

Alumni Association



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MESSAGE FROM ARCHIVES CHAIRMAN DON NIELSON



Don Nielson

You've all been around SRI long enough to know that you can be surprised, even awed, when you learn about work here having such potential impact. Sometimes you've had to look back to see it, but in this newsletter, if you read on, you'll be awed by what is in progress. Researchers are working on potential ways to disclose hidden cancers and ways to target cancer cells by using gateways tailored to their existing receptors, gateways that then can deliver anticancer drugs to specific points of vulnerability within the targeted cells. Who would think that paint, other than its reflective properties, could cool the surface it's on? But such a paint has come from SRI's new division that was PARC. These projects are heart-warming evidence of the discovery that runs through SRI's life.

Another of those moments of awe from the past unfolds in the History Corner. Read about how a relatively unheralded SRI researcher helped lay important groundwork well over a half-century ago for computer networking—you know, that invisible system that brings the world into your hand. You don't find a lot of magazines in the doctor's waiting room anymore.

Reminding us of how international SRI once was, we have an interesting account from our English colleagues about an outing to find Roman antiquity in the heart of London. The broad smiles of the attendees call us right in! Andy Zucker shows how reading this newsletter might kindle a link to work you are doing or have done. Left in this issue are the greeting of new colleagues and the bidding of farewell to others.

Now you will undoubtedly want to know about your Institute's new name! Yes, you read that correctly. You can

see the new name and logo below. It seems SRI is now simply SRI, formerly SRI International, formerly Stanford Research Institute. (Its legal name, however, remains SRI International.) No small amount of thought has gone into this change, and you can see that from Gary Bridges' account inside and by clicking on <https://www.sri.com/press/story/sri-unveils-transformative-new-brand-identity/>. The big question, of course, is whether it conveys our history and our potential to an evolving client base. That "out-of-the-box" magic, implied in the logo, is hopefully forthcoming.



Remember that your participation in Hall of Fame nominations is critical, that your Alumni Association renewals for next year are due, and that we appreciate your help in recruiting new members.

Finally, I plead for those of you who live near SRI to consider joining our leadership team. The quality of these newsletters shows the dedication and talent in place. There is a lot to do and we'd love to have some help. Just go to srialumni.org and click on any of the blue headings to let us know you are willing. Thanks!

Now, please remember that this turbulent, calamitous world is also full of hidden kindness. Have a wonderful holiday with those you love.



SRI Rebranding Event

By Gary Bridges



In the end, December 7 was a nice day for rebranding. At the start, 11 Alumni Association members arrived at different times and gradually built up our numbers anticipating Corporate Communication's Mike Freedman and his presentation of the “backstory” of the new SRI corporate logo.

Along the way, we were treated to a goodie-laden table brimming with tea, cookies, and celebration food. And logo merchandise was available for the taking.

For all of us, it was a trip down memory lane—the newly redesigned SRI Cafe looks like a success, and staff all seemed comfortable with the “new” appearance (see photos).



Here's the summary of logo history, as presented by Mike:

- Re-creation of the SRI logo began with formation of a Branding Advisory Committee to provide input and guidance as various versions of the logo were considered.
- The first Stanford Research Institute logo was created in 1946, based on a stylized diagram of the atom.
- A new logo in 1947 replaced the atom with a map of the western states. Notably, the logo centered on a star that lies at 37 degrees North Latitude: right here in Menlo Park.
- In the 1950s, a different version of a world globe replaced the previous logo.
- In 1977, the word “International” was added to the logo.

Multiple considerations were examined as the new logo was being created.

- Ideally, any new logo would draw from all of SRI history. Easier said than done
- The logo should promote the idea that SRI is rich with “out-of-the-box” thinking.
- At the same time, the logo should acknowledge that SRI scientists, engineers, researchers, and staff need to be “in the box” at least part of the time—because that's where many creative ideas start, and we do have substantial regulations to be followed.

Responses to the new logo have run the gamut:

- “It reminds me of MC Escher.”
- “This logo is clearly influenced by August Mobius and his vision of a ‘non-orientable surface’” (the Mobius strip).
- “I think it honors Archimedes.”

Mike closed with a recap of the technologies, processes, and concepts that SRI has played a role in creating and developing in our 77-year history.

In short, SRI was there at the beginning of a huge number of technologies, processes, and concepts that today form the

foundation for much of daily life on this planet. All of us attending remembered the creation of some of these. Perhaps some of us remembered all of them.

George Abrahamson once said, "Evolve or perish." Most likely, he was right.

After some additional chatting among ourselves, we all said goodbye to the old logo and headed for the future.



A Cool Paint Solution



July 2023 was the hottest month globally in recorded human history. To meet the growing need for affordable, energy-efficient ways to stay cool, SRI researchers have developed a self-cooling, water-

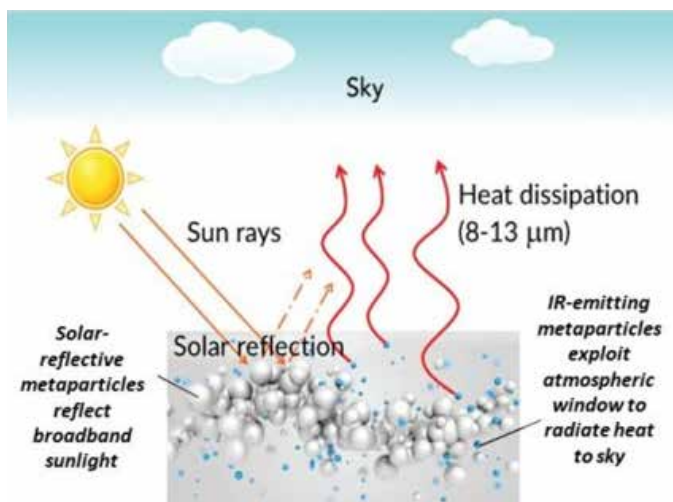
based paint that provides the ultimate in energy efficiency: It does not require any electricity or power to work.

“The active cooling solutions we have today are not sustainable and will not be adequate going forward,” said Anish Thukral, research scientist and materials engineer at SRI, who is leading the development of this paint. “A passive cooling solution like this is particularly valuable because it is cheaper and more accessible than air conditioning.”

Looks Are Deceiving

Although it looks like a standard white house paint, SRI’s paint contains carefully designed pigments that achieve cooling in two ways. First, the paint reflects 96% of the sunlight that hits it so that the painted surface absorbs little of the sun’s heat. Second, materials in the paint radiate heat into the atmospheric transparent window—a specific band of infrared wavelengths that are known to pass easily through the planet’s atmosphere. Because these wavelengths do not interact with anything in the atmosphere, the heat can dissipate into cold outer space. In an internal test conducted on a rooftop in Palo Alto, California, the paint cooled a surface up to 10°F below the ambient air temperature and 23°F below its uncoated counterpart.

