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MESSAGE FROM ARCHIVES CHAIRMAN DON NIELSON



Don Nielson

Welcome to another newsy issue that I know you will find interesting. After recalling a successful Spring Fling at the Computer History Museum, you'll find probably the biggest news: Xerox's famous Palo Alto Research Center (PARC) is now part of SRI. You'll learn a bit about PARC's background as well as how much it has evolved into an operation very much like SRI—

surprisingly, with some of the same research clients. Now time is being devoted to in-depth mutual familiarization sessions and to taking care not to derail PARC's business model. The ultimate goal, however, is a complete integration.

This issue's account of "SRI in Action," so to speak, is really exciting. From a glimpse into five projects, you'll find as vital a set of innovations as you could ask for. The first three projects are sponsored by DARPA, which just happens to be an ideal sponsor for SRI's position in the cycle of innovation. First, we find a new, highly sensitive magnetometer that, despite high, normally masking magnetic environments including the Earth's magnetic field, is capable of detecting the fields generated by our bodily organs. To get a sense of the potential of this new system, you must watch the first url pointer in that section. The next DARPA project seems a bit like alchemy that produces nutritious food instead of hopeful gold. And then, when you are worried to death about the potential power of general artificial intelligence to rob you of reality, comes that same tool to detect when fakery occurs. One of the remaining two projects addresses a first-of-its-kind oral drug approach to neutralizing in-body radioactive contamination. The other looks at how Nevada can profit from its ore-through-recycle production of lithium batteries.

There was a time when SRI enjoyed prominence in the field of corporate strategic planning. Brock Hinzmann takes us back to look at the forecasting part of that discipline. You will find his brief historical account of how SRI's approach

to forecasting, derived from its long tradition of multiclient planning and consulting services, produced a surprisingly prescient introduction to what you see unfolding today. Brock describes how nearly a half-century ago SRI alerted its clients to a coming information-intensive age and a socially interactive world. Seems an outcome worth reconsidering.

Another of SRI's notable long-ago efforts lies in medical ultrasound. SRI not only proved ultrasound's place in the spectrum of essential medical imaging, but also led to its early commercialization. One aspect of that introduction was quantifying its potential biological risks. You'll learn how Peter Edmonds, a major SRI player in that field, was finally recognized this spring for his lifetime of work, work that originated at SRI and continued here for a couple of decades. Please read about his award.

Not discussed in this newsletter issue is the overhaul of the SRI campus because there's very little to tell. Internally, there seems pressure to vacate the 400 series buildings, presumably to begin first the part of reconstruction that is residential housing. The map is changing only slightly, with no firm date other than the Institute is still targeting SRI consolidation in 2025. Sadly, how SRI's presence will shine is nowhere yet to be found!

Finally, a few "musts." Plan on attending our October reunion by replying by the end of September, renew your membership by 30 November, and nominate a deserving colleague for our Hall of Fame. Then softly close by saying farewell to our noteworthy alums.

Thursday

5

October

The Annual Reunion is on October 5. Please see the announcement on page 15. The invitation flyer for the event is enclosed with this mailing.

Spring Fling at the Computer History Museum

This year's Spring Fling found us returning, after well over a decade, to the Computer History Museum (CHM) in Mountain View. The turnout was excellent, with around 70 alumni there. In the intervening years the CHM has had a wonderful transformation from a walk-around, scarcely labeled boneyard of artifacts to a cornucopia of exhibits providing a polished and informative history of computing—probably the world's largest collection. Part of that history came from SRI, and we spent some time viewing its currently displayed artifacts with Don Nielson giving commentary. Page 3 is from the day's handout showing what was on display. Part of that was of Shakey, the first mobile robot capable of assessing and reasoning about its environment. Shakey is shown here along with Helen Wolf who helped give it that ability.



Helen Wolf and Shakey (photo courtesy of Barry Minkin).

Because the CHM has limited floor space, a number of important SRI artifacts await exhibit space or areas of redesign. Among those in the queue are a replica of the workstation Doug Engelbart used in his famous 1968 “Mother of All Demos” in the San Francisco Civic Auditorium. Marc Weber, CHM curator, brought this replica out and Don Nielson described it for us. Also in back storage is a so-called line processor that in the early 1970s interfaced the mouse, keyset, and a more standard CRT display to any computer housing Doug's NLS operating system. A few other SRI contributions are in the wings awaiting display.



Don Nielson and replica of workstation used in 1968 “Mother of All Demos.”

From ERMA, the first-ever check processing system designed and built for the Bank of America, there are two machines in the CHM's possession. One, very recently acquired, is GE's operational ERMA, the transistorized implementation of SRI's first 1955 prototype. The other is a traveler's check processing unit pulled from the basement of the bank's headquarters back in 2014. In a different vein is a small experimental computer based on only magnetic logic. It was designed and built at SRI long ago by Hew Crane and Bill English. Finally, awaiting a transfer agreement to the museum is an early version of Phil Green's telepresence surgery system now produced by Intuitive Surgical and in worldwide use.

For those of you who couldn't be there, Gary Bridges has blessed us with some great images of the event. And, in spite of there being no such thing, we enjoyed a free lunch. Thanks go to Dave Harvey, Don Shockey, Linda Jansen, Augustina Biosic, and Don Nielson for creating the event and to the museum for hosting us. Maybe Barry Minkin's warm endorsement best sums it up:

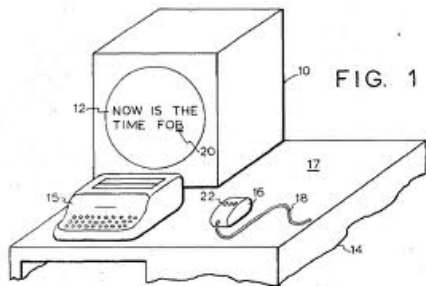
How good it felt yesterday at the SRI alumni Spring Fling at the Computer History Museum. The SRI exhibits and listening to the talks from Don and others reminded me of how blessed but unaware I was that historic achievements were being made during our time at SRI. This week at the alumni event it was hard to place the old faces of the many brilliant people who attended without looking at their name tags but I enjoy learning about their lives and hopefully that will continue at these events long into the future.



1 – Charlie Rosen with Shakey, the world’s first mobile robot capable of reasoning about its environment.

A*, Shakey’s route finding algorithm, is the basis for today’s auto GPS units. Ray Perrault says it may be SRI’s most pervasive AI impact yet.

2 – The Alto was heavily influenced by members of Engelbart’s lab who moved to PARC as his lab declined in the mid-1970s.



3 – The patent by Engelbart, with Bill English’s engineering, for the mouse was the most effective of several devices they tried for controlling the screen cursor they called the “bug.”



4 – This was the last packet radio made for ARPA, the so-called low cost radio made by Hazeltine. Large aggregations of them were mostly used in SRI lab nets to test network routing algorithms rather than in the field. Collins Radio built the original packet radios seen in the van and its model.

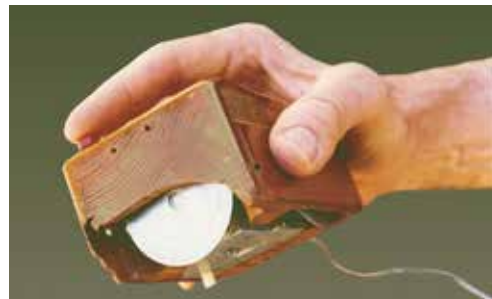


5 – The acoustic modem had two starts at SRI: the one invented by John Van Geen led Reid Anderson to the product shown, the other, slightly earlier one was for the deaf community by SRI’s Bob Weitbrecht. Both patents were awarded in 1970.

6 – Here are some images of Engelbart’s Augmentation Research Lab. It is included here because of its importance in bringing the second ARPANET node to SRI. The first network link was in October 1969, based on modification of RFC 2 by SRI’s Bill Duval on host-to-host interaction.



7 – The Packet Radio Van. It took SRI’s completion of the internet protocol TCP for a terminal in this van to enable the first internet transmission to occur in 1976....from the above courtyard of Rossotti’s. About a year later a satellite net was added. The van was also used to test early internet telephone technology now called VOIP.



8 – In his own eyes the mouse was a tiny piece of Engelbart’s vision and yet its ubiquity has somewhat subrogated his real contribution, personal and collaborative computing. In Dec 2008 Logitech alone had shipped its one billionth mouse! Because SRI’s patent expired in 1987, licensing yielded SRI only about \$150K.

9 – Some early emails from the archives of the Network Information Center, which for 20 years was the door to ARPANET and Internet use.

10 – Email of first network spam. This and (9) provided by SRI’s Jake Feinler, the long term director of the Network Information Center.

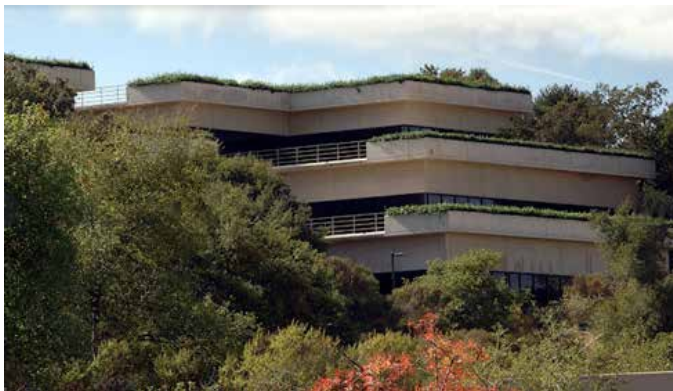


Louis Fried (photo courtesy of Barry Minkin)



PARC Joins SRI's Distributed World

By Don Nielson



Like never before in its history, SRI is a distributed Institute. Pre-Sarnoff, SRI had a number of overseas offices and Washington, DC, but not much more. Today, SRI has 16 “field sites” and an “operating site,” one dedicated to a single project, all in the United States. Some of these exist because of “acquisition,” some from proximity to a client base, and some simply for staff convenience. The top six, in staff size, are Menlo Park (658), Princeton, NJ (306), Arlington, VA (91), Ann Arbor, MI (46), Boulder, CO (25), and Harrisburg, VA (22), with the remaining 10 sites having a combined 66 staff members. Now add to that a new Palo Alto field site with 149 staff members for a total of 1,363.

