April 2023 Newsletter

SRI International

Alumni Association

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MESSAGE FROM ARCHIVES CHAIRMAN DON NIELSON

Don Nielson

As old-timers would say, March roared in like a lion; and did it ever if you lived in this part of California. And the accompanying wetness approaches record-breaking with our snow reservoir in the Sierra piling high—52 feet in some places. But since it's just another thing I can't do anything about, let's move to what awaits you in this newsletter.

Right out of the gate is a brief account of some vital work ongoing at SRI. In three different project areas, you'll find SRI engaged in timely and significant work. The first is absolutely critical, the formation of ways to mitigate the consequences of the next viral-caused pandemic. As with all exponentially growing threats, being early, with efficacy, means everything!

Next, I confess reading about knowledge management left me a bit queasy. We are all becoming aware of the power of AI to gather and then impart the knowledge that people seek in very natural terms. From three collaborative SRI centers comes help for the canonical 20 percent of us who just don't get the word. Third comes what seems like an insurmountable challenge, taming the vitriol in social media. This project addresses the detection and mollification of hateful dialogue on the internet. I well recall in the earliest days of email how normally civil people could launch what we used to call "flames," harsh content that would never occur in face-to-face interaction. It's poisonous.

Jim Colton invites you into a gallery of images of Poulter Lab alumni. What's there went from a box of stuff left in the archives by Joyce Berry to the hands of Don Shockey to Jim's now-accessible photographic site.

Barry Minkin then gives us some insight into his ability to forecast economic demand. And he does it in the context of electric power demand in the face of the demise of one of the US's once-dominant industries. In the process, traditional economists seem to take a bit of ribbing.

Finally, there are notifications about several notable alums: one a prestigious AAAS award and two book publications. There is also information about a memorial service in June for Sally Longyear.

That leaves the Spring Fling. Dave Harvey has arranged a revisit to the Computer History Museum, which has undergone some important changes since we were there many years ago. Again, your dues and our efficiency have made it free to attend, but you'll need to let us know in advance if you are coming. Please check the included invitation prepared by Linda Hawke-Gerrans.

As always, please consider preparing Hall of Fame nominations and helping spread the word about the Alumni Association by sharing the membership application found on the last page of this newsletter.

Happy Spring!

Thursday
4
MAY

The Spring Fling will held be on May 4, 2023. Please see the announcement on page 11. The invitation flyer for the event is enclosed with this mailing.

SRI Scientists Ready to Fight the Next Pandemic

SRI received a four-year, $4.95 million award, with options to fund up to $21 million, from the National Institute of Allergy and Infectious Diseases (NIAID) as part of the US government's Antiviral Program for Pandemics (APP). The APP invests in new therapeutics and research tools to combat emerging diseases and prevent widespread transmission at the early stages of an outbreak. APP funds are allocated across multiple virus families with pandemic potential to support prepandemic therapeutic development.

"Developing drug therapies for the next pandemic isn't easy or particularly profitable, which leaves the bulk of this type of drug development up to the federal government," said acting SRI Biosciences President Jon Mirsalis, who also is the principal investigator of the NIAID-funded project.

Many epidemic- or pandemic-level viral outbreaks have occurred in the last 20 years, including swine flu (H1N1 influenza), Ebola, Zika virus, and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes COVID-19.

Ideally, for any future unknown disease, the pathogen will be diagnosed within hours to days, and classes of drugs will be available to treat the disease and stop or mitigate the pandemic threat early. "By making these investments now, we should be in a better position for the next emerging pathogen," said Mirsalis.