“That is the real magic of science,” said Dr. Thukral. “We’re using outer space as a direct heat sink, and space is always



available and extremely cold. So, it’s a clean and sustainable solution for cooling.”

Water-Based Cool Paint Adheres to Multiple Surfaces

Because the “cool” paint formulation that SRI developed is water-based, it is easier to use, less expensive, and produces fewer potentially harmful volatile organic compounds than solvent-based formulations. The paint is free of PFAS (per- and poly-fluoroalkyl substances), a widely used group of chemicals in paints that have been linked to health risks. Further, the paint is easy to spray, roll, or brush on.

According to Dr. Thukral, “We have good adhesion on multiple surfaces; it works on rigid as well as flexible substrates; it has a similar resistance to abrasion as commercial paint would have; if it gets dirty, you can wash it with water.”

Applications

After exploring several applications with interested parties, the researchers expect an initial use case to be for outdoor electrical boxes, such as those attached to cellular towers, that must maintain regulated internal temperatures to protect the sensitive and expensive electronic equipment inside. SRI’s passive cooling paint could help keep temperatures within safe operating ranges to protect these systems and potentially extend their life spans.

While the current application focus is on electrical boxes, SRI envisions using the paint on rooftops to lower building temperatures, on vehicles to help maintain cool interiors, or on playground structures so that children can use them even on the hottest summer days.

“We’re trying to get this paint out into the world,” Dr. Thukral said. “It could have an impact on a very broad population.”

Sources:

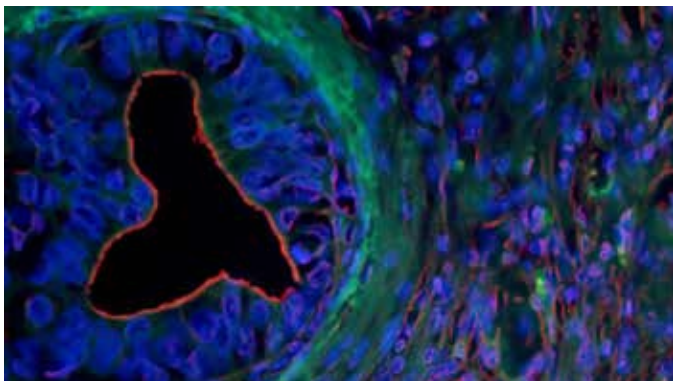
SRI Press Room. SRI’s new paint provides a sustainable passive cooling solution. November 13, 2023. <https://www.sri.com/press/story/sris-new-paint-provides-a-sustainable-passive-cooling-solution/>

PARC. Passive radiative cooling paint. <https://www.parc.com/technologies/self-cooling-paint/>

Meeting the Pancreatic Cancer Challenge with Early Detection and High Specificity

Pancreatic cancer is the fourth leading cause of cancer death in the United States. Tragically, because pancreatic cancer usually shows few or no symptoms until it has advanced and spread, at the time of diagnosis more than half of patients have metastatic disease. Patients with metastatic disease have a five-year survival rate of just over 3%. However, for patients with localized disease in which the tumor is confined to the pancreas, the five-year survival rate improves dramatically, to 44%. The remarkable difference in prognoses highlights the need for both improved therapies and early detection methods.

Researchers in SRI's Biosciences Division identified a new carbohydrate biomarker—N-glycolylneuraminic acid (Neu5Gc)-sialyl Lewis^A—that is found in a range of solid tumors, including pancreatic cancer. Using SRI's proprietary FOX Three™ platform, researchers also discovered a new molecular guidance system (MGS), that is, a peptide that binds to this biomarker on cancer cells. This new MGS allows evaluation of Neu5Gc-sialyl Lewis^A as a pancreatic cancer biomarker, as well as the use of the MGS as a cancer-targeting agent.



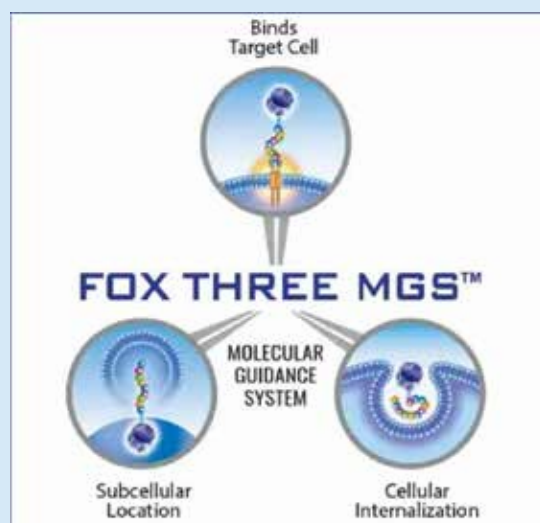
SRI Molecular Guidance System staining of pancreatic ductal adenocarcinoma.

The cancer-targeting molecule can be used both diagnostically and therapeutically. Specifically, the MGS can be tagged with imaging agents to detect tumors at the earliest stage or bound to cancer-killing drugs and immunotherapies that go directly to tumor cells to eliminate the disease. Thus, the MGS is a targeting system that raises the possibility of early detection of pancreatic cancer, while potentially opening new therapeutic avenues.

SRI's FOX Three Molecular Guidance System (MGS)

Human cells are surrounded by a semipermeable membrane that functions as a barrier, allowing only certain substances to cross. Extracellular molecules can gain access to the cell interior via a receptor. A receptor is a protein that resides on the surface of a cell or in a cell to which a substance (such as a hormone, antigen, or drug) can bind, causing a change in the activity of that particular cell. However, each receptor is highly specific, and only molecules that exactly match the receptor can bind to it.

The FOX Three technology works by using modeling to match the receptor on a target cell to a peptide and then synthesizes the peptide to the exact requirements. The peptide becomes a unique delivery agent—the MGS—that delivers the cargo (such as an anticancer drug) across the membrane and into the target cell. This targeted delivery limits uptake in other cells and so helps reduce the potential of drug sensitivity. One of the key differentiators of the FOX Three MGS is that once inside the cell, the peptide directs the drug to the required location *within* the cell. Because the MGS is modular, the cargo can be virtually any bioactive compound.