Yes, effective April 2023, the Xerox Corporation gifted SRI its famous Palo Alto Research Center (PARC). From its founding in 1970, PARC became a leader in the development of office automation and a springboard for other companies to see and absorb the future office. The May transfer involved both employees and substantial office and lab space in the Stanford Industrial Park, just a few miles from SRI in Menlo Park. To give you an appreciation of this important event, here are some background on Xerox PARC and a brief description of the research orientation of its present staff. As will become apparent, today's PARC operates very much like a microcosm of today's SRI.

The Early Days

It was 1970 when Xerox decided to create a second research arm. This one in the west, Palo Alto, and one oriented not toward copying but to computer technology and its products. It turned out to be a propitious time in the development of office automation, something that became labeled the “office of the future.” The aggregate talent that Xerox assembled there brought about important

innovations like the first personal computer and its associated networking and instruments to further mechanize office and communications work. The first computer built for a single user, the Alto, surfaced at PARC in 1973 and distinguished itself by showing the first graphical user interface. To incorporate the connectivity planned for it, a local area network, the Ethernet, was created there in 1974. Also being perfected at PARC at the time was the laser printer, an inexpensive and soon-to-be ubiquitous adjunct to Xerox copiers. This new office functionality embodied in just these three innovations was first publicized in 1979 via a Xerox television commercial. In kind of a fun way to describe it, here, paraphrased, is its verbal essence.

Bill, a balding middle-aged executive, arrives at his office saying good morning to workers along the way. Arriving at his desk, Bill flips on his Alto computer and greets it with, “Morning, Fred!” Fred flashes “Good morning, Bill!” Bill then asks, “What’s in the mail this morning?” and scans the list of messages that arrived since he left the previous day. “This one looks interesting; let’s take a look at this.” With the aid of the mouse, Bill selects the desired message, and its text appears on Fred’s screen. After reading it, Bill tells Fred that he’ll need two copies and presses a couple of buttons that cause a nearby laser printer to print them. Not long after, a secretary brings Bill the two copies. Bill then tells Fred that everyone on the mailing list ought to see the message and pushes a few more buttons to send copies down the hall, around the corner, and across the nation.

Take away the absence of automated speech recognition mentioned, and it was an office system Xerox had available to offer five years before the famous “1984” commercial that announced just the Macintosh alone. In fact, the Macintosh derived from a visit to PARC by Steve Jobs that same year, 1979. What Jobs saw on that visit, particularly the graphical user interface with its array of fonts, captured his imagination. Four years later, in 1983, Apple had a working Lisa computer. The Macintosh emerged a year after that. Conversely, Xerox famously fumbled by not moving smartly with what it had and IBM, Apple, and others soon held sway.

That failure to move and no small amount of internal strife were instrumental in many notable people's leaving PARC to pave their own way. Apple received some, and new companies were formed like 3Com to commercialize the Ethernet and Adobe Systems to commercialize what would become Postscript, a resolution-independent graphical page description language. Some of the leaders and technical talent also left for a new DEC research group in Palo Alto. All that said, PARC endured, albeit first in laser printers and

related innovations and then more broadly in fields more tenuously related to Xerox's future. One consequence was that PARC became a separate Xerox-owned company in 2002.

PARC Today

So what does PARC look like today? If you look at its website, you'll find areas of innovation tailored toward technical opportunities: AI and Human-Machine Collaboration, the Digital Workplace, Novel Printing, Digital Design and Manufacturing, and Microsystems and Smart Devices. Its two major research groups are the Intelligent Systems Lab and the Hardware Research and Technology Lab. PARC's business model is not unlike that part of SRI oriented toward commercialization: doing research in selected areas that can lead to new demonstrable processes and products whose underlying intellectual properties create revenue in various ways. Just like SRI, PARC has spun out companies

as well. Its client base also resembles SRI's engineering side, with two thirds of its revenue coming from DARPA and DOD proper and just over 20 percent from the Department of Energy, which includes DARPA-E and DOE's area of efficient and sustainable energy. The rest is sprinkled among the NIH and other clients. No longer a tailored match to the office copier business, PARC does complement SRI's business model and client base very well.

Finally, SRI had something to offer PARC at its outset. As outside sponsorship of SRI's Augmentation Research Center was declining in the early 1970s, some of its staff chose to leave. At least seven of Doug Engelbart's finest left for PARC, which had a better sense of where the new technology could be advanced. Ironically, after a decade of notable innovation there, from the early 1970s to the early 1980s, PARC's key staff also fled as Xerox failed to capitalize on what its West Coast lab had to offer, the onset of personal computers as a core to the professional workplace.

New Bio-Imaging Technology Detects Even Superweak Human Magnetic Fields

In biomedical research, "biomagnetism" refers both to the magnetic fields created by living organisms and the scientific study of these signals. With the development of commercially viable technology like magnetometers and gradiometers, researchers are now using biomagnetism to assess organs and tissues to aid in diagnosing medical conditions, such as heart arrhythmias.

Earth's magnetic field is a million to a billion times stronger than the magnetic fields that originate from human bodies. Current leading magnetic field sensors have a limited dynamic range, meaning they cannot respond reliably in the presence of very strong magnetic field strengths such as Earth's. Thus, without strong shielding, magnetic signals from life sources are lost amid Earth's strong magnetism. New types of magnetic sensors are needed that can detect tiny magnetic signals without the need for shielding and within whatever the ambient magnetic field environment might be.

A recent advancement in this field has been achieved through a collaboration led by SRI—the Atomic Magnetometer for Biological Imaging in Earth's Native Terrain (AMBIENT). Created with Twinleaf LLC and Princeton University,

the technology can perform live magnetocardiography (MCG), that is, measure heart signals. When AMBIENT was demonstrated live at the Defense Advanced Research Projects Agency (DARPA), faint magnetic signals outside an expensive shielded room were observed. A video of this demonstration is available on SRI's website at <https://www.sri.com/press/story/sri-led-team-demonstrates-a-magnetic-sensor-that-detects-biomagnetic-signals/>

Ultimately, the objective of the AMBIENT program is to lead to new era in which heart screening tests, as well as brain imaging, become practical for a wide range of applications.

Sources:

Borkhataria, C. Military magnetic field breakthrough could lead to mind reading computers and Harry Potter "wands" to check for head injuries. *DailyMail.com*. Updated March 20, 2017; accessed July 17, 2023, at <https://www.dailymail.co.uk/sciencetech/article-4332848/DARPA-reveals-animal-magnetism-breakthrough.html>

SRI Press Room. SRI-led team demonstrates a magnetic sensor that detects biomagnetic signals. June 26, 2023.

Food from Air, Water, and Electricity

DARPA's program Cornucopia aims to create a variety of healthy new microbial-based foods using three ingredients—air, water, and electricity—with minimal or no supplementation. The goal is to demonstrate production of microbial biomass consisting of all four human dietary macronutrients—protein, carbohydrate, fat, and dietary fiber—in ratios that meet Military Dietary Reference Intake daily requirements for complete nutrition. If the program is successful, troops could one day deploy with a transportable system that makes nutritious, appetizing food on demand in remote locations, obviating costly, brittle food supply chains. Likewise, people cut off from food sources and supply chains in a natural disaster could benefit.

Under contract with DARPA, SRI is working with industry collaborators Kiverdi, Air Protein, and Nitricity to design a portable system that uses microbes to produce nutritious food on site. The project is known as Food from Air for Distributed Rations (FADR).

Kiverdi and Air Protein have already created a process that uses microbes to produce a protein-rich flour. Nitricity is miniaturizing its renewable energy-powered fertilizer production system to provide the fixed nitrogen the microbial process requires.

SRI Senior Chemical Engineer and project principal investigator Elizabeth Perea and her colleagues are helping refine these processes to make them as efficient and portable as possible and will also be incorporating them with a microalgae cultivation process that will create additional nutrients and flavors.

“We’re mixing the two bioprocesses to get a product that can be tailored to your desired nutritional content,” Perea said. “And that also gives us two sources of potential flavors or other important food formulation properties, like textures.”

Although the initial focus is on nutritional profile, the FADR team also intends to develop food that is flavorful and appetizing. Initially, the team will achieve the consistency of puddings and smoothies but will eventually strive for more complex textures, such as those of jerky or a protein bar.

Deployed, the FADR system will look like a combination microbrewery and commercial kitchen packed into the back of a single Humvee, along with an expandable algae farm. With that equipment, the researchers intend to replace

the industrial manufacturing, processing, packaging, and shipping currently required for the standard military Meals Ready to Eat with a process that creates better tasting rations and has a smaller carbon footprint and reduced negative lifecycle impact.

Sources:

Defense Advanced Research Projects Agency online. Teams begin work to develop tasty food from air, water, and electricity. February 3, 2023. <https://www.darpa.mil/news-events/2023-02-03>

SRI Press Room. SRI researchers seek to produce food with just air, water, and electricity. April 24, 2023. <https://www.sri.com/press/story/sri-researchers-seek-to-produce-food-with-just-air-water-and-electricity/>

The News: Is It Real or Is It Fake?

As many of us have observed firsthand, modern media tools are so powerful that bad actors can synthesize false news stories from thin air, including text, audio, images, and video, all with the sheen of credibility. Known as manipulated media, such stories are created to deceive for political, reputational, or financial gain.

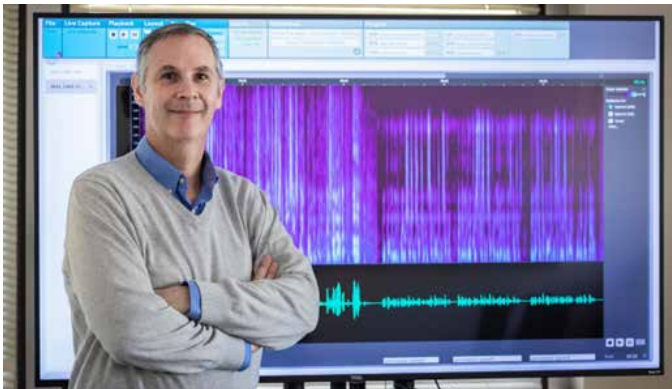
SRI has been awarded a \$10.9 million grant from DARPA to create a tool to detect manipulated media. A team of experts in artificial intelligence (AI) from SRI and the University of Maryland, University of Washington, and University at Buffalo are working on project SemaFor (a portmanteau of “semantic forensics”). The objective is to develop a system that uses AI to analyze text, images, video, and audio to identify the subtle but significant clues that separate the real from the manipulated.