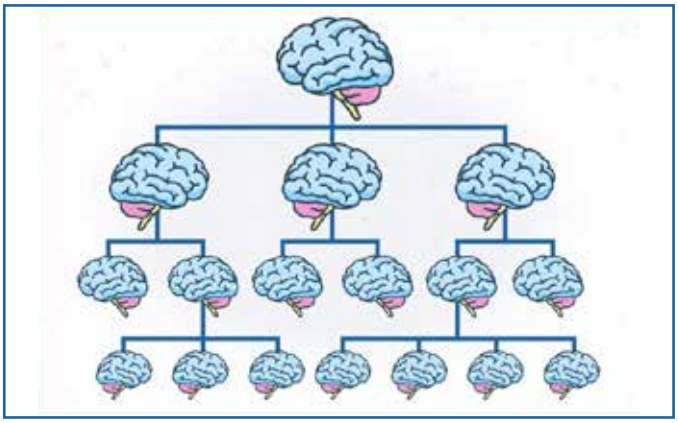
SRI received its first NIAID contract for anti-infective drugs in 1991 to study human immunodeficiency virus (HIV) therapies. Since then, SRI has assisted in advancing more than 50 therapies from basic research into clinical trials. Currently, SRI has active drug discovery, development, and testing programs against various pathogens, including COVID-19, influenza, and drug-resistant bacteria. This recent NIAID award fits within SRI's broader program to discover and develop new anti-infective therapeutics and vaccines.

"SRI's capabilities to take antiviral agents from development through testing using our biocontainment research facilities has positioned us well to support antiviral drug discovery," said Mary Lanier, SRI Biosciences director of Immunology and Virology.

The work will be performed under contract HHSN272201800001I, Task Order 75N93022F00011.

Source:
SRI Press Release, February 16, 2023: https://www.sri.com/biomedical-sciences/sri-scientists-are-developing-therapeutics-to-help-fight-the-next-pandemic/

Building the Knowledge Management Technology of the Future



Knowledge management is a great challenge for large organizations. From policies and procedures to documents and doctrine, data are often left unstructured, unindexed, and dispersed across multiple legacy systems. Organizations need a knowledge management tool that can find the right information and deliver it to the right people at the right time.

SRI is tackling this problem through Adaptive Task Help Emerging from Natural Annotations (ATHENA). Funded by the Defense Advanced Research Projects Agency (DARPA) KMASS (Knowledge Management at Scale and Speed) program, ATHENA aims to help develop the knowledge management tools of the future. In the three-year, $10.8 million project, researchers will develop innovative methods to capture and disseminate information that employees need to perform their roles while minimizing disruption.

"There can be this kind of hard-won experiential knowledge that organizations or employees accumulate over the years," said Karen Myers, lab director in SRI's Artificial Intelligence Center. "Wouldn't it be great if there were ways to have that information actively shared within an organization so people didn't have to continually rediscover it?"

Solving the Knowledge Management Problem

The objective of KMASS and ATHENA is to create a technology that understands the context of documented knowledge and the specific user who needs information. The SRI-led ATHENA project will leverage artificial intelligence (AI) technologies to enhance how organizations capture and manage information, collaborate across disciplines and knowledge gaps, and disseminate knowledge efficiently in a context-aware manner.

"SRI is looking to understand what humans are doing and what information could be most valuable to them," said Myers. "We're using machine learning techniques to help us do that. If user behavior can be observed over time, we can start to build up a model and learn not just from their experience, but learn from the experiences that people like them have had in similar situations."

The project involves SRI's Artificial Intelligence Center, Speech Technology and Research Laboratory, and the Center for Vision Technologies. These labs are working together on technology to retrieve multimodal information (for example, text, audio, visual), model user behavior, and uncover context to disseminate knowledge specific to a current need.

SRI is partnering with two private companies to develop ATHENA: i2k Connect, which provides expertise and technology for finding textual information within large-scale document repositories, and Pacific Science & Engineering Group, which will design methods and user interfaces to collect and disseminate experiential knowledge.

The Challenges

Two significant challenges must be addressed: understanding what information is most valuable to users during a given task and knowledge capture. To address the first challenge, by observing user behavior over time, ATHENA can learn users' processes and preferences, identify users' strengths and weaknesses, and compare them with those of people with similar experiences. Imagine, for example, if the next time a worker learned a new task, he or she received a notification containing helpful information from the experience of others.