Sources:

<https://www.sri.com/press/story/75-years-of-innovation-fox-three-molecular-guidance-system/>

<https://www.sri.com/platform/fox-three-molecular-guidance-system-mgs/>

Early Warning Signs

“To our knowledge no other group has targeted Neu5Gc-sialyl Lewis^A in this way,” said Shelby Knoche, a postdoctoral researcher in SRI’s Biosciences Division. “What makes this molecular guidance system more advantageous is that healthy humans produce very little Neu5Gc-sialyl Lewis^A naturally. We don’t see this specific biomarker in healthy tissue very often, yet it is quite common in pancreatic cancer cells due to altered metabolism. The MGS can therefore be used to deliver drugs specifically to pancreatic cancer tissue without side effects.” Dr. Knoche and colleagues have shown that Neu5Gc-sialyl Lewis^A is significantly expressed in both metastatic and local pancreatic cancers. In fact, Dr. Knoche said it has the potential to identify precancerous cells before they become full-blown cancer—the earliest of early detection systems. According to her, “With Neu5Gc-sialyl Lewis^A, we can even detect precursor lesions of pancreatic cancer. For these people who stand a good chance of survival, we can improve their odds by identifying a tumor sooner.”

Clinical Potential

In preclinical studies, SRI has demonstrated the use of the MGS to treat pancreatic cancer via an immunotherapy called TALL™ (see the next article). TALL combines the Neu5Gc-sialyl Lewis^A tumor-targeting technology in a liposomal formulation, yielding a therapy that can both detect pancreatic cancer cells with high specificity and activate a body’s immune system to destroy them.

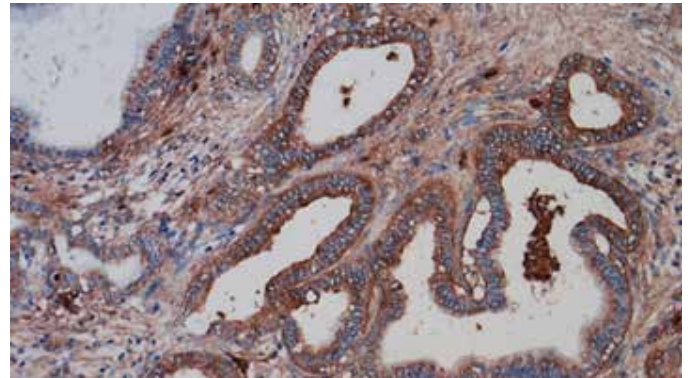
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Knoche S, Venugopal I, McGuire MJ, Brown KC. 190 Utilizing a peptide-based approach to target and evaluate novel biomarker Neu5Gc Sialyl Lewis A in cancer. *Journal for ImmunoTherapy of Cancer* 2023;11(Suppl 1):A216. doi: 10.1136/jitc-2023-SITC2023.0190

A New TALL Order: Precision Immunotherapy to Fight Cancer



Immunohistochemical staining of an SRI molecular guidance system in human pancreatic tissue.

A New TALL Order

Patients with solid tumors, including pancreatic cancer and triple-negative breast cancer, often endure limited and debilitating treatment options, such as chemotherapy and radiotherapy. Moreover, such conventional cancer therapies cannot target cancer cells specifically, which can lead to devastating side effects and negative outcomes.

SRI researchers are working on a new targeted immunotherapy for cancer, specifically solid tumors. Known as targeted antigen-loaded liposomes (TALL), this is a novel therapy that uses liposomes—small spherical vesicles composed of lipids—to deliver synthetic antigens to targeted cells in a controlled and precise manner. TALL is a more effective and personalized treatment than conventional immunotherapies.

“Traditional treatments for these cancers are typically ineffective unless the cancer is caught at an early stage; however, these cancers are also difficult to detect, often only being diagnosed at stages II or III,” said Indu Venugopal, principal investigator for the TALL program in SRI’s Biosciences Division. “Also, the types of treatment options offered to patients of these cancers are known for producing debilitating side effects. One of the reasons for this is the lack of specificity in targeting of treatments. SRI’s TALL system solves this issue by utilizing peptidic ligands from SRI’s FOX Three platform for targeted delivery.”

Leveraging the Body’s Own Resources

One of the novel features of TALL is that it leverages the individual’s preexisting viral immunity to focus the immune

system on activating a robust anticancer response. Patients who are vaccinated using the MMR (measles, mumps, and rubella) vaccine are already primed to recognize the measles virus as an invader. With TALL, liposomes encapsulate synthetic peptides whose sequence has been derived from measles and deliver them to cancer cells. Once the immune system recognizes the measles peptide, the memory or secondary immune response results in the destruction of those cells.

“Making cancer cells appear as if they were infected with a pathogen such as the measles virus is core to the TALL concept of activating and utilizing the human immune system to fight cancer,” said Dr. Venugopal. “But achieving this is the hard part. The measles virus was chosen because it is well studied, with a vast body of literature on it. Antigenic

peptides whose sequences are derived from the measles virus can activate a robust secondary antitumor immune response when internalized by cancer cells.” This comprehensive body of data on measles peptides helped Dr. Venugopal and her team select the antigenic components that best fit the TALL treatment criteria.

Challenges

TALL’s success did not come without challenges during its development. One significant challenge was the optimization of liposome design—including size, surface modifications, and stability—to ensure efficient targeting and antigen release. Additionally, the selection of appropriate antigens and understanding the immune response mechanisms in cancer were crucial for achieving desired therapeutic outcomes.

Preclinical research evaluating TALL demonstrated that liposomes accumulated in targeted cancer cells and that these cells were subsequently flagged with measles peptide. This generated a rapid and robust immune system response against the targeted tumor cells and a significant reduction in tumor growth.

The next challenge will be human trials. According to Dr. Knoche, “We are moving toward an Investigational New Drug application, an important precursor to starting a clinical trial.”

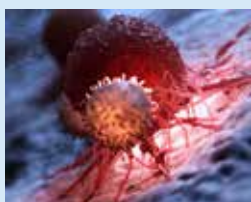
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Venugopal I, DeLong MN, Powell AG, Knoche S, McGuire MJ, Brown KC. 839 TALLTM (Targeted Antigen Loaded Liposomes) immunotherapy exploits recall immunity to form an excellent co-therapy option for immune checkpoint inhibitors. *Journal for ImmunoTherapy of Cancer* 2023 Nov;11(Suppl 1):A938. doi: 10.1136/jitc-2023-SITC2023.0839

Targeted Antigen-Loaded Liposomes (TALL) Technology



The highly targeted nature of TALL based on its coupling to SRI’s FOX Three MGS and the novel idea of using previously encountered antigens make

TALL unique among immunotherapies.

Targeted delivery of antigens that most people have already encountered, whether through vaccination or infection, will lead to improved therapeutic efficacy, reduced side effects, and the availability of immunotherapy to a broader patient population.

“Although treatment with TALL alone shows a substantial reduction in growth of lung, triple-negative breast, and pancreatic cancers, it can also be synergistically combined with other immunotherapies, such as checkpoint inhibitors, to generate a powerful anticancer treatment,” said Dr. Venugopal. “The hope is that our own immune system responses can be honed for treatment to replace debilitating conventional therapies, such as chemotherapy and radiotherapy.”