“The main goal of our team is to build tools to defend against large-scale, online, automated disinformation attacks that aim to intentionally spread false information,” said Martin Graciarena, principal investigator on SemaFor and senior manager of computer science in SRI’s Speech Technology and Research (STAR) Lab.

“When someone wants to plant a falsified news story, the tools to create them are very good, but it’s still challenging to get every nuance of the language, the attribution, the imagery, video, and audio just right,” according to Graciarena. “Our system can look at all these aspects in total

to discern when something is ever so slightly amiss. When taken as a whole, these clues can tell us when a news story has been manipulated.”

Some of the manipulation detection tools developed under the SemaFor program are being integrated into SRI’s Open Language Interface for Voice Exploitation (OLIVE) platform. In the figure below, a speech waveform has been manipulated in that some waveform segments containing generated (synthesized) speech were inserted. This is one important misinformation case because those inserted segments with synthesized words, which were never uttered by the original speaker, may completely change the message from the original unaltered waveform.



SemaFor lead Martin Graciarena with SRI’s OLIVE speech processing system.

The OLIVE graphical user interface displays the spectrogram (spectral frequency information along time), the waveform (signal amplitude along time), and, at the bottom, the possible generation detections that are aligned in time with the waveform and spectrogram. In this case, the OLIVE system correctly detected and temporally localized two different regions where speech was synthesized.

Although the main objective of SemaFor is defeating intentional disinformation, additional aims for the technologies developed are to detect such subtleties as the misattribution of a piece to a reputable source when it was in fact produced by a less reputable or nefarious source.

“We are in an arms race between the developers of false information, who benefit from media production tools that are growing stronger by the day, and those of us developing detectors to spot their manipulated media,” Graciarena said.

This research was developed with funding from the Defense Advanced Research Projects Agency (DARPA). The views,

opinions and/or findings expressed are those of the author and should not be interpreted as representing the official views or policies of the Department of Defense or the U.S. Government.

Source:

SRI Press Room. Is it real news or manipulated? SRI taps AI to spot manipulated media. May 1, 2023. <https://www.sri.com/press/story/is-it-real-news-or-manipulated-sri-taps-ai-to-spot-manipulated-media/>

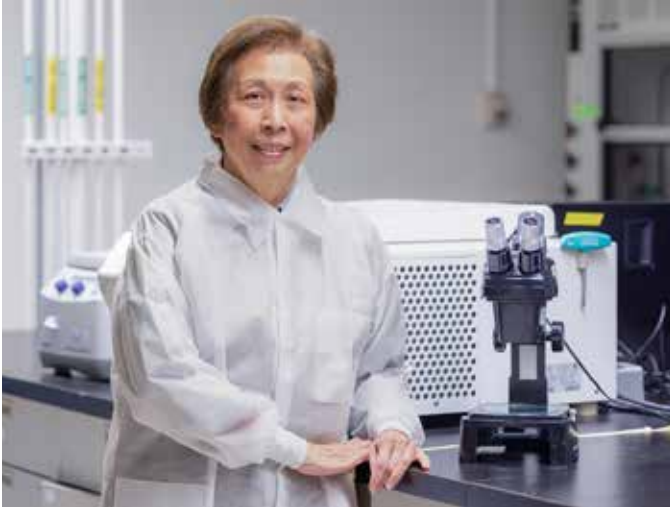
First Human Trial of SRI’s Treatment for Radioactive Contamination

Radiation exposure can have detrimental health impacts, and current treatment for internal radiation exposure is invasive and time consuming. SRI has been working on the nonclinical development of HOPO 14-1, a novel orally administered experimental drug to treat radioactive contamination in the body. The first-in-human clinical trial of this treatment started in April 2023 at the SRI Biosciences Clinical Trials Unit. Funded by the National Institute of Allergy and Infectious Diseases, the trial is designed to define the safety and tolerability profile of HOPO 14-1 in healthy adults. Obtaining these results is crucial to eventually making the drug publicly available and accessible.

The development of this drug was especially novel because the previously approved transuranic radionuclide decontamination drug (diethylenetriamine pentaacetate) can be administered only intravenously or by nebulizer. An easier administration route is key for quickly treating people in emergency radiation contamination situations. The work conducted by SRI Biosciences has been critical to advancement of HOPO 14-1 to Phase 1 clinical trial stage.

If radioactive contaminants—or radionuclides—are absorbed into the human body, they can damage DNA, tissues, and organs, posing a potentially long-term serious health threat. The best mitigation strategy is to administer a chelating agent—a compound that binds to radionuclides—that will decorporate, or remove, the radionuclides from the body as quickly as possible.

“Nonclinical studies of HOPO 14-1 showed that this is an effective and efficient radionuclide decorporation agent that works by chelating radionuclides in the body, allowing them to be rapidly eliminated,” said Polly Chang, senior scientific director in SRI Biosciences.



SRI Biosciences' Polly Chang.

Dr. Chang and her team collaborated with HOPO 14-1's inventors, the late Dr. Pat Durbin and Drs. Ken Raymond and Rebecca Abergel from Lawrence Berkeley National Laboratory for more than a decade to develop this drug product.

“Our multitalented team of scientists conducted the safety and pharmacology studies, supported the required Food and Drug Administration filing, and is now conducting the Phase 1 safety clinical trial. SRI is uniquely qualified to do this work because we can perform all the requisite variety of tasks (safety, pharmacology, formulation, manufacturing, human clinical trials) and support efficacy studies that are performed in collaboration with partner institutions,” said Dr. Chang.

SRI's Plymouth, Michigan, site is hosting this Phase 1 clinical trial of HOPO 14-1, which is led by Sascha N. Goonewardena, MD, a physician-investigator in SRI's Clinical Trials Unit and an assistant professor of medicine at the University of Michigan Medical School in Ann Arbor. The study team will enroll 42 healthy participants ages 18 to 65 years in seven groups of six. Each participant in the first group will receive a 100-mg dose of HOPO 14-1. The subsequent groups will receive increasingly higher doses of the study drug, up to 7500 mg in the final group if lower doses are deemed safe. Participants will undergo intensive safety monitoring and will be followed for 14 days to measure the absorption, distribution, and elimination of the study drug. Results are expected in 2024.

This project has been funded in whole or in part with Federal funds from the National Institute of Allergy and Infectious

Diseases, National Institutes of Health, Department of Health and Human Services, under Contract No. 75N93020D00011.

Sources:

ClinicalTrials.gov NCT05628961. An Open-Label, First-in-Human Study of Single Oral Doses of HOPO 14-1 Evaluating Safety, Tolerability, Pharmacokinetics, and Excretion in Healthy Participants. <https://classic.clinicaltrials.gov/ct2/show/NCT05628961>

National Institutes of Health News Release. First-in-human trial of oral drug to remove radioactive contamination begins. May 15, 2023. Accessed July 18, 2023 at <https://www.nih.gov/news-events/news-releases/first-human-trial-oral-drug-remove-radioactive-contamination-begins>

SRI Press Room, SRI's radioactive contamination treatment is now in its first-in-human trial. May 15, 2023. <https://www.sri.com/press/story/sris-radioactive-contamination-treatment-is-now-in-its-first-in-human-trial/>

Nevada Leading the Way to Clean Energy Transition?



Long famous for its tourism and entertainment industries, Nevada now stands poised as a national hub of clean energy development and independence thanks to its unique lithium supply chain. That's the main takeaway from a new statewide economic strategy prepared by SRI in collaboration with the Nevada Governor's Office of Economic Development.

“This statewide economic plan helps to redefine and build on the diversity and innovation of Nevada's economy,” said Christiana McFarland, director of SRI's Center for Innovation Strategy and Policy and one of the report's

preparers. “The plan also recognizes the catastrophic impact of the pandemic on businesses and workers in the state and charts a course to support those affected and those traditionally left out of the innovation economy.”

Nevada is uniquely positioned to help propel the important transition to clean energy through lithium-ion batteries. It has the only operational lithium mine in the United States and is also home to Redwood Materials, a battery-recycling and materials-producing company based in Carson City. Redwood Materials, which recently expanded, is filling the critical roles of refurbishing, recycling, refining, and remanufacturing sustainable battery materials.

“Nevada is now one of a few locations—maybe the only location—in the world with a complete lithium supply chain,” said McFarland. “Nevada has a rare mix of natural

resources and technologies that enable the state to play a key role in the energy independence and security of the United States, in addition to spurring economic growth within the state.”

To achieve the transition, Nevada needs to boost its STEM (science, technology, engineering, and mathematics) workforce. Accordingly, SRI offered specific recommendations to achieve that goal. For Nevada, the new economic strategy can help ensure that the state thrives sustainably and inclusively in the decades ahead.

Source:

SRI Press Room. SRI research shows how Nevada can spearhead the clean energy transition. June 20, 2023. <https://www.sri.com/press/story/sri-research-shows-how-nevada-can-spearhead-the-clean-energy-transition/>

45 Years of Horizon Scanning – An SRI Forecast System for Corporate Planning

By Brock Hinzmann

Brock is currently a partner with the Business Futures Network and chair of the Silicon Valley Node of The Millenium Project.

May 2023 marked the 45th anniversary of the introduction of “Horizon Scanning” at SRI International and of a new publication from SRI’s Business Intelligence Program (BIP) called SCAN. Its focus: Alerting Business to Early Signs of Change. Many of the topics of this scanning proved to be prescient forecasts of what has happened in the decades since, and some are still relevant more than 40 years later, validating the value of scanning.

SRI’s Long Range Planning Service (LRPS) had been publishing management reports on futures research and forecasting since the 1950s (see Don Nielson’s book, *A Heritage of Innovation: SRI’s First Half Century*) and was in a good position to organize thought leaders around a new way of thinking about the future. Organizationally, LRPS/BIP (org 516) sat in SRI’s “Other Research Centers and Programs,” which also included the International Secretariat.