The second challenge is addressing knowledge capture. Users need mechanisms that will enable them to quickly and naturally document insights that could help colleagues faced with similar challenges. The key is to make the capture occur in the flow of problem solving, rather than require users to disengage from the task to record their insights.

Advantages of Knowledge Management

Efficiently distributing knowledge across an organization has multiple applications and benefits. From increasing the impact of experienced individuals to quickly onboarding new staff, practical knowledge management helps organizations build on what has come before rather than rebuilding with every new employee. Indeed, according to Myers, projects like ATHENA are helping to define the future workplace, demonstrating how AI technologies can enhance how organizations manage data and how workers can better collaborate.

This work is supported by the US Army Research Office (ARO) and Defense Advanced Research Projects Agency (DARPA).

Source:
SRI Press Release, January 11, 2023: https://www.sri.com/artificial-intelligence/sri-researchers-are-working-to-build-the-knowledge-management-technology-of-the-future/

The Great Facilitator: Can It Make Social Media More Civil?

Social media has connected billions of people around the world, but it has also become a hotbed of hostility and hate speech. The question is how to maintain the positive connections and flow of accurate information among participants while minimizing the harms from antisocial behavior.

With funding from the Defense Advanced Research Projects Agency (DARPA), SRI researchers and scientists at the University of Pittsburgh are taking on this question. They are building The Great Facilitator (TGF), an artificial intelligence (AI) technology designed to work alongside humans to generate constructive dialogue among social

media participants. "We don't want to prevent people from expressing what they're thinking, but we also do not want outright hate speech," said Karan Sikka, senior computer scientist in SRI's Center for Vision Technologies and principal investigator for the project. "However, there's a gray area, and we don't want to mitigate expression excessively. So, how do you balance free speech versus hateful speech? A pragmatics-based approach became our differentiator."

The Great Facilitator

The Great Facilitator system comprises two key technologies: (1) an automatic assessment of the intention and semantics of a social media post or group conversation and (2) an automatic generation of moderating content based on that assessment.

At the heart of TGF is top-down machine learning that learns and ultimately suggests constructive dialogue based on input from human moderators who make decisions about appropriate content based on platform rules and guidelines. If a post triggers one of the two levels of restrictions—common civility (such as offensive language or outright hate speech) and community guidelines—TGF generates a report for the user explaining why the post is outside the platform guidelines. Users are encouraged to modify the post themselves or use the TGF suggestions, which give details about how to change the content so that it does not include hate speech, misinformation, bullying, or any other content deemed unfit.

A critical feature of TGF is the dynamic interaction with the person behind the post. "TGF is a big step up in actively intervening on social networks to maintain civility," said Ajay Divakaran, senior technical director of vision and learning in the Center for Vision Technologies. "The technology is part of a multipronged social media analytics and applications R&D effort at SRI spanning over a decade."

Preliminary Results of The Great Facilitator

TGF proof-of-concept tests were performed on the social media platform Reddit, a host to thousands of active communities. Sikka and his team created a subreddit—a forum dedicated to a specific topic on the site—to study real user interactions. The subreddit enabled the team to measure whether users took into account suggested paraphrased content or whether they developed personal paraphrases. Successful interactions included posts that altered original phrasing or new, improved phrases as well as the frequency of changes based on suggested phrasing. The preliminary evidence showed that gently engaging people successfully encouraged a more civil tone in their communication. "This result is great," said Sikka. "We hope that if people communicate civilly, they communicate more deeply with each other."

The next step, he said, is to beta-test the system and test it against a variety of social platforms to maximize transparency and user control in an efficient, streamlined way, while also reducing the load on human moderators. To this end, Sikka and his team hope to make the technology an intrinsic part of web browsers. Direct browser integration could provide a standardized filter not just for social platforms, but also in comment sections of digital publications, public forums, or online reviews to facilitate more thoughtful and respectful online communities.