The Role of SRI's Elmer Shapiro in Early Computer Networking

By Don Nielson

This short account is a reflection on the earliest days of computer networking, how it first arose conceptually and then began to take on the characteristics that would pave the way to the “invisible” networks we depend on today. A research engineer from SRI was immersed in those early moments, and this is about him. His name was Elmer Shapiro (Figure 1). Elmer was housed in the Engineering part of SRI but sometimes floated to where his talents were most needed.



Figure 1. Elmer Shapiro – May 1980.

The Concept

It was late 1966 when former MIT Lincoln Lab engineer Larry Roberts became a program manager at ARPA (Advanced Research Projects Agency) and was trying to give substance to the concept of a network of computers. Others had seen the need to get the then very expensive computers tied together in such a way that users could remotely

share access to them and their resident programs. Roberts presented his concept at the annual meeting of the principal investigators in his part of ARPA in April 1967 in Ann Arbor, MI. At the meeting, the notion of tying one's own computer to others played to mixed reviews. But one who grasped the idea immediately was SRI's Doug Engelbart who could see them as accessible, distributed capabilities because many of them housed different, specialized applications. These “hosts” could foster and expand Engelbart's notion of the computer augmentation of intellectual work and the distributed collaboration that would follow.¹

At that meeting also came a genesis moment from one of Roberts's colleagues from Lincoln Labs, Wesley Clark. Clark was a smart young engineer dealing with one of the only computers at his Lincoln worksite. In spite of the rather chaotic meeting, he could easily see that the design approach should place the burden or complexity of a network not in the attached hosts, but in separate, smaller network-specific computers. These would be identical at all the network switching nodes and would handle all the offered traffic as well as the interface to the varied hosts. From that first meeting, Roberts gained enough affirmation that he decided

to present his concept as a paper at a professional computer society meeting that fall in Tennessee.

The Tennessee meeting was open to all, so researchers who were edging into this new world were also there, and through personal discussions Roberts gained more design insights and confidence. One of those researchers was from England's National Physical Lab and another was a member of RAND Corporation in California. Each brought his own separate pieces to the puzzle Roberts was assembling. As an ARPA program manager, Roberts had both the desire and the resources to make something happen. The year of unfolding would be 1968, not a very placid time here in the United States.

Sometime during 1967, a working relationship developed between Roberts and Elmer. It was perhaps through Engelbart, whose group lacked a background in networking and who borrowed that background from another SRI lab, this time the Information Systems Lab. So Elmer began attending these early network design meetings, representing Engelbart's interests and working on Engelbart's ARPA contract, at least as early as fall 1967. While representing SRI in the unfolding network discussions, Elmer clearly began lending a hand to Roberts in the management of his vision. Taking on that kind of supportive role would not have been unusual for it was part of SRI's objective character. That role also made sense because Elmer had also been at Bell Labs and otherwise engaged in work that gave him familiarity with the AT&T world that Roberts knew he needed for the transmission lines of this new network.²

Design and Implementation: The ARPANET

What would emerge over the next couple of years or so placed Elmer in the middle of a process for the design and implementation of what was to become the ARPANET. As Roberts's right-hand person, Elmer would first acquire and embrace the concepts for the new digital, packet-based technology and then help manage the process that would bring the network to life. The evidence for this role took shape in October 1967 as Elmer first began summarizing and reporting on and then scheduling ongoing ARPANET design meetings. Then the relationship got more concrete.

Effective the first working day of 1968, Elmer began working directly for Roberts under a new SRI-ARPA contract. According to one source, that contract was the first to officially carry the ARPANET name Roberts had given the new program.³ The project targeted the “design and specification of a computer network.” The contract duration was to be just

four months, but gaining enough closure on the design of the new network computer so that it could go out to bid, plus starting the software design process to make it all work, took until the end of 1968. We'll see some of the details of that process below.

The final SRI report for this project, issued by Elmer in December 1968, revealed a rough blueprint of how this first generalized computer network would unfold.⁴ If you look at a diagram from that report (Figure 2), you will see a network concept that looks very much like the ARPANET that emerged. Also mentioned in the report were salient concepts like “virtual circuits” (Elmer called them “transparent pipes”), implying that the network’s transport protocols would work independently of the physical path they took in this brand new digital, packet-conveyance world.

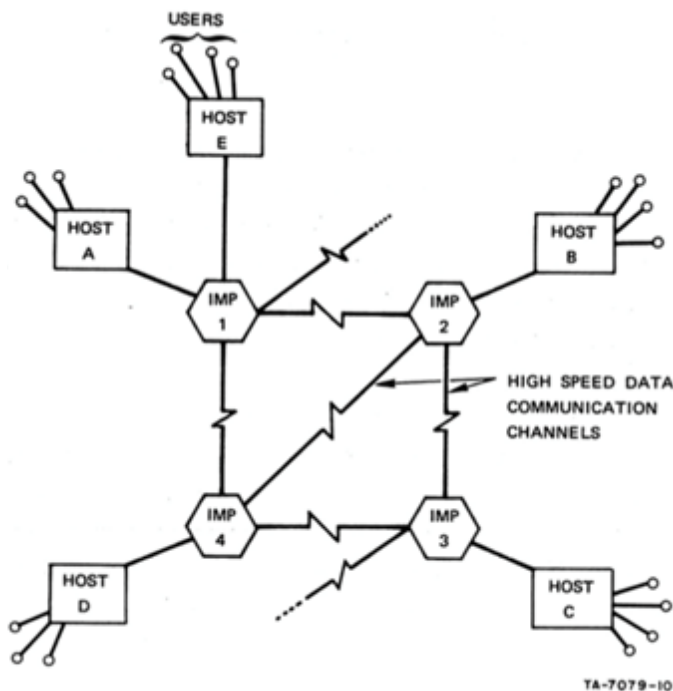


Figure 2. Early Network Nomenclature from Shapiro’s SRI Report.

The report also addressed how the hosts would interact in both information transfer and remote user access and the safeguards needed in doing so. A host, offering use of its resident programs, was called a “serving host,” an easily seen preview of today’s application servers. A lot of other desirable user needs were specified, even though they were not yet designed. To be clear, it was a compilation of where the output of the deliberating design groups was at the time and, as such, was a fairly comprehensive statement of where the network design stood as 1968 wound down.