The Horizon Scanning Structure

The LRPS/BIP Research Report series dated from 1958 and was up to more than 600 reports by 1978, and its inquiry service had logged over 25,000 responses to client research questions, tapping into SRI’s science and engineering experts, in addition to outside business management, social research, and industry experts. Horizon Scanning meetings were designed to bring together this array of experts from various fields to discuss “weak signals of change” and how to raise awareness of what they might mean.

Each scanning exercise comprised two separate meetings, in which the participants used the same set of preparation materials but for different purposes. In a morning session, SRI experts from many different orgs met to identify potential change and implications for SRI’s own long-range planning. In the afternoon, BIP staff met to identify potential implications to publish in SCAN for BIP’s 475 subscribers.

Some critics of typical trend evaluation methods in forecasting, including SRI’s own Willis Harman, argued that historical trend data alone did not enable forecasters to open their minds to imagine entirely new possible futures.

Harman, Ian Wilson, and others were examining how businesses could use intuition and creativity in their planning efforts. Joseph McPherson had developed an SRI consulting practice to use brainstorming in corporate searches for innovations. Peter Schwartz and others were developing scenario-building capabilities to help companies imagine very different alternative futures. Arnold Mitchell had turned SRI’s research in psychographics into a commercial market research tool, Values and Lifestyles (VALS). The early SCAN discussion team members also included Tom Fletcher (urban affairs), Nevin Hiester (physical chemistry), Russ Phillips (chemical engineering), Bob Hill (physical sciences consulting), Ken Jacobson (international relations and conflict), Jay Ogilvy (social sciences research and VALS), Millicent Craig (BIP, consumer markets consultant), and various industry-specific management consultants, including Joe Grippo, Ronald Nader, Gary Anderson, and Al Lee. Beth Hiseler was a BIP staff member who took notes in Braille and then transcribed them into summaries to feed back to the participants.

SCAN Publications’ Prescient Contents

The first issue of SCAN (February 1979), managed and written by James B. Smith and edited by Adrienne Harris Cordova, contained two feature articles. One suggested that the US states were beginning to behave as if they were sovereign nations, and the other described how consumers were beginning to use information technology to take more control over their own health care. Short paragraphs in the “Items Worth Noting” section of that issue highlighted the Chinese government’s encouraging its citizens to eat more wheat, Bank of America’s Introduction of an employee “code of conduct,” the FBI and CIA’s warning of a potential rise in terrorism in the USA, and a few technology items, including the potential for optical disks in consumer applications and the use of computers to help language translators increase their efficiency from 600 to 2,400 words per hour.

The second issue of SCAN (March 1979) described the growing power of social networks that might challenge establishment institutions. Rapid changes in technology and society and the growing complexity and uncertainty were creating a need and desire among people to search widely for information, and the personal computer and expanding computer networks were enabling them to do so. “Social networks” at that time meant simply networks of people and organizations, not the kinds of internet-based networks that came later. Nonetheless, SRI’s staff were well aware of and users of Lockheed’s dial-up search service, Dialog, commercially available online since 1972,

and CompuServe, started in 1969 and available as a dial-up online information service to consumers by 1979. SRI staff anticipated and were sometimes active collaborators in the WELL, AOL, Prodigy, and several other services that started operations within the 1983-to-1985 time period.

In SCAN, SRI experts projected an increase in the rate of employee job and career switching, the rise in importance of single-issue politics, the ability of local groups to turn local issues into global ones, rising entrepreneurial activity within and outside large traditional organizations, the difficulty of managing large organizations, growing public disenchantment with the quality of news reporting, and the need for large organizations to anticipate such changes rather than just react to them.

Among the other articles covered in early issues of SCAN (edited by Patricia Rogow, Judith Clay Lhamon, and Steve Hiatt), these are particularly noteworthy:

- “Computer Software: Accelerating the Spread of Intelligent Machines” (May/June 1980) predicted that employees would see technology as a threat and begin to advocate for “A job as a right.”
- “The Turbulent 1980s: Return of the Hard Line” (July/August 1980) predicted a turn away from “soft line” politics, détente, and liberal social and environmental legislation toward a more conservative and individualistic set of values. Information brokers would allow people to be more selective and be able to tune out the messages they did not want to hear.
- “Technology: Monoclonal Antibodies” (March/April 1981) predicted that the 1990s would belong to biotechnology and that monoclonal antibody research would become as important as genetic engineering in terms of practical applications. The same issue of SCAN projected that “Superconductivity at Room Temperature” would have enormous implications for the future of energy.
- “Technology: The Computer/Information Interface” (November/December 1981) suggested that cable television networks enabled viewers to select only the news they wanted to hear and that an artificial intelligence software could be trained to select only such items for a viewer to see or hear.
- “A New View of the Information Society” (January/February 1982) suggested thinking about future

information networks as cells, living organisms, or ecological systems that might have their own “nervous system” comprising interactive computing, timesharing, and personal computers. Indexing, data dictionaries, and natural language interfaces would allow untrained end users to access information that previously required an expert. And “wholly new forms of leisure and entertainment involving interaction with artificial intelligence will emerge.”

- “The Environment: Warming Warning” (March/April 1982), coauthored by Smith and Yasuo Konishi and contributed to by James Greer, Robert Hill, Frank Ludwig, Tom Mandel, John Ryan, and William Viecez, listed all the potential implications we are still arguing about today, 40 years later.

Beyond Scanning

As Smith describes it, “scanning” is the process of bringing to consciousness what hasn’t been perceived before now (“what we don’t know we don’t know”), whereas “monitoring” is the process of developing a better understanding of what is already perceived and identified as potentially impactful. The early SCAN program generated, per month, 80 to 90 “abstracts”—short summaries of news items, reports, book reviews, movies, or other sourced observations—which were kept in an ever-expanding database. In addition to input into the scanning meeting, the database served as starting material for any number of BIP research reports, as well as for future scenarios projects, innovation workshops, and technology road maps.

BIP staff were also answering 1,400 to 1,900 inquiries per year from subscribers, particularly about rapidly changing technology topics. BIP introduced its TechMonitoring program in 1984 to provide a basic technology road map for each technology area it monitored and implications for the medium to long term. As technology topics got “hot,” inquiries would rise and fall in some technologies, as would investments in technology trends that often did not pan out. In 1988, BIP produced the first in a series of reports on “Next-Generation Technologies” (hot technologies not likely to have major impact for 10 years or more, if ever). In 1989, SCAN published its hype curve (“Technology Investment: A Contrarian View”) and described to readers how to recognize hype and how to avoid its pitfalls. In 1996, BIP published *The Hype Curve: New Technology as the Modern-Day Gold Rush*, which contained a methodology for measuring hype in emerging industries (including artificial intelligence and gallium arsenide).

By the time BIP had become the Business Intelligence Center and was spun off from SRI in January 2001 into Strategic Business Insights (SBI), several legacy SRI programs had been incorporated into it: BIP, SCAN, TechMonitoring, VALS, Consumer Financial Decisions, Scenarios Consulting, and Innovation Search (as Opportunity Discovery). Then came 9/11, the dot.com crash, and a host of other disruptions. Kermit Patton became the SCAN director, responsible for the publication content, but several other consultants were trained on how to moderate the scanning meetings. SCAN had by then a database of 25 years of scanning abstracts upon which to draw. Much of the work of the inquiry service had been eliminated by online search capabilities, which clients could now do much more quickly for themselves. Nonetheless, disruptions and uncertainties continued to generate a need for interpretations and forecasts.

Although SCAN had been mainly a service to Global 500 commercial companies, a few large government agencies began asking how to use SCAN to anticipate future events. The US National Institute of Standards and Technology (NIST) and even some of the intelligence agencies had been long-term TechMonitoring subscribers, but they became interested in SCAN and scanning meetings as a way to interact with commercial companies. Likewise, Japanese clients of SBI wanted to interact more directly with other subscribers. In response, the SCAN program was modified to not only invite commercial and government participants into the open source, unclassified scanning meetings in Washington, DC, Tokyo, Croydon, and Menlo Park, but also to hold custom scanning meetings on client premises.

The SCAN database and analysis skills enabled the SBI staff to conduct scenarios projects, led most often by William K. Ralston, and opportunity discovery projects, led by Dave Button. (Both Ralston and Button had come to SBI from SRI consulting practices.) Examples include scenarios and road maps for the future of manufacturing industries (for NIST), future scenarios and future opportunities in health care (for the Society of Chairs of Academic Radiological Departments), and scenarios in climate change (for the National Oceanic and Atmospheric Administration).

Horizon scanning and scenarios building are common practices today, taught in futures studies programs at universities and in use by government agencies all around the world.

SCAN and SBI continue today, still headquartered on the SRI campus and maintaining staff in Japan and the UK. Current topics can be found at strategicbusinessinsights.com. Recent topics include “Reality Customization as a Service,” “Reconsidering the Age of Abundance,” and “Raw Materials Protectionism.”

Brock Hinzmann joined SRI and BIP as a research assistant, responding to client inquiries and contributing scanning, in January 1979, just as the first issue of SCAN was being published. He codigned the TechMonitoring profile template with Walter Ogier (who was also a member of the SRI jazz band, The Institooters), and researched and wrote profiles for a wide range of technologies, mostly in advanced materials and energy fields. Brock was a member of SRI's three-time national champion corporate track and running team and a member of the SRI golf club.

In 1990s, he became director of TechMonitoring, cofounded the SME Rapid Prototyping Association (for 3-D printing), and chaired the local chapter of ASM International (for materials professionals). When SBI spun off from SRI in 2001, Brock's job and title changed from director of TechMonitoring to technology navigator (senior consultant), working on SCAN and various scenarios and opportunity discovery consulting projects, until he retired in 2012.

Brock has since reunited with James Smith and former BIP Croydon director Geoffrey Woodling as partners in Business Futures Network, a group of associates consulting in scanning and scenarios. Brock also became voluntary chair of the Silicon Valley Node of The Millennium Project, an international think tank having nodes in more than 70 countries. He is also a contributor to InstantFuture.org, a website started recently by science fiction writer John Shirley to discuss long-term science and technology issues.