This work is supported by the Defense Advanced Research Projects Agency (DARPA) under Agreement No. HR00112290024.

Source:
SRI Story, December 12, 2022: https://www.sri.com/story/sris-computer-vision-technologies-lab-is-working-to-make-social-media-more-civil/

Advancing Treatments for Lung Cancer

Lung cancer claims more lives each year than any other type of cancer worldwide. Current treatments rely on one of two avenues: generalized chemotherapy that inflicts harsh side effects on cancer patients or treatments that target tumors with very specific mutations found in few patients—both of which make fighting the disease challenging.

SRI researchers have designed and optimized a new peptide—a molecule that contains two or more amino

acids—to act as a delivery vehicle for drugs to treat non–small-cell lung cancer, the most common type of lung cancer. As highlighted in a recent study in human cell lines and mice published in *Communications Biology*, this peptide can carry large anticancer drugs and successfully target cancerous cells, binding to them and triggering a process to draw the peptide and its cargo inside.

"With our peptides, we can start to deliver large cargos inside a cell that couldn't otherwise pass through the cell membrane," said Kathlynn Brown, vice president of drug delivery systems in SRI Biosciences and lead author on the paper. "It opens the door to basically dragging therapeutics into the inner workings of tumor cells while avoiding healthy cells, minimizing the potential side effects."

Currently, most similarly targeted cancer drugs are delivered by antibodies, which bind to specific receptors on the surface of a cancer cell. But there are several advantages to using peptides instead. First, peptides are significantly smaller molecules than antibodies, which means that they can penetrate deeper into a tumor. Second, peptides can be put together chemically, while antibodies must be produced biologically in cells. The chemical process is faster, less expensive, and gives researchers more precise control over the final result.

"Because we make them chemically, we have a lot of flexibility in how we incorporate the drug," Brown said. "We can put on whatever drug or cargo we want, we will know exactly where it is, and we can modify that with tools we have in the lab."

To find a peptide with the right set of traits, Brown and her colleagues use a proprietary selection process to sift through a library of billions of potential options. In this case, they needed a peptide that could successfully seek out and bind to cancer cells while leaving healthy cells alone, that could trigger biological processes to rapidly draw the peptide and its cargo into the cell, and that would not degrade while circulating through the body.

"We don't try to target a particular cell surface marker to begin with," Brown said. "We do what's referred to as an unbiased selection, which basically means that we're going to let the cells tells us the best answer. We're not going to try to outsmart Mother Nature."

Once Brown and her team identified a peptide with the right traits, known as MGS4, they tweaked it to be as effective as possible and tested it with the toxic protein saporin, which cannot enter cells effectively on its own. They found that MGS4 successfully delivered saporin to lung cancer tumors in mice, and after 18 days of treatment, tumors in mice given saporin attached to MGS4 were half the size of tumors in untreated mice or in mice given saporin by itself.

Their work demonstrates that MGS4 could be a valuable tool in developing targeted therapeutics for lung cancer. Because the peptide can carry a variety of drugs, the researchers are just beginning to explore its potential to facilitate treatments.

"This protein toxin is our first therapeutic concept, but what's really important is that this peptide is able to deliver large, toxic biologic therapies inside a tumor cell," Brown said. "We're really hoping that we can take this peptide and use it in multiple different applications with multiple different therapeutics."