Now backing up to around the middle of 1968, the design concepts were advanced enough that ARPA could issue a formal request for quotation (RFQ), that is, how much the network computer would cost. Early on, Roberts had called it an Interface Message Processor (IMP) (now called a router; see Figure 2). Using the knowledge extant at the time, writing that RFQ fell to Elmer. One source said it went to 140 companies, but the likes of IBM and CDC refused to bid, stating the cost of the computer would make it unfeasible.⁵ In a relatively recent interview, Elmer said that it was easy to winnow the number of respondents down to ten and then to just three that not only understood what was being asked, but also what elements of the design were still open. Bolt, Beranek, and Newman (BBN), which had been participating all along, won the bid. Now back to the software design process and to October 1967.

Formation of the Network Working Group

As you might surmise, the design of this network was an ongoing process since first conceived by Roberts when he arrived at ARPA in 1966. Meetings specifically directed toward its design began in late 1967, as mentioned above. That November, Elmer called and led the first design meeting that carried the name Network Working Group (NWG). Several more meetings were called in early 1968, still only involving people in Roberts’s circle of technical colleagues. But on May 24, 1968, after the four original network sites had been selected by Roberts, representatives from those sites were invited to a meeting at the University of California at Los Angeles (UCLA). Besides UCLA and SRI, the other sites were the University of California at Santa Barbara (UCSB) and the University of Utah.

Around mid-1968, after the RFQ was on the street and in order to get the relevant interface and transport software under way at each site, Elmer changed the composition of the design group to be those who would do the implementation work, also knowing well that much if not most of the network and interface design work remained. According to Steve Crocker of UCLA, that next meeting was held in August 1968 at UCSB.⁶ Elmer again would host and lead it. What was important about this meeting was that, now consisting of hands-on design and implementers, the group would adopt the NWG title and become the sole architect of the ARPANET thereafter. This would be the last such meeting Elmer would lead, Crocker taking on that leadership role.

One of the bits of folklore about this embryonic period is how this set of young technical neophytes felt at sea and believed

that the tenuousness of their role meant they would soon be replaced by the network professionals who would surely appear. Of course, there were no such professionals because this was totally new territory. Their absence became a gift of open, interesting, and lasting innovation.

Also, a result of that humble outlook of this new NWG was what to call the design documents that would be forthcoming. The choice, suggested by one of the SRI representatives, Bill Duvall, was Requests for Comments (RFCs), not exactly a blustering, forceful prescription to drive an end product.⁶ This outlook was understandable for the NWG's slate was blank and backtracking totally expected. The first RFC was written by Steve Crocker of UCLA, who would become one of the most influential innovators of computer networking. Duvall, a member of Engelbart's lab, would write RFC 2 about the first host-host interaction. Elmer would write RFC 4 on the implementation schedule for the new ARPANET, and SRI's Jeff Rulifson would write RFC 5, defining one of the very first examples of a host-independent computer language. Surprisingly, these "shy" RFCs became the eventual design book for the ARPANET and way beyond. The present total of RFCs now exceeds 9,000!

Elmer has also mentioned that it was his duty to interact with the telephone companies that would provide the transmission paths for the budding network. They eventually decided on 50-Kb leased lines (relatively fast for the day but soon to become inadequate). He also mentioned that it was his role to talk the principals at UCSB and Utah into participating.² Finally, according to Elmer's schedule in RFC 4, SRI—i.e., Engelbart's Lab—would receive the second of the ARPANET

IMPs around September or October 1969, UCLA getting the first.

After launching this ongoing schedule of continued design and implementation, Elmer would move to other interests. SRI would not again participate in computer networking technology until around 1973 with the creation for ARPA of the first mobile digital radio system. It would functionally extend the capability of the ARPANET and represent the subsequent and consequent need for internetworking. While the writings of how computer networking was born are legion and ongoing, Elmer's contribution needs better mention, hence this account.

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1. The gist of this meeting was taken from *Where Wizards Stay Up Late* by Katie Hafner and Mathew Lyon, Simon and Schuster, 1996.
 2. Courtesy of Andre Veal who interviewed Shapiro on June 21, 2017.
 3. Peter H. Salus, *CASTING the NET – From ARPANET to INTERNET and Beyond*, Addison-Wesley, 1995, page 25.
 4. E. B. Shapiro, *A Study of Computer Network Design Parameters*, Final Report to ARPA, SRI Project 7016, December 1968.
 5. Peter H. Salus, op. cit., page 28.
 6. Steve Crocker, RFC 1 [Requests for Comments 1] and personal communication, December 2, 2023. (May I also say that this story would have been far less complete and accurate without Steve's help. He is working hard to write the definitive history of the ARPANET and is the most fitting person to do so.)



UK Alumni Visit to the London Temple of Mithras

By Peter Weissbuhm

On Sunday, 26 November, a group of alumni met to visit the London Temple of Mithras, a not very well known reminder of the Romans' occupation of Britannia and founding of Londinium. The temple's ruins were discovered by excavation in a bomb crater during construction in the heart of London in the 1950s and later reconstructed as a cultural showcase by the head office of Bloomberg, the financial information company, as the London Mithraeum. The outline of the temple, at a modest 18 x 8 meters, resembles that of a Christian church, although the cult of Mithras had no connection with Christianity—in fact, was later driven to extinction by it.

So, who was Mithras? Well, only one of several Roman gods, as the Romans were not always particular about whom they collected and documented as their Empire grew. It seems that Mithras came from the East, probably Persia, was born out of a rock, and is celebrated on numerous carvings and monuments for having slain a sacred bull by hand.

A carved head in marble at the site makes him appear somewhat feminine, but it is pure speculation as virtually nothing is known about him. That, of course, was no hindrance to the growth of a cult around Mithras, which seemed to be a military cult, for men only, as the initiation rituals were apparently strict. From the few fragments, historians speculate the cult practiced story-enacting with much shadow-play but apparently no ritual sacrifice. The cult lasted only two or three centuries.



A key aim of the museum is to evoke an air of mystery around Mithras, given so little factual material. This is helped by the quality of the archaeological deposits on this site, which have preserved wood and leather well, with more than 14,000 artifacts recovered. (The visitor wishing to find out more about life in Roman Britain will find admirable models of indoor and outdoor life in the Museum of London.)

After our cultural exertions, we repaired to La Lasagneria for some fine food and wine and convivial company.



The lucky attendees, clockwise from the left: Nick and Sally Sturcke, Gillian and Nick Collin, Maurizio Petitbon, Peter Weissbuhm, Sonia Shaw, Bob Morgen, and Andy Shaw.

Annual Reunion, October 5, 2023

One of the nice outcomes of last October’s reunion was the attendance. We had been worried about a shortfall of attendees, but a second appeal and the anticipation of the program delivered a good turnout, overflowing the room that had been set aside. A couple of likely reunion draws are the infrequent opportunity to reconnect with friends and colleagues and just stomp a bit on old ground. One such colleague, Dick Krebs, simply had to be here. So much so that when his car wouldn’t start that afternoon at his home in Pittsburg on the Delta, he took Uber all the way to SRI and back...and was the happier for it! Of course, we try to offer information that keeps you up to date on the state of SRI, usually a project-related talk and then remarks from SRI’s leaders.

This time, the former objective was met by Martin Graciarena’s report on an ongoing project on a subject we are all impacted by, dealing with an onslaught of misinformation. SemaFor (for semantic forensics) is a \$10.9 million multicontractor DARPA project housed in the STAR (speech) Lab. Martin showed how the tools they are developing can, for example, detect synthesized speech that has been injected into the real speaker’s ongoing flow. Their set of such tools can determine

when multimedia information has been manipulated. Hopefully, this technology will find its way into practical use.

SRI CEO David Parekh gave a brief rundown on the status of the Institute sans the financial side. He first reviewed some of the notable projects under way, such as the development process needed for therapeutics for the next pandemic and, super practical, a new welding helmet that provides real-time 3D views. He mentioned some of SRI’s strategic initiatives like human-machine collaboration, climate change and sustainability, and tailored, personalized medicine. And while SRI’s presence in Japan is a bit different today, David noted that SRI has been engaged there for the past 60 years! He discussed SRI’s receipt of Xerox’s Palo Alto Research Center (PARC) and how it has been integrated into SRI. Finally, the looming redevelopment of the campus isn’t quite so looming, with the lengthy approval process stretching out for a year or more.

Heartfelt thanks to those who made this reunion such a success: Don Nielson, Donald Shockey, Linda Jansen, Gary Bridges, Augustina Biosic, Antonia Tena, Dave Harvey, and Arturo Franco and his staff.

Now take a peek at Gary Bridges’ capturing of the attendees.





Detecting and Dealing with Misinformation Is Now Elementary

The article in our last Newsletter about the challenges of misinformation in society triggered a response from one of our colleagues, Andy Zucker. Andy's life work has been in advancing primary and secondary education techniques and technology. From his email to us, below, you can see his firm belief that dealing with misinformation is so important and pervasive that it needs to be part of the early education system. Thanks, Andy, for letting us know of your advocacy and ongoing efforts!

By Andy Zucker

The August issue highlighted an SRI project that aims to combat misinformation by detecting manipulated media. The problem of misinformation has become so serious—tens or hundreds of thousands of Americans died during the pandemic due to misinformation—that there was recently a three-day Nobel Prize Summit focusing entirely on scientific misinformation. With funding from the Howard Hughes Medical Institute, colleagues and I recently published a report, *Learning to Find Trustworthy Scientific Information*, advocating that K-12 science teachers give students guided practice finding credible scientific information and resisting misinformation (<https://medialiteracynow.org/impact/science/>).

In our digital age, education standards in multiple disciplines are outdated, and as a result some state legislatures, including California's, are passing laws requiring media literacy education in K-12 education to help students reject misinformation.

Wanted: Your Submissions

We welcome articles and shorter items from all Alumni Association members to be considered for publication in the newsletter. Have you done something interesting or traveled to interesting places? Received any awards or honors? Your fellow alumni want to know! Please send items to steering-committee-alumni@sri.com.

W E L C O M E

The SRI Alumni Association welcomes new members:

Casey Chesterfield
Cobbey Sovia
Robert Fridley
Paul Gefken
Eggert Gudmundsson
Moyra Malone
Hy Murveit
Craig Seidel
Osher Yadgar

And welcomes back previous members:

Jerry Gleason
Jeffrey Weiss

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 December 31, 2023

Thank you to members who have renewed their SRI Alumni Association membership for 2024. For those of you who haven't submitted your dues of \$25 please do so by **December 31**. All members who renew on time will be included in the 2024 Alumni Directory, which will be issued in January. You should have received a renewal form and pre-addressed envelope. If you can't find the form and envelope, please send your \$25.00 payable to SRI Alumni Association, to the following address:

SRI Alumni Association
333 Ravenswood Avenue, AC-108
Menlo Park, CA 94025

Who Do You Believe Made an Exceptional Contribution to the Success of SRI? Nominate That Person for the SRI Alumni Hall of Fame!

The SRI Alumni Hall of Fame honors former staff members who made exceptional contributions to the success of SRI.

All former staff members are eligible, but nominees should meet the following criteria:

- Significant, lasting contributions to the success of SRI
- Contributions recognized by staff, management, or clients
- Contributions in any area of research, management, or service, such as
 - Establishing a new laboratory or a new field of research
 - Performing an outstanding recognized service
 - Clearly demonstrating qualities of leadership, vision, and creativity
- What did the person leave behind?
 - Enhanced reputation for SRI
 - New or enhanced research, business, or support activity or facility.

Please prepare a write-up of about 300 words indicating how your nominee meets these criteria. If you have questions about the nomination process, members of the Steering Committee will be happy to answer them. Send the write-up or questions to steering-committee-alumni@sri.com or SRI Alumni Association, 333 Ravenswood Avenue, AC-108, Menlo Park, CA 94025-3493.

The distinguished inductees are further honored by having their names engraved on brass plates permanently displayed on a wooden plaque in the I Building foyer. Current-year inductees also have their framed citations and photos mounted next to the wooden plaque (see photo below).



CREDIT UNION NEWS



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Gary G. Anderson



Gary Anderson died suddenly on May 31, 2022, from a heart attack. Gary and his wife of 43 years, Eugenia (Genie) Kraus Anderson, had relocated to Ashland, Oregon, in 2019 after 40 years in Palo Alto and Los Altos, California.

Gary was born on March 11, 1945. He graduated with honors from Edison High School in Tulsa, Oklahoma. Portending things to come, Gary was editor of his high school newspaper as well as his senior class yearbook. He graduated from Princeton University with a degree in history, and after two years with the Army at Fort Sill and Fort Bragg with the 18th Airborne Corps Artillery, Gary attended Carnegie-Mellon University where he earned a master's degree in industrial administration.

Gary had a rich and varied corporate career, beginning with Merrill Lynch Economics in New York and San Francisco. He moved to GE Information Services in Rockville, Maryland, in 1977, where he met Genie. In 1978, he joined SRI in Washington, DC, and then moved to the Menlo Park, California, office to become manager of SRI's Business Intelligence Program, a 1980s think tank. While at SRI, Gary's economic development consulting projects took him to Japan, China, Australia, Saudi Arabia, Germany, Slovenia, France, England, and many US cities.

In California, Gary purchased his first Austin-Healey British car and became involved for the rest of his life with various Austin-Healey activities—club politics, drives, outings, car shows, and meets.