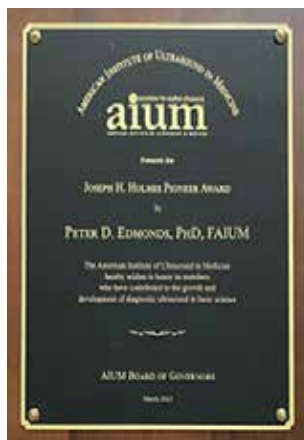
Peter Edmonds Wins Prestigious Award in Medical Ultrasound

Beginning in the 1970s and with the hiring of Phil Green, SRI embarked on a quarter century of work to prove the efficacy of ultrasound imaging for medical use. Generally, ultrasound was favored over X-ray because of its response to soft-tissue imagery and for its perceived safety to vulnerable organs or tissue. SRI's work was pivotal in the development of commercial uses of ultrasound, but as it came into wide use worry arose over possible undesirable side effects, such as in first trimester pregnancies.

To explore these bioeffects of ultrasound, in around 1976 Ken Marich and Phil Green initiated a series of contracts with the NIH (National Institutes of Health) that extended for years. One of the long-term leaders of that work at SRI was Dr. Peter Edmonds: Over his nearly two decades at SRI, that became his principal area of study. While long in coming, recognition of the validity and benefit of Peter's work, and that of his colleagues, finally has come home to roost.



Peter Edmonds in 1984.



At its annual convention in Orlando, Florida, on March 28, 2023, the American Institute of Ultrasound in Medicine (AIUM) awarded Peter a prestigious honor, the Joseph H. Homes Award for Basic Science. Part of the award stated that Peter "made significant contributions to the growth and development of diagnostic ultrasound through research projects supported by

the National Institutes of Health on ultrasound phantoms, tissue characterization by ultrasound, and bioeffects of ultrasound." The award also acknowledged Peter's long contribution to AIUM, including his service on its Board of Governors and chairing many different efforts dealing with the basic science and technology of the bioeffects of ultrasound.

In notifying us of this award, Peter stressed the need to recognize others at SRI who also participated in this research, those who were coauthors on his papers. They are listed here

by last name in the order he gave us: Green, Marich, Taenzer, Holzemer, Ramsey, Havlice, Pratt, Glick, Adamovics, Nolen, Mitchel, Lunen, Wen, Barfod, Robinson, Rimer, Yamawaki, Stephens, Hart, Groth, Stolzenberg, Sasmore, Pryor, Torbit, Nell, Maden, Marks, Sancier, P. Ross, Fahnestock, Arditi, Schattner, Jensen, W. Ross, Mortensen, Vinzant, Holland, Hill, Valdes, Ostrem, Gorfu, Shifrin, Tuse, Probaska, Winters, Humphres, Reyes, Comas, and Parkinson.

The Alumni Association congratulates Peter on this very well deserved honor.

Our Newsletter Gets Noticed

One of the activities of our SRI Alumni Association and this newsletter is to find and highlight important "firsts" SRI has created. The presence of the SRI Alumni Newsletter online means that it is searchable to anyone, anywhere. This is a short tale about how one such search had an important consequence.

The December 2005 newsletter contained a posthumous article by author and alumnus Al Humphrey on the origins of the management consulting methodology called SWOT (<https://srialumni.org/newsletters/2005/AlumNews-Dec-2005.pdf>). The article caught the eye of Richard Puyt and Finn Birger Lie, researchers in the field. With substantial and critical help from us in retrieving a lot of information about SRI's ground-breaking work, Puyt and Lie embarked on a long effort to accurately define the origin of the SWOT approach, which has continued to be a mainstay of corporate and organizational planning. The first result of their effort was a paper published in the 2020 *Academy of Management Proceedings*, as described in our August 2020 newsletter (<https://srialumni.org/newsletters/2020/AlumNews-Aug-2020.pdf>).

Now, Puyt and Birger Lie, the principal authors of the ongoing study, recently announced that their labors have again paid off. An expanded and copiously referenced version of their study has been published in Elsevier's *Journal of Long Range Planning*. As a result of this work, if you now google the origin of SWOT, you will find it dominated by their publications and with clear attribution to SRI's foundational work in the 1960s.

In our next Alumni Newsletter, we'll describe how in the early 1990s SRI's recommendations on economic planning contributed to the success of Silicon Valley.



SRI Alumni Association members are invited to attend the annual reunion in Menlo Park on October 5, 2023. It will be held in the International Building from 4:00 until 7:00 p.m. The program will include a report on the status of the Institute by SRI's CEO David Parekh, a presentation on the SemaFor project to defeat intentional disinformation by Martin Graciarena, and possible Alumni Hall of Fame inductions. You can count on sumptuous hors d'oeuvres, excellent drinks, delightful conversation, and plenty of door prizes.

This year the reunion is again free of charge for one alumni member and one guest. Your additional guests are welcome to attend at a charge of \$25 each. As an added bonus, paying guests who are former SRI employees but aren't currently members of the association will have their entrance fee go toward one year of association membership.

An invitation to the reunion with sign-up form is included with this mailing; members receiving electronic distribution will need to print the sign-up form from their email attachment. Please complete the form and return it with your details and payment for any additional guests by Friday, September 29.



The SRI Alumni Association welcomes new members:

Bernice Bumbaca
Billy Ficklin
Allen Takahashi
Mary Lemmons
Scott Seaton
Diane Walter
Marilyn Williams

We look forward to your participation in the Alumni Association and hope to see you at our next group event.

Alumni Association Membership Renewals Due by November 30

It's almost time to renew your SRI Alumni Association membership for 2024. Membership renewal forms will be mailed to association members in **mid-October**. The fee is \$25 per member, due by **November 30, 2023**. All members who renew on time will be included in the 2024 Alumni Directory, which will be issued in January.

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*APR=Annual Percentage Rate

Dominic Allen Guidici



Dominic (Nick) Guidici died in Ashland, Oregon, from cancer on October 4, 2022, at the age of 84. He was surrounded by his family.

Nick was born in Angels Camp, California, on June 16, 1938, to Emile and Sylvia Guidici of Sheepranch, California. He lived in Sheepranch, attending the local one-room schoolhouse, until the family moved to Angels Camp, where Nick enrolled in the fourth grade at Angels Camp Elementary School and continued to Bret Harte High School, graduating in the class of 1956. He received his bachelor of science degree in mechanical engineering from the University of California, Berkeley in 1960.

After working for SRI in Menlo Park, California, for several years, Nick sought more exotic possibilities in the Peace Corp. As a Peace Corp member, he built clean water systems in Varanasi, India. After returning to the San Francisco Bay Area and settling in San Jose, Nick developed small businesses. For example, he built specialized furniture, imported Tibetan rugs, and sold books exploring personal growth and spiritual quests. His own studies led him to study and then practice acupuncture. Later, he worked in education for East Side Union High School District. In 1984, Nick married Diane Krytzer Rogoway, a fellow teacher and administrator. After several years in San Jose, the couple moved to Tucson, Arizona, then to Hawaii, and finally Ashland, Oregon.

Throughout his life, Nick embraced change and followed his intellectual curiosity, leaving an extensive personal library. As the family historian, he donated a large collection of family artifacts to the Calaveras County Historical Museum.

Nick was preceded in death by his parents and his niece Holly Ehret. He is survived by his wife, Diane Guidici; stepsons, Ken Rogoway and Keith Rogoway; sisters, Irene Ehret, Victoria Guidici, and Martha Stedman; brother, Larry Guidici; nieces Maria Eldon and Teal Guidici; and nephews, Allen Stedman and Luke Guidici.

Based on an obituary published by Mercury News on April 18, 2023.

Carrol Kerns



Carrol (Gene) Kerns died quietly on December 3, 2022, age 93, surrounded by his family.

Gene was born in Council Bluffs, Iowa, in 1929. When he was 10 years old, he moved with his mother to California where he attended schools in Berkeley and Jamestown, as well as Lassen Junior College, graduating with an associate degree. At California State University, Chico, Gene earned a bachelor's degree in mathematics.

After working a year for the California Forest Service as a surveyor, Gene applied for a program with the US Air Force and then married Dona Morgan in Chico. The Air Force sent him to the University of Washington to study meteorology. Thereafter, he was stationed at Hill Air Force Base (AFB), in Ogden, Utah, as a weather officer. Next, Gene and Dona went to Kirkland AFB in New Mexico, then to Eielson AFB, Alaska, where Gene flew in the nose of a WB-50 over the North Pole and the Bering Sea. After six years, Gene retired from the service as Captain and joined North American Aviation, Buena Park, and then the Radiation Laboratory in Livermore, California. Gene was then hired as a senior systems engineer at SRI in Menlo Park. After that, he was employed by ATACT, GTE, and Geodynamics, where he worked with his son. Over time, Gene's family grew larger, and they moved to Los Altos, California, in 1968.

Gene was known for his subtle humor and troubleshooting. He was a Master Mason, and he loved a challenging crossword puzzle, relaxing to classical music (some played by his own son), and dining at fine restaurants. He practiced tai chi and chi gung. He was a roadie for his daughter's marching band performances. Gene also enjoyed flamenco guitar, belly dance outings, and gourmet dinner groups. He was a ham radio operator, KG6YPH, who shared that interest with his son and wife.

Gene was predeceased by his parents, Jeannette (Walker) and stepfather Peter Algarva. He is survived by his wife of 72 years, Dona Morgan Kerns; son, Donald Kerns; daughter, Heather Kerns-Heider; and two grandchildren, Charlie and Joey Kerns.

Based on an obituary published by Mercury News on March 31, 2023.

Jeanne E. Kirby

Jeanne E. Kirby died from natural causes on June 18, 2023, at age 94. She was a longtime resident of Portola Valley and later San Jose, California

Jeanne was born March 5, 1929, the third child of William and Evelyn O'Meara of Milton, Massachusetts. After graduating from Milton High School, Jeanne attended Katharine Gibbs Secretarial School in Boston. She moved to San Francisco, California, and worked at General Electric and then at SRI. Shortly after arriving in California, Jeanne met Richard Kirby, and they were married for 38 years. Once married and settled in Los Trancos Woods in Portola Valley, Jeanne raised three children, and she was an administrative assistant for 10 years with Ormondale Elementary School in Portola Valley. She also volunteered with the Saratoga Public Library Book-Go-Round bookstore of used books.

Jeanne enjoyed trips to Lake Tahoe and the ocean. As an avid reader, she would read in her front yard, watching all the birds and wildlife that nature had to offer.

Jeanne was preceded in death by her husband, Richard, and brother, William O'Meara. She is survived by her sister, Beatrice Heintz; brother, Edward O'Meara; son, John; daughters, Susan and Joan; and grandchildren, Isabelle and David.

Based on an obituary published in Palo Alto Online.

John Roger Scrivener Kistruck*

John Roger Scrivener Kistruck died peacefully in St. Nicholas Hospice in Bury St. Edmunds, Suffolk, England, on October 11, 2021, aged 85.

Roger was born on June 29, 1936, in Carshalton Surrey. He planned to become an engineer like his father and grandfather and studied at Sidney Sussex College, Cambridge for a degree in Mechanical Sciences with Thermodynamics.

The first of Roger's five careers was in atomic energy design, with Babcock & Wilcox, where he learned to program a Ferranti Pegasus Computer during his design work. His second job was with Rolls-Royce aero engines in Derby, in operations research, management services, and production scheduling, working initially with punched tapes. In 1971, Rolls-Royce went bankrupt, but Roger had already applied for another post and became Professor of Management Information Systems in the Business School at Warwick University. The workload in lectures was very heavy but achieved; however, at the end of his seven-year period of sponsorship, the university decided that Roger had not met its ambitions for publication and research, and so they parted company.

Warwick's loss was to be SRI's gain. In 1978, Roger joined SRI, working out of SRI's multinational European head office in Croydon. He would travel there on a Monday, fly out to somewhere in Europe to visit a client, and return home on a Friday.

SRI had one of the first financial information systems management practices in Europe. Generally, it was engaged with a major domestic bank in each country. Roger and his colleagues, led by Richard (Dick) Stewart, worked with banks on information systems strategies and operational risk management. Sometimes that led to SRI taking on a leading role in financial product or system innovation. Experts from Menlo Park helped to forecast system requirements based on their experience with large US banks. An Anglo-US team implemented one of the first structured product offerings at Midland Bank. Roger spent a year on secondment to Den Danske Bank where, in addition to providing strategic insight, he learned Danish.

In the early 1980s, technology was rapidly changing the nature of office work, and this created a demand for technology-informed management advice. Croydon itself had one of the first acoustic couplers to link it to kl.sri.com, a Wang office automation system and a micro-APL computer—all coordinated by Roger. It also had access to Menlo Park's computer science and artificial intelligence orgs. When his Croydon colleagues and Michael Melliar-Smith and John Rushby from Menlo raised the idea of establishing SRI's first offshore research facility in Cambridge, Roger was an enthusiastic and effective supporter, recognizing how having computer scientists locally would enable SRI to better develop its multidisciplinary offerings. The center was to be match-funded by the UK government and SRI's local clients. The feasibility study was funded by Bill Miller,

and SRI's Cambridge Computer Science Centre was opened in 1985.

In 1985, Roger and his wife, Sue, set up their own consultancy company, Roger Kistruck & Associates Ltd. But over the years, their contacts grew old, retired, or even died, so they looked for a fifth career.

In 1990, waiting to meet friends in Laycock village in Wiltshire, Roger and Sue had visited the local pottery. Roger was choosing some lovely small bowls when the potter, David McDowell, approached him, noting Roger's fingers appreciating the shapes and finishes. David told Roger about the weeklong courses he ran, which Roger might enjoy; Roger remembered the pottery courses he had done at school all those years ago. Sue spent time driving all over the Midlands looking for a likely place to start a pottery. She marked on a map the local National Trust sites, guessing the members who visited them might well be interested in studio pottery. This took them to Long Melford. Roger's consultancy work was a good basis for making a business plan, and he knew the value of Location, location, location! The BBC series about antiques, *Lovejoy*, had been filmed in and around Melford, and the village was a magnet for people who appreciated studio pottery, and they came from Europe and farther, as well as from the local US air bases. So in 1996, Roger and Sue bought The Posting House, a 500-year-old timbered Hall House in the center of the main Hall Street, and set up their pottery, using the outbuildings as shop and workshop.

In 2007, Roger and Sue decided it was time to retire, both having reached their 70s. Roger had already used his technical expertise to help the village, founding the first website and helping other traders to get onto the internet. He took part in many village projects over his retirement years, such as the Country Park, the Parish Plan, the rescuing of the bell turret at St. Catherine's Church.

Roger is survived by his wife, Sue; four children, and 12 grandchildren.

Written by Roger's wife, Sue, with contribution from Ian Benson.

Douglas Donald Lee*



Douglas Lee died peacefully in February 2023 in Santa Cruz, California.

During his long and fulfilling life, Doug was a devoted husband, father, brother, and son. He attended San Jose State University and worked at SRI in Menlo Park.

A good friend to many, Doug is survived by his wife of 56 years, Eleanor; his sister, Sally; children, Jeffrey Lee and Kathy Bellevin; and his grandchildren, Sam, Owen, Tristan, and Henry.

His family and friends thank Doug for the fond memories they share and wish him rest in peace.

Based on an obituary published by Mercury News on July 23, 2023.

Jo Ann McKenzie



Jo Ann McKenzie died peacefully on July 5, 2023, after a long battle with Alzheimer disease. She was 85 years old.

Jo Ann was born in Orlando, Florida, and raised in Lakeland, Florida. She attended Mars Hill College in North Carolina. As a college student, she traveled to San Francisco, California, in 1956 and remained in the Bay Area, where she married and raised her family. Jo Ann reentered the workforce as a young mother and worked in the Millbrae School District as a secretary. She was the president of the Parent-Teacher Association. She moved on to work in high-level administrative positions at various companies including Skypak International, The Good Guys, Diasonics, American Bidyne/Medco Behavioral Care (MBC), and SRI. As director of administration at MBC, she traveled extensively to the East Coast and managed the opening of new offices.

Jo Ann had many hobbies. She was a talented seamstress and sewed many of her daughter's clothes and dance costumes.

She opened a ceramics business in the 1970s and taught classes out of her home. She enjoyed cooking, baking, photography, and gardening. She took up Kodokan Jujitsu at Cahill's Judo Academy and earned her brown belt, which she was extremely proud of. She loved to spend weekends on the coast near the ocean. She adored her senior rescue dog, Lily.

We will always remember her as a southern belle who loved to socialize. Jo Ann's golden smile, warm heart, and helping hands were traits admired by all who knew her. She looked forward to hosting her annual Christmas Eve soiree for friends and family. She will forever be in our hearts.

Affectionately known as JoJo, Jo Ann is survived by her husband, Martin Reiting; daughters, Susan and Sharon; grandson, Andrew; and brothers, Cal and Kenny Thornton.

Based on an obituary published by Mercury News on July 12, 2023.

Peter Cottrell Morris

Peter Morris died suddenly in his San Jose, California, home at the age of 68.

Born in 1955, Peter was the first of Peter and Elizabeth (Betty) Morris's three children. He attended California State University, Fresno and graduated with a Bachelor of Science, Business Administration-Accounting degree. Afterward, he received a Master of Business Administration (MBA) from the Wharton School of Business and completed his Master of Science degree in Business Taxation from Golden Gate University. Peter was also a Certified Public Accountant. On completing his MBA, Peter settled in the South Bay Area, where he spent a decade working for National Semiconductor as a treasury manager and then another 11 years at SRI as treasury manager/director. His colleagues described him as having "an encyclopedic knowledge of treasury functions and of the Cash and FX markets."

At the time of his death, Peter was serving on the boards of several nonprofit organizations, including the Silicon Valley Venture Capital Roundtable, and was also very active in the Bay Angel Investors and US Angel Investors organizations, where he served as a venture capital advisor, mentor, and judge. Peter was always concerned about his community and was quick to lend a helping hand.

Predeceased by his parents, Peter is survived by his brother, Mark Morris; sister, Monica Oakes; nephew, Brian Andrew Oakes; and nieces, Megan and Molly Oakes.

Based on an obituary published by Mercury News on May 7, 2023.

Norm Nielsen*



Norman (Norm) Nielsen died on September 9, 2022, at the age of 86 after returning home to Nevada City, California, from a long-planned drive to Alaska, the last road trip on his list of "things to do." Norm, better known by his nickname Big Norm or sometimes Lidar Nielsen, to distinguish him from another Norm Nielsen at SRI,

enjoyed a long and adventurous 41-year career at SRI.

Born August 28, 1936, in Oklahoma to parents of Norwegian and Cherokee descent, Norm moved with his family to California in 1939. During his youth, the family relocated often in California for his lumberjack father's work, and Norm attended schools in Gray's Flat, Quincy, Loyaltown, Woodleaf, Pollock Pines, Goodyears Bar, Orville, and Downieville.

In 1954, Norm enlisted in the US Air Force where he was trained in electronic and radio communications and served in Japan and Korea as a radio repair specialist. In 1957, Norm used his military service training and experience to land a job as an electronics technician at SRI. His tenure at SRI illustrates what one can accomplish when given the opportunity: Norm became one of very few at SRI to reach Senior Research Engineer status without a college degree. Norm's career at SRI has been well documented in a previous article in the *SRI Alumni Association Newsletter's* "History Corner" (December 2020), as well as in his autobiography, *Sawdust to Stardust*.

Norm's first SRI field assignment was in Alaska (1958–1959, before it became a state) where SRI was monitoring the effect of the aurora borealis on the US Air Force Distant Early Warning (DEW) Line radar detection network. When the researchers were not observing the northern lights effects, tracking the USSR's Sputnik spy satellite kept them entertained during the long winter nights. This assignment was Norm's first of many visits to Alaska and was the source

of his desire to drive the great Alaska Highway.

Alaska was just the beginning of Norm's adventures on SRI programs, literally all over the world and the United States. In 1960, Norm traveled to Antigua for the Atlantic Missile Test, to Mexico, to the Panama Canal, and to Curacao on the yacht *Acania*, SRI's research vessel (*SRI Alumni Association Newsletter*, April 2017). The program objectives in Curacao were to monitor and record reentry data on the first US satellites launched from Cape Canaveral. Such extended programs have long waiting periods, during which Norm and the *Acania* crew visited Florida, Bermuda (barely escaping a hurricane while crossing the Bermuda Triangle), Puerto Rico, and Cuba (see Norm's "A Cuban Taxi Story" in the *SRI Alumni Association Newsletter*, April 2015). Norm also met his wife, June, on a visit to Jacksonville, Florida, when the *Acania* was in port for repairs.

Norm's next field program (1963–1965) was in New Jersey, and it involved mapping diurnal changes in high-frequency (HF) radio wave propagation caused by the ionosphere between Fort Monmouth and SRI Menlo Park. The objectives were to provide radio operators real-time indicators of the optimum frequency for communications and when to change frequency. This program introduced Norm to the new technology of ionospheric sounder systems and applications, which led to his next assignment in Hawaii. While in New Jersey, his daughter, Lorie, who would later become a significant part of Norm's SRI life, was born.

The objectives of the Hawaii program were similar to those of the Fort Monmouth program, except that the communications path was between Hawaii and Southeast Asia and was highly classified and critical. This work occurred during the height of the Viet Nam War and before satellite networks were established, when HF radio was the only means of global communications. Thus, maintaining communications 24/7 was the highest priority. Also during this time, HF communications were automated based on the SRI's ionospheric sounder data.

In the late 1960s, contract funding for HF communication programs shifted to the future satellite networks we know today. On advice from his supervisor, Don Cone, Norm transferred to the Aero-Physics Laboratory (APL) where a small group of meteorologists led by Drs. Herb Ligda and Dick Honey were developing a new technology called lidar (light detection and ranging) for meteorological and environmental applications. This change was momentous for Norm because he spent the next 30 years (1970s to 1990s)

at SRI on lidar technology programs. Norm's supervisor in the APL was Dr. Ed Uthe, an astrophysicist, who recognized Norm's technical potential and gave him the opportunity to expand his engineering skills. Norm designed, developed, and operated more than a dozen SRI and customer lidar systems. Norm was instrumental in developing the Mark IX Lidar (the first self-contained ground mobile lidar system); the Alpha 1 (Airborne Lidar Plume Analyzer-1), one of the first airborne lidar systems; and the ARCLITE (ARctic Lidar TEchnology) system, SRI's lidar system at Sondrestrom Radar site, near Kangerlussuaq, Greenland. All three operated on numerous programs for more than a decade (nearly three decades for the ARCLITE system). Norm also developed systems for numerous government agencies.

Changing from radio physics programs to lidar technology development did not limit Norm's desire for field operations and travel. The Mark IX and Alpha 1 systems became SRI's workhorse lidar systems on countless SRI field programs across the United States and globally. On metrological and environmental programs, Norm drove the Mark IX several times across the nation to conduct urban air quality, smokestack emission, cloud, and atmospheric studies. The Alpha 1 supported many major Environmental Protection Agency programs, mapping and tracking pollution clouds over multiple states. Internationally, Norm and Ed Uthe operated and collected three-dimensional profiles of cloud structure 24/7 with the Mark IX, while crossing the Atlantic Ocean to the Mediterranean (Athens, Greece) aboard the USNS *Hayes* (the world's largest catamaran). On many of these programs, Norm's daughter, Lorie (on summer vacations, between ages 6 and 17), became a regular travel partner with Norm and often coordinated communications with the lab in Menlo Park. Norm's book, *Sawdust to Stardust*, relates many amusing and heartwarming stories of his travels with Lorie. (The Mark IX auto license plate was removed from the Mark IX van when it was decommissioned in 2003 and returned to Norm in 2022.)



In the late 1970s and early 1980s, the Mark IX and the Alpha 1 were used on military programs at Los Alamos, White Sands, Dugway Proving Grounds, Eglin Air Force Base, and the Pacific Missile Range (Kwajalein). However, by the late 1980s when the Cold War ended, almost all military lidar contracts were directed to the National Laboratories, and contracts supporting the Mark IX and Alpha 1 all but

disappeared. Fortunately, by this time Norm had established himself in the lidar community, and on a National Science Foundation (NSF) contract he designed and operated a lidar package for the program Operation Deep Freeze in Antarctica. The Antarctic lidar collected stratospheric cloud data necessary to illustrate and confirm the depletion of ozone and verify the existence of ozone holes.

Of note, Norm's work on NSF's ARCLITE lidar system, which was a joint effort with SRI and the Danish Meteorological Institute, continued to support meteorological missions until the Sondrestrom site was shut down in 2018, long after Norm and Ed Uthe retired in 1998.

This obituary was created by Jan Vanderlaan with permission of and based on information provided by The Mountain Messenger Newspaper (California's Oldest Weekly Newspaper), Nevada City, California; Robertson Publications, publisher of Sawdust to Stardust, by Norm Nielsen; and personal input from colleagues.

Elmer Joseph Reist*



Elmer Reist died in February 2023 at age 92 due to complications from advanced kidney disease.

Elmer frequently remarked that he had led a charmed, perfectly timed life. He grew up in Alberta, Canada, on a farm without electricity or running water, where he developed an

iron constitution, a powerful work ethic, and a permanent aversion to raspberries and the cold. He liked to recount one childhood Christmas, when his parents, Jake and Liz, gave him the chemistry kit that sparked a lifelong fascination for the building blocks of life.

Elmer began his studies riding horseback to John Knox—a one-room country schoolhouse that served children of all ages. Later, he studied honors chemistry at the University of Alberta, building lasting bonds with his fellow students and enjoying the mentorship of Dr. Reuben Sandin. He enjoyed one of the best rooms in the university residence thanks to strategically gifting the headmaster with ducks he had hunted at home. He earned his PhD at the University of California, Berkeley, perfecting his research skills while working with Nobel Laureates. There, Elmer met his future

wife, Helen, in the basement of Old Chem, when she critiqued his technique during a game of pinochle and took over playing his hand.

Elmer returned with Helen to Canada for his postdoctoral studies in Ottawa, an important year during which he perfected his research skills. The couple made more lifelong friends and welcomed the birth of their first daughter, Nancy. But Elmer's time at Berkeley had created an affection for the San Francisco Bay Area, and ultimately his distaste for cold weather won out. The young family returned to California, and Elmer began working at SRI, where their second daughter, Noreen, was born. There, he began a productive career synthesizing antiviral and anticancer drugs in conjunction with the National Cancer Institute. He earned patents, was coauthor of more than 40 research papers, became a group leader in SRI's Life Sciences Division, and launched several successful research programs, bringing renown to SRI and establishing SRI's preeminence in the field of drug synthesis. Elmer was inducted into the SRI International Hall of Fame in 2011, along with his close friends and colleagues Drs. Joe DeGraw and Ed Acton.

Despite his demanding work, Elmer maintained a rich personal life. He was a skilled woodworker and rebuilt the kitchen of his California home to the exacting specifications of his gourmet-chef wife. Their kitchen was the engine that drove many lively family gatherings and was also central to Elmer and Helen's monthly participation in an AAUW (American Association of University Women) dining group, where they made not only culinary masterpieces, but dear friendships as well.

Every summer while his daughters were growing up, all four returned to the farm in Alberta. They usually made this trek in the family station wagon, exploring the magnificent terrain of Western North America along the way. Once they reached Alberta, they spent many happy hours with Elmer's mother and the families of his brother, Denis, and sister, Trish. Their stays were punctuated by spirited games of Canadian rummy and cribbage, fishing for pickerel, lamb barbecues, and visits with dozens of cousins. These summer visits continued after the daughters were grown, with new generations of Reists (including Elmer's granddaughters, Christy and Seanna) joining the fray.

Elmer's travels were not limited to Canada. He visited every continent except Antarctica. His many excursions included an opera week in Salzburg, the Edinburgh Festival in Scotland, African safaris, birding expeditions in South America, rafting on the Coppermine River in Northern

Canada, Elderhostel adventures with his granddaughters, cruises in Alaska and the fjords of Norway, snorkeling in many of the ocean reefs of the Pacific, Caribbean, and Red Sea, and total solar eclipses in Salzburg, Mazatlan, and Wyoming.

Music was an essential part of Elmer's life. He had eclectic taste and might be found at bluegrass, swing, and Grateful Dead concerts. But his passion was symphonic, chamber, choral, and operatic music. During his days at Berkeley, he regularly crossed the Bay Bridge to hear the San Francisco Symphony and San Francisco Opera, and he continued subscribing to both throughout his life. He deeply appreciated the influence of Michael Tilson Thomas on the SF Symphony, particularly the introduction of pianist Yuja Wang.

Elmer was deeply committed to his family. He always looked forward to calls and Zooms from his Canadian relatives. He regularly visited Colorado to see his daughter Noreen and her family. He was extremely proud of his daughters and granddaughters and their families and was thrilled by the births of his great-grandchildren, Phineas Elmer and Helen Elina.

Elmer is survived by his brother and sister, his two daughters and their husbands, his two granddaughters, and his two great-grandchildren, all of whom deeply love and sincerely miss him.

Based on an obituary published by Legacy Remembers on June 2, 2023.

Georgellen Smith*



Georgellen (Georgie) Smith died on March 12, 2023, at the age of 99 years and 11 months.

Georgie was born on April 21, 1923, in Weld County, Colorado, to Nellie Ellen Loffer and George Ambruster Hill. She graduated from Johnstown High School and the University of Southern California, majoring in mathematics and science.

Georgie was extremely musical and played the piano in an all-girl band, traveling around the United States. She and her first husband, Clarence Schuske, had two daughters, Carol and Kathie.

During her career, Georgie participated in various scientific and government projects. In Tennessee, she worked with J. Robert Oppenheimer on the atomic bomb. She also worked in Bellingham, Washington, and Rocky Flats, Colorado, and taught at the University of Colorado. In addition, Georgie was employed at the National Bureau of Standards Central Radio Propagation Laboratory in Boulder, Colorado, where she coauthored scientific reports.

Georgie was a mathematician and senior research engineer in the Communications Laboratory and Radio Physics Laboratory at SRI in Menlo Park from November 1967 until her retirement in May 1991. Her focus was on ionospheric radio wave propagation, and she wrote or coauthored reports for these projects. She was also a manager in the Radio Physics Laboratory for years (one of the first female managers). Ever ready to work on whatever was needed, Georgie always had a smile and sense of humor to share with her managers and coworkers.

Georgie and Gordon Smith, her second husband of 52 years, enjoyed their retirement in Rossmore in Walnut Creek, California. Georgie danced with the Rossmoor Rockets and played the piano and organ for various functions. She will always be remembered by family and friends as a beautiful, positive, energetic lover of life who lived it to the fullest.