Sources:

SRI story, February 1, 2023: https://www.sri.com/story/scientists-at-sri-international-have-developed-a-peptide-that-targets-lung-tumors-and-delivers-therapeutics-inside-the-cells/

Allred C, Gormley C, Venugopal I, Li S, McGuire MJ, & Brown KC. Tumor-specific intracellular delivery: Peptide-guided transport of a catalytic toxin. *Communications Biology* 6, 60 (2023). https://doi.org/10.1038/s42003-022-04385-7

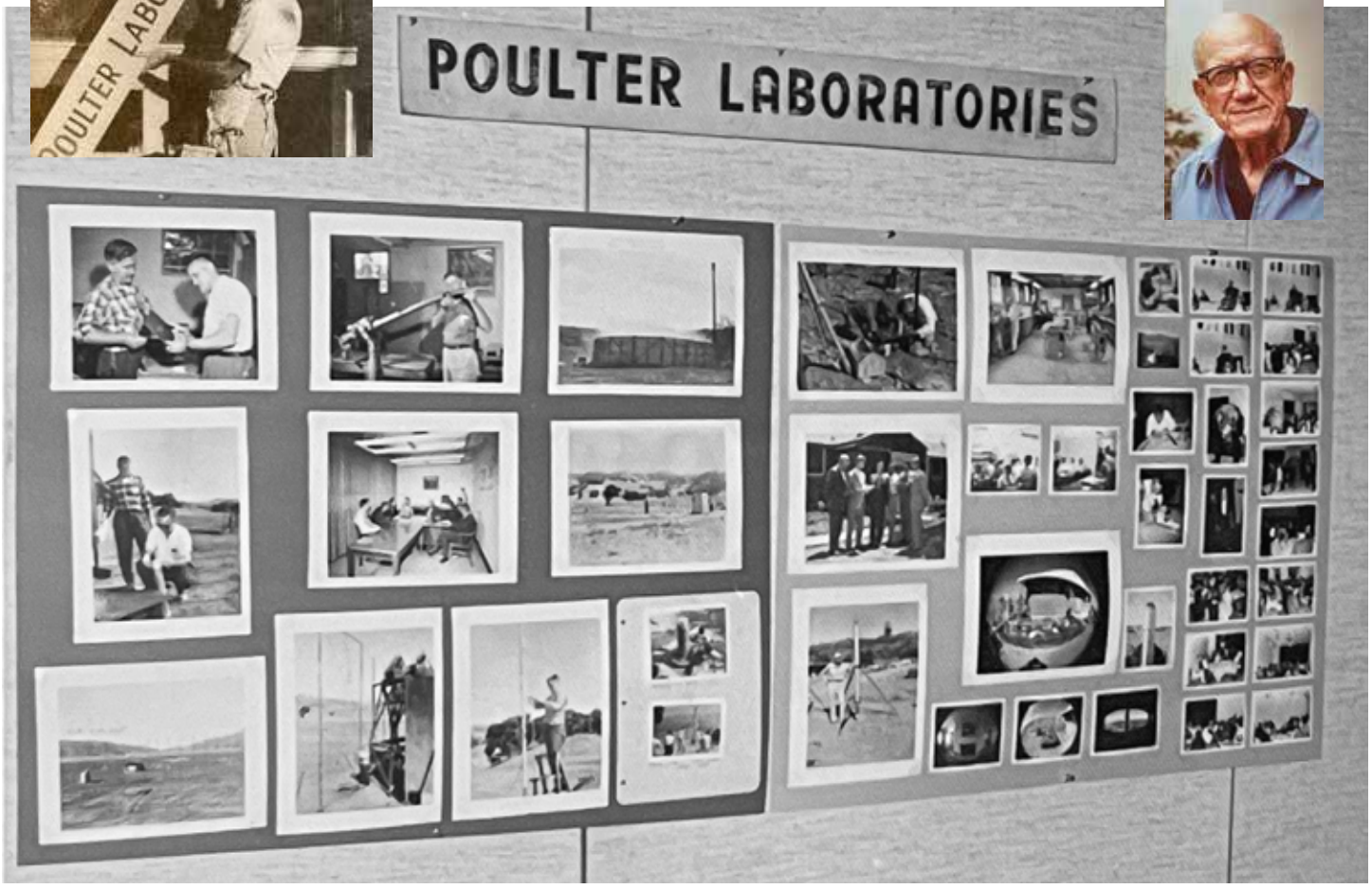
Poulter Lab Photo Archive

Many of the photos from the Poulter Lab archive have been digitized by Jim Colton and posted on his website here: https://www.jimcoltonphotography.com/Personal-Projects/Poulter-Lab/n-K3ZvbQ (password: Poulter)