After years of consulting jobs and travel, Gary and Genie purchased *British Car Magazine* and turned to automotive journalism, joining the Western Automotive Journalist organization. Eight years later, they sold the magazine to expand their journalistic opportunities. Gary became editor for various classic car magazines, eventually becoming Editor-In-Chief for *The Star*, the official magazine of the Mercedes-Benz Club of America. As active car enthusiasts for many years, Gary and Genie also penned the "On the Road" column of new car reviews for the *Los Altos Town Crier* until their move to Ashland. Gary was also an avid classic car race driver, campaigning his 1960 red MGA at various California racetracks.

On moving to Ashland, Gary quickly became fascinated with the history of Ashland and the Rogue Valley, learned all he could about the subject, and decided to teach as an instructor and member of the Osher Lifelong Learning Institute at Southern Oregon University. Passionate about sharing his knowledge and experience to help others, he became an Aspire Program mentor for Ashland High School juniors and seniors.

As an experienced journalist, writer, editor, and publisher, Gary also joined ranks with the founders of the new *Ashland.news*, dispensing advice and expertise whenever he could. Gary was serving as the board's treasurer when he died.

Gary's wish was to be remembered as "an editor." He was the best editor and worked hard to be better. In Gary's words, "An editor is someone who clears away the smoke so that the flame within can clearly be seen. In that sense, I've edited numerous pieces or writing by other people since I was the copy editor on my high school yearbook and through my career in consulting and then magazine publishing. Helping places and people to realize more of their potential is a pretty good way to have spent a share of the short time I had to contribute to the continuum of history."

Based on an obituary published in Ashland.news.

Odile Pitot de La Beaujardière



Odile de La Beaujardière died peacefully in Arvada, Colorado, on June 21, 2023, a few weeks shy of her eighty-second birthday.

Odile was born on July 10, 1941, during World War II in Poitiers, France, to Julien and Lily Martelly. She was the second of five children.

In 1945, she and her family moved to Quito, Ecuador, where her father taught physics for several years. She often spoke fondly of those formative years, and she retained her ability to speak Spanish throughout her life.

Odile met her future husband, Jean-Marie, at La Sorbonne in Paris, France. Her parents approved of the match immediately, and Odile and Jean-Marie wed in 1962. Her parents' instincts were correct: The marriage was a happy and devoted one for 61 years.

Odile did her dissertation work on the Crab Nebula at the University of Paris Observatoire de Meudon in France, and she emigrated with her young family to the United States in 1968. Odile lived in Palo Alto, California, from 1969 to 1994. She worked at SRI for many years, studying the aurora borealis (northern lights) with radars at Stanford, Fairbanks, Tromsø, and Sondrestromfjord. She was a National Science Foundation program manager in Virginia for the Atmospheric and Geospace Sciences Division and the Office of Polar Programs. She was later a section chief for the Air Force Research Laboratories at Hanscom AFB in Massachusetts followed by Kirtland AFB in New Mexico.

In addition to her distinguished career and time with family, Odile's main activities were hosting enormous dinner parties and leading hikes. She was known for inviting to Thanksgiving all the foreigners and people who didn't have a place to go. Her hikes were often grueling; the advice among friends and colleagues was that if Odile invited you on a hike, don't go unless you were in robust shape and prepared to stagger back to the car after sunset.

Odile is survived by her husband, Jean-Marie, in Golden, Colorado; her sons, Jean-François (Jeff), in Boulder, Colorado; Laurent (Larry), in Paris, France; and Cedric, in Palo Alto, California; her sisters, Béatrice, Isabelle, and Nicole, and her brother, Bernard, who all reside in France; as well as her five grandchildren.

Based on an obituary published by Concord Monitor on July 30, 2023.

Leonard Leving



Leonard Leving died at the age of 98 on June 1, 2022, at his home in Chico, California.

Leonard was born on April 25, 1924, in Melrose, Massachusetts, and grew up there. At the age of 19, he was drafted into the US Army and served in Europe during the Second World War. After the war, he completed undergraduate

work at Middlebury College in Vermont. He came to California in August 1949 and entered graduate school at Stanford University in Palo Alto, California, in September 1950. In June 1956, he put aside his graduate studies and

took employment as a computer programmer at SRI in Menlo Park. In July 1990 at the age of 66 and after 34 years at SRI, he retired as a software engineer.

Over the next several years after retiring, Leonard took many classes and workshops in painting with emphasis on watercolor. He belonged to several art societies over the years and was a member of the Santa Clara Valley Watercolor Society and the Menlo Art League. Leonard won awards for his watercolors in several shows sponsored by the Society of Western Artists, the Menlo Art League, and Santa Clara Valley Watercolor Society. His paintings have also appeared in the California Biennial Watercolor Competition sponsored by the Triton Museum in Santa Clara, California.

Leonard considered his principal accomplishment as a watercolor painter the set of 27 "Gold Country Scenes" he did from 2001 through 2006. He had the honor to exhibit this set at the Center for the Arts in Grass Valley, California, in 2007. Eight of these paintings had also been displayed in October 2004 at an event in Grass Valley sponsored by the Nevada County Arts Council.

Leonard is survived by his long-time companion Mary Nelson of Chico, California, and her children and grandchildren who loved him.

Based on an obituary published online by The Union.

Kathleen Lucey



Kathleen Lucey, a trail-blazing computer programmer and internationally recognized risk management consultant, died at age 74 on March 22, 2023, in hospice at the Fisher Home in Amherst, Massachusetts, at the end of her adventurous and ambitious life.

Kathleen was born in Holyoke in 1948, the second-oldest of seven children and first daughter to the late Lucille (née Chaput) and William H. Lucey. She attended Bryn Mawr College and University of Massachusetts Amherst before receiving her BA degree in English from the University of California at Berkeley.

While enrolled in the Renaissance literature PhD program at Berkeley, she began working as a technical writer for the

Army Corps of Engineers and in 1975 was admitted to Bank of America's computer programming training program in San Francisco, California. She worked as a programmer for Bank of America and Amdahl, where she wrote her first IT recovery plan for its data center. Recruited to SRI, she had the opportunity to learn from Donn Parker ("the father of computer security") and eventually to take on an assignment in Lyon, France.

Kathleen continued working in Paris through the 1980s in information security at French firms. In 1988, she married Breton chef Hervé Riou. Recruited back to the United States, she worked for Comdisco in its New York City office. Together, she and Riou opened a French restaurant, Chez Nous, in Morristown, New Jersey. In 1994, Kathleen founded the independent global consulting firm Montague Risk Management, headquartered in Glen Cove, New York, where she led international assignments for financial, publishing, pharmaceutical, and legal firms, as well as government agencies and environmental management nonprofits.

Kathleen received awards that included the IBM inaugural Business Continuity Practitioner of the Year Award. She became a fellow of the Business Continuity Institute in London and served on its board, as well as founding the US chapter of the Institute. She presented seminars and published widely, such as by writing the monthly column "Black Swans in Business Continuity" for the industry journal *Disaster Recovery Guide*. Kathleen was an adjunct professor at New York University's Center for Management and at the Metropolitan College of New York.

Fluent in French and with dual nationality in the USA and Ireland (European Union), Kathleen loved to travel and to read. She was an ardent rock and roll fan. At a young age, she became an expert seamstress and retained a lifelong flair for fashion. In 1986, as part of a surprise gift trip from Kathleen and her siblings to celebrate her parents' 40th wedding anniversary, she hosted her parents for several weeks at her tiny apartment near the Pont d'Alma in Paris. It was her mother Lucille's first visit to Europe, despite having grown up in Holyoke speaking French-Canadian, and father Bill's first visit since his service in the Army Air Corps during World War II. Along with her sister Barbara, who was then also working in Paris, they traveled the city—its museums, parks, parades, restaurants, and monuments—and spent one spectacular evening together at the Crazy Horse nightclub.

Kathleen was predeceased by her first husband, Jeff Elkins, and is survived by ex-husband Hervé Riou. She is survived by her sisters, Joanne and Barbara Lucey, both of Florence, and

her brothers, William ("Dave") of West Springfield, Robert of North Easton, James of Hollidaysburg, Pennsylvania, and John ("Skip") of Sedona, Arizona. She is also survived by numerous cousins and was an aunt and great-aunt to 28 nieces and nephews.

The family is grateful to the staff of the Fisher Home, the Lathrop Home, and Linda Manor and Mass General/Cooley Dickinson Hospital who so expertly and compassionately supported Kathleen through her end of life journey.

Based on an obituary published by The Republican, on March 23, 2023.

Leo Moll

After 10 weeks in hospice, Leo Moll died on May 25, 2022, at his home in Aptos, California. He was 92.

Leo was born in Oakdale, California. He attended his school-teacher mother's rural one-room schoolhouse with seven other children for several of his young years. Hot summer days were spent at the Oakdale Dip, Leo hopping all the way home on hot pavement. Leo went on to earn a Master of Business degree at the University of Southern California.

After three years during the Korean War as a Navy lieutenant aboard a destroyer, Leo returned to California and started his career in the computer industry, first at North American Aviation and then at NCR, including a two-year stint in Switzerland. After a few more stops, Leo went to work at and eventually retired from SRI.

Living in Los Altos, California, for many years, Leo was in a location to pursue his dreams. He moored his sailboat at Coyote Point in San Mateo, and he bicycled with the Western Wheelers, where he led training rides while designing intriguing routes, amusing maps, and magical but informative stories. He moved to Santa Cruz later in life and shared with the Santa Cruz County Cycling Club the same training and joys of riding a bicycle. Leo lives on in many ways but especially in the cycling community.

Leo is survived by his partner of 27 years, Arden Orrell; his daughter, Sharon Visini; and sister-in-law, Marilyn Moll. He was predeceased by his son, Brian.

Based on an obituary published online by Benito and Azzaro Pacific Gardens Chapel.

Cherry Moser

Cherry Moser died May 21, 2023, at SMP Health-Ave Maria, in Jamestown, North Dakota. She was 90.

Cherry was born on December 29, 1932, south of Medina, North Dakota, to Christ and Clara (Bader) Rau. She was raised on their farm, graduated from Medina High School in 1950, attended North Dakota State

University, and married Duane Hochhalter in December 1951. They lived in Seattle, Washington, and San Diego, California.

In July 1954, Cherry married Richard Powers in San Diego. During the next 20 years, they lived in California and Texas and had four children. Cherry was employed at Skylawn Memorial Park, San Mateo, California, for 10 years, and at SRI in Menlo Park for 10 years.

Cherry married Roger Moser on March 15, 1985, in Elko, Nevada. They lived in California for three years before returning to Medina in November 1988, where they built and operated C & R Dairy Treat for 14 years, from 1989 before retiring in 2003.

Cherry and Roger were members of Zion United Church of Christ in Medina and held numerous offices within the church. Cherry also loved singing in the church choir. Besides being a long-term treasurer of the church, Cherry enjoyed sewing, quilting, and gardening, as well as card-playing and bingo. Cherry spent many hours at her sewing machine and quilting frame. She made special quilts for family and friends and donated more than 200 quilts to the Trauma Center in Fargo, North Dakota.

Cherry was much loved and will be missed.

Cherry was preceded in death by her husband Roger, sisters Lanora Job and Jean Antonovich, brother Duane (Jeanne) Rau, three brothers-in-law, and one sister-in-law. She is survived by her daughter, Leslie Rucker, of Florida and three sons, Michael, Ryan, and Patrick Powers, all of California; one stepson, Ken Mose of Arkansas, and one stepdaughter, Carmen Cochrane of Nebraska; 14 grandchildren, one step-grandchild, and nine great-grandchildren; sisters Donna Dikoff and Ardella Bader and brother Vernon Bader, all of North Dakota.

Based on an obituary published by Eddy Funeral Home.

Arlene D. Wong*

Arlene Wong, 86, of San Mateo, California, died on August 10, 2023, after a courageous battle with cancer.

Arlene was born to Hubert and Esther Dong on September 21, 1936, in Watsonville, California. She spent most of her childhood in Watsonville until 1952 when the family moved to San Francisco, California. In 1954, Arlene graduated from George

Washington High School. She went on to study business at San Francisco State University, graduating with a Bachelor of Arts degree in 1958.

Arlene met John Wong in 1959 at a Christmas party. They were married on June 23, 1962, in San Francisco, where they lived for 11 years before settling in San Mateo, California, in 1973. Together, they raised five sons.

Arlene was very supportive of her children's many activities, participating in the PTA, Hillsdale High School Boosters, and Little League Board. She was a team mom, concessioner, and all-around cheerleader.

After spending 21 years raising her children, Arlene began working for Bekins, then Design Process, and, finally, as a Payroll Supervisor for SRI. After 14 years of service at SRI, she retired in 2001.

Arlene became a Christian in her early teenage years. After meeting John, she attended Cumberland Presbyterian Church in Chinatown, where she actively participated in several ministries and served in the church choir.

She enjoyed sewing, tennis, travel, and cheering on her favorite teams, the 49ers and the Giants.

Arlene is survived by her husband, John; brother, Arleigh; sons, Brian, Russell, Dennis, Bradford, and Randall; step-granddaughters, Mia and Sofia; and 10 grandchildren.

Based on an obituary published by Sneider & Sullivan & O'Connell's Funeral Home.

*Member of the SRI Alumni Association

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://srialumni.org/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://srialumni.org/join.html>.

SRI ALUMNI ASSOCIATION NEW MEMBERSHIP ENROLLMENT (Please don't use for renewing your membership)
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