Georgie will be greatly missed by her daughter Kathie Schuske; niece, Marjorie Lunt; and grandchildren, Tony Baker and Brandy Mahan. A special thanks is extended to Perry Smith, Mariessa Amam, and Nancy Renshaw for their devoted support and care of Georgie.

Based on an obituary published in Rossmoor News, Walnut Creek, CA, April 26, 2023, 57(6), 8B, and a contribution from Jackie Owen.

Vincent Beauchamp Wickwar



Vincent (Vince) Wickwar, a physics professor and pioneer aeronomer, died on September 27, 2022, at age 79 at his home in Logan, Utah. Vince was a longtime member of the Center for Atmospheric and Space Sciences and professor of physics at Utah State University (USU), and an early pioneer in the field of aeronomy (the scientific study of the physics and chemistry of the upper atmosphere of the Earth and other planets). The field of aeronomy was created in the

wake of the United States-Union of Soviet Socialist Republics nuclear Test Ban Treaty in 1963 to better understand the possible effects of high-altitude nuclear detonations on long-range communications. These technologies are now used to better understand global climate changes, among other natural phenomena.

Born in New London, Connecticut, in 1943, Vince spent his early years in New York City, where his British-born father, William Hardy Wickwar, worked at the United Nations and his mother, Margaret Wickwar, was a social worker and later a museum docent. Vince's formative years were spent in Princeton, New Jersey, where he occasionally encountered Albert Einstein, who inspired his lifelong love of physics. Vince's father's work as an international civil servant took Vince to Lebanon, where he learned French at the Jesuit School of Beirut. On returning to the United States, he attended Pomfret School in Connecticut and later completed undergraduate studies at Harvard University in 1965 and earned a doctoral degree in space physics from Rice University in 1971. Vince was one of the first students to complete their PhD research using Puerto Rico's famed Arecibo radar; although no longer in operation, the Arecibo radar was the largest of its kind and was used for numerous ionospheric and astronomical discoveries. Vince also performed postdoctoral research at Yale University.

From 1973 to 1988, Vince was employed at SRI in Menlo Park, California, where he was co-principal investigator of the incoherent scattering (IS) radar based in Sondrestrom, Greenland, and principal investigator on numerous IS radar studies using data from the Arecibo, Chatanika (Alaska)/Sondrestrom, EISCAT (European Incoherent Scatter Scientific Association's IS radar systems in Northern Scandinavia), Millstone Hill (Massachusetts), and St. Santin (Aveyron, France) radars. These studies included the joint American-French plasma line experiments at high latitudes and investigations of photoelectrons and secondary electrons.

During a two-year leave of absence from SRI in the early 1980s, Vince served as the National Science Foundation Program Director for Aeronomy. He collaborated extensively with French aeronomers at both the University of Grenoble and France's Centre Nationale de Recherche Scientifique.

In 1988, Vince joined the faculty of USU in Logan to take advantage of the low light pollution in Northern Utah's Cache Valley. He was the principal investigator on numerous grants involving studies of the upper atmosphere employing

lidar (light-detecting and ranging) systems, photometers, Fabry-Perot interferometry, and IS radar. One of Vince's most widely known USU endeavors was directing research using Rayleigh scatter lidar at the university's Atmospheric Lidar Observatory. The lidar system, known as the "Green Beam," emits a bright green ray of light from campus into Cache Valley's night sky and has been a source of fascination for local residents for nearly 30 years. The system measures temperatures, densities, and waves in the mesosphere, the layer of Earth's atmosphere about 30–50 miles beyond the planet's surface.

Vince also served as a correlative investigator on the Upper Atmosphere Research Satellite team and as a guest investigator on the Atmospheric Explorer and Dynamic Explorer satellite teams. He developed both hardware and software for data acquisition and analysis and was instrumental in establishing the National Center for Atmospheric Research's IS database, which developed into the CEDAR (Coupling, Energetics, and Dynamics of Atmospheric Regions) database.

From early in his career, Vince championed collaborative investigations that combined both radar and optical measurements to achieve a broader perspective on the atmospheric phenomena being studied. At USU, Vince taught graduate courses in optics and aeronomy, and served many years as a thesis advisor. While Vince was an expert in esoteric scientific innovations and discoveries, he enjoyed interacting with nonscience-focused students and taught two beloved introduction-to-science courses at USU for undergraduate students.

Vince maintained that from an early age his parents nurtured his many hobbies, including photography, which became a lifetime passion. His interest in photography served as his early introduction to optics, the underlying basis for the complex lidar and other optics-based systems he used in his academic and research studies. During his undergraduate study at Harvard, his passion for photography led him to spend two summers in Sardis, Turkey, where he documented with photos the Sardis excavation, one of the longest running academic excavations, having commenced in 1910 and is still ongoing.

Vince greatly enjoyed the outdoors, both hiking and camping, and was particularly enthralled by the natural wonders of Utah. At the time of his death, Vince was one of the principal investigators on a large multi-university collaborative grant from the Defense Advanced Research Projects Agency to use Vince's lidar system to collect detailed

density and temperature measurements from the mesopause region, the junction between Earth's upper atmosphere and space.

In Logan, Vince was involved in the community, serving for years as the chair of the Cache Valley Democrats and an active member of the Men's Club. He was also involved in the Logan Downtown Alliance, as a result of some of his and his wife Gina's many outside commercial business interests. In addition, Vince served two terms as President of the USU Faculty Senate. He was a well-known figure on the USU campus and a decades-long season ticket holder for the Aggie football team.

Vince is survived by his wife, Gina (née Virginia Ashbacker); stepchildren, Kristopher David Brown, Melody Brown Burkins, and Nathaniel Scott Brown; and grandchildren, Ari and Noa Brown, Riley Logan and Porter Brown Burkins, and Zacharias and Michael Tsiakalis-Brown; as well as his two beloved goldendoodles, Rhett and Sophie.

Based on an obituary published in the Logan Herald Journal on October 4, 2022 and a remembrance by Mary-Ann Muffoletto published online in Utah State TODAY on October 20, 2022.

*Member of the SRI Alumni Association

Note: At press time we learned about the passing of **Nancy Griffin** in January 2023. Nancy worked as a receptionist in Building A for many years. We hope to publish her full obituary in the December 2023 newsletter or when more complete information becomes available.



Hundreds Attend Memorial Service for Sally Longyear

More than most of us at SRI, Sally Longyear had a license to roam. And roam she did, looking for solutions to keep our bodies capable of supporting our intellectual and physical pursuits. She was a lovable force to be reckoned with. Regrettably, Sally passed away much too soon (see April 2023 newsletter), yet her contributions live on in the legions of those at SRI she helped and influenced.

A memorial service was held for Sally at the First Congregational Church of Palo Alto on June 25. The church was large, and it needed to be to hold the many hundreds of attendees. For those who could not attend in person, the service was streamed. The number in attendance was a reflection of how Sally bestowed an air of health and a ray of sunshine everywhere she went.

Among those giving tribute was Sherry Hanen, who had hired Sally to SRI and who was her supervisor for many of Sally's 36 years at SRI. Here, paraphrased, are some excerpts from Sherry's talk.

I hired Sally in 1986 to run our then newly rebuilt and revitalized SRI Fitness Center. She was perfect for the position, with a keen interest in and knowledge of fitness. She had a Master's degree in Public Health, a specialty in Health Education, and the heart of a helper. She became one of the very first Certified Ergonomists in the State of California—certainly a first for our own little area of the work world. Sally set the center in motion and organized a group of instructors to help employees work through their fitness issues and become better advocates for their own health. But that wasn't enough; she needed all employees to value their health and take advantage of whatever SRI could offer to help them achieve fitness interest and then personal fitness goals.

She was unstoppable. When changing clothes in the middle of the workday and working out in the Fitness Center didn't fit all of SRI's culture, Sally took her show on the road and created walking groups during lunchtime, leading groups through the neighborhood and around town. She finally convinced me (after a few years trying) to join a walk and when my legs developed shin splints (not many could keep up with her, especially one as short as I), she had to leave me clinging to a light pole so she could lead the others to the completion of the walk. I never let her forget that! Never!

As you leave here today, you will hop into your cars and grasp the steering wheel for the ride home. Please remember to keep your wrists and elbows neutral. If Sally were here, she would tell you that, she would want you to remember that.

We will always remember Sally with great fondness and love and awe and respect for all of her accomplishments, especially her profound dedication to helping others.



Please consider joining the SRI Alumni Association. The association was founded in 1996 to provide former staff members the opportunity to keep in touch with SRI and their colleagues, to support the institute in a variety of ways, and to help perpetuate SRI's traditions and values.

SRI Alumni Association members enjoy many activities and services:

- **Alumni Association Newsletter**—Published three times a year, giving news about SRI programs, Alumni Association activities, and individual members (see past issues at <https://alumni.sri.com/newsletter.html>).
- **Membership Directory**—A regularly updated resource of contact information for association members.
- **Annual Reunion Meeting**—An opportunity for:
 - Socializing with other Alumni Association members.
 - Viewing the Alumni Hall of Fame Induction ceremony.
 - Hearing a prominent SRI speaker describe an important SRI project or organizational development.
- **Spring Fling**—A picnic or visit to a Bay Area point of interest; past trips have been to the Computer History Museum, the Hiller Aviation Museum, NASA-Ames, and the California Academy of Sciences.
- **SRI Archives**—Association members maintain and catalog SRI's photographic and nonproject archives.

We encourage you to participate in the SRI Alumni Association. Your first year's membership is free. Your membership thereafter will be \$25 per year. By completing and returning the application below, you will be enrolled and will receive future issues of the newsletter and invitations to all alumni events. Please indicate how you would like your information to appear in the Membership Directory. If you prefer that some or all of your contact information not be published in the directory, please indicate your preference below. Also, please indicate whether you would prefer receiving the newsletter as an electronic copy (PDF, which saves the association printing/ mailing costs) or as a hard copy. If you prefer to complete an application online, please do so at <https://alumni.sri.com/join.html>.

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*The SRI Alumni Newsletter is published three times a year (in April, August, and December) by the SRI Alumni Association.
 Editorial committee: Mimi Campbell and Caren Rickhoff / Design & layout: Linda Hawke-Gerrans*