Topics covered:

- Doc Poulter
- 20th century people (the Heroic Era according to Don Curran)
- 50th anniversary celebration of Poulter Lab in 2003
- Last get-together at CHES in 2018
- Some of the experiments conducted by Poulter Lab

Jim shares that working in Poulter Lab was a unique and rewarding experience, especially because of the people who worked there, and he hopes these photos bring back a lot of good memories for everyone as they did for him.



Keep the con in Economics and Other Lessons Learned in the Real World

By Barry Minkin

Adapted from his autobiography, *Playing With Dust*

Consumer Power Company (CPC) and Michigan Wisconsin Pipeline

This project for CPC, Michigan's large electric utility, as well as a large gas utility serving Michigan and Wisconsin, greatly helped me develop the unique insights that allowed for decades of successful predictions. This was a very large project under the control of Stanford professor Dennis Rowan, the project supervisor who also worked at SRI. I was made project leader.

It seemed that CPC had already invested about $4 billion to build a nuclear power plant in Midland, Michigan. They decided they should hire SRI to determine how much electric its customers would need in the future in order to know how large the plant should be. Working with a team of industry-specific consultants, we developed an interview format and began interviewing industrial, commercial, and residential users to learn the determinants and prognosis for future business growth, which often correlated directly with energy use. We interviewed scores of companies in the two-digit standard industrial classifications (SIC) codes about factors that would determine their economic success or failure in the not-too-distant future.

In the 1970s, the real economic engine of the US was the manufacturing sector, based on a strong auto industry. As I listened, I learned that the auto industry was what really made the US economy tick at that time. A brief auto history follows.

The Golden Days

The 1950s were the happy days for the US automakers and their blue collar union employees. US manufacturers built three out of every four cars produced in the world, and US imports represented less than 1 percent of domestic sales. When the foreign cars appeared on the scene, Detroit could have built better, smaller cars, but instead, US automobiles grew even bigger and gaudier, sporting absolutely useless tail fins.

By the time Eisenhower left office in 1960, the US accounted for just 50 percent of the world automobile market, and imports captured a 10 percent share of American auto sales. Ironically, the Cold War played a minor role in the foreign auto invasion because a peculiar fringe benefit that was allowed to hundreds of thousands of US troops stationed in Europe really mattered. They could ship home, free of charge, one foreign-purchased automobile. While the total number actually shipped was probably fewer than 100,000 autos, the presence of foreign cars on US highways served as rolling advertisements for Volkswagen, Austin-Healy, and other European manufacturers whose postwar factories were producing record numbers of vehicles. Volkswagen advertising was catching the imagination of Americans, and soon the VW Beetle would become an anti-snobbery status symbol.

The End of the Golden Age

1950 to 1973 was called the Golden Age in an "OECD Study of the Century." Then in 1973 the oil embargo came along and, all across the country, millions of Americans waited in long gas lines. The longer they waited, the more they calculated, for the first time, just how precious few miles their gas guzzlers could go on a gallon of gas. Suddenly, Americans were interested in small cars in a big way!

The US auto manufacturers, however, continued to ignore the sales charts. They did not have the products the market demanded, and sales of domestically produced cars fell sharply. Honda, on the other hand, had the right product, and its growth was dramatic.

By 1977 and 1978, memories of gas lines had faded and domestic car sales had risen to new heights. Detroit executives popped champagne corks and toasted their own wisdom. Unfortunately, Detroit's success in 1977 and 1978 led to the dangerous and erroneous misperception that, without high energy prices, consumers felt no need to economize or buy fuel-efficient cