS '47) the opportunity to succeed, and it was something that he never took for granted. A longtime supporter of the Institute, Werner passed away in 2022 at the age of 94.

Both Werner’s parents fled western Ukraine when they were young, escaping antisemitism and the czar’s army. Werner’s father became a large-animal veterinarian and meat inspector in California. Faced with being drafted during World War II, Werner entered Caltech at age 16 after he and his parents hastened to secure his admission. According to his niece, he was determined to work hard so he could help his family and others.

After Caltech, Werner spent his career in the aerospace industry working on thermodynamics problems and helped develop a seminal handbook used by NASA on satellite heat transfer. He retired in his early 50s and focused on his investment strategies.

Werner’s extraordinary lifetime giving to Caltech totaled more than \$13.3 million. In 1998, Werner established a charitable gift annuity (CGA) with Caltech, the first in a series of CGAs that he created with the Institute. The CGAs provided a fixed income for Werner during his lifetime. A dedicated supporter of student scholarships for decades, he also began the Werner ME Undergraduate Innovation Fund for mechanical engineering students in 2017.

“Working with Jerry for many years—whether in Orange County or during his visits to campus—was always a pleasure,” says Laura Grinnell, senior director of development for Engineering and Applied Science at Caltech. “He was absolutely

focused on supporting the student experience, including hands-on opportunities for mechanical engineering students, making sure they had opportunities to innovate and succeed during their time at the Institute.”

After retiring, Werner was actively involved in his Laguna Woods retirement community. He loved sea and train travel and relished planning and taking frequent trips.

“Even though our experiences were vastly different, he was always ready to listen,” says Warkov of her uncle. “We found points of intersection, like opera and investing.” Warkov notes that her uncle’s giving to Caltech embodied his core values: work hard, make something of yourself, and give back. It’s a simple recipe for success that Werner clearly applied to his life.

Jerard Werner (BS '47) with niece Esther Warkov





## Recognize This Alumnus?



If you were one of the students who commuted to class in the mid to late 1960s, you might have cruised to campus with this alumnus. The son of a Caltech grad, he grew up in Arcadia and followed in his father's footsteps to pursue a degree at the Institute. In his free time, he was active in the Caltech Y as well as in band and orchestra as a clarinet player.

"Music was what tied me to other people as a commuter student," he says. "I ended up making my best friends in music."

This alumnus put off choosing a career path until graduate school at MIT, where he earned a master's degree in mechanical engineering and a PhD in fluid mechanics. But he says Caltech's strong core undergraduate program supported a wide range of options for further study, including a particularly memorable course about the Gwembe Valley Tonga people in Africa, taught by Thayer Scudder, now professor of anthropology, emeritus.

"I absorbed the enthusiasm of renowned professors who were teaching the very best they could," he recalls. "Such enthusiasm is rare and is made possible in part by Caltech's smaller size."

Upon completion of his doctoral studies in turbulence and acoustics, this alumnus returned to sunny Southern California to join General Atomics, a defense technologies company in San Diego, as an engineer. After a long career specializing in fluid flow, heat transfer, and acoustics, he moved to Hawaii in 2003 and became an early digital nomad.

Now in retirement, **Tom Burton** (BS '69) gives back to his local community as an organic farmer on the Big Island. Over the years he has sold parcels of his land, which he bought in 1999, to people who have come to work

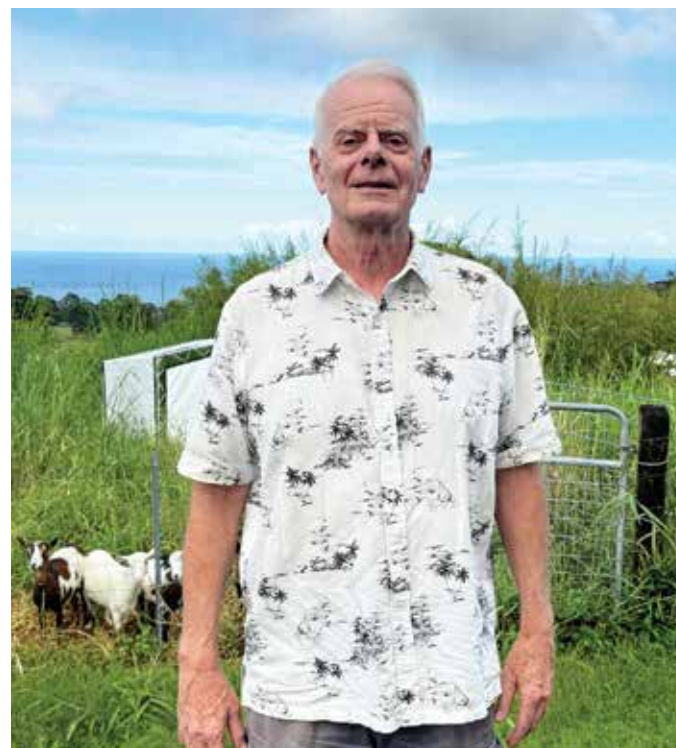
on the farm. On his remaining acreage, he's started to plant a mix of native forestry and orchards after taking a brief pause from the business.

Burton also gives back to Caltech as a supporter of the Caltech Fund and was inspired to complete his bequest intention after a meeting with President Thomas F. Rosenbaum during which they discussed the importance of financial aid.

"They are really making an effort to reach out to low-income families, and I was impressed by that," says Burton. "Caltech's continued efforts to excel in undergraduate education, along with their astronomy and astrophysics program and the Institute for Quantum Information and Matter, are also remarkable."

He has designated a substantial portion of his estate to Caltech to help support future generations of Techers.

"I think it's important that, as a default, people contribute to their alma maters, because it spreads the money around," Burton says. "Plus, there are things that you just can't get other places."



Tom Burton (BS '69)

## Good News from Caltech

### THE RESNICK SUSTAINABILITY CENTER OPENS

Intended to be a modern, flexible research building capable of supporting and expanding the work of the Resnick Sustainability Institute, the Resnick Sustainability Center (RSC) opened its doors this fall to an enthusiastic community of faculty, students, administrators, and researchers. A LEED Platinum building described by its architects as "a mass timber home for bold climate solutions," RSC will host four resource centers: the Resnick Ecology and Biosphere Engineering Facility, the Resnick Solar Science and Catalysis Center, the Resnick Remote Sensing Center (which houses the Brinson Exploration Hub), and the Resnick Translational Science and Engineering Facility, along with chemistry labs, classrooms, and offices.



Resnick Sustainability Center. Credit: Chris Flynn/Caltech

### FOR THE FIRST TIME, WOMEN MAKE UP 50% OF CALTECH'S INCOMING UNDERGRADUATE CLASS

Caltech announced this past fall that the class of 2028 is the first to reach gender parity since the Institute began admitting female undergraduates in 1970. To combat past inequities, the Institute has focused on increasing the number of female applicants and matriculants with targeted outreach and recruitment efforts. These efforts include Women in STEM (WiSTEM), a free overnight summer preview program for high school juniors and seniors. In 2023, more than 700 students and family members attended the WiSTEM program.

## Extending Your Tax Savings for a Lasting Legacy

You may be familiar with the charitable deduction that comes with making gifts to the Institute, but did you know that a similar deduction can also help your estate with tax savings?

The federal estate tax is levied on the value of everything an individual owns or has an interest in at the time of their passing, including their home, retirement accounts, and businesses. The 2017 Tax Cuts and Jobs Act, which doubled the estate tax exemption, is set to expire on December 31, 2025. If Congress takes no action, the threshold for federal estate tax will reset and potentially limit the ability to transfer assets for thousands of Americans.

Estate planning is more vital and timely than ever. Through charitable gift planning, you can ensure the maximum support for the causes you care about most. Bequests are 100% deductible and donations can be structured to potentially eliminate tax liability altogether. Other types of gifts, like charitable remainder trusts, charitable lead trusts, and charitable gift annuities, have helped many taxpayers provide an income to loved ones through their estate in a tax-smart way.

Gifts made after one's lifetime ensure lasting impact. With some planning, everyone can shape their own legacy at Caltech with the added benefit of reduced taxes.



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*Techniques* is published by Caltech's Office of Gift Planning. For more information about the stories featured in this issue, or if you have questions about deferred or other planned gifts, please call or email us.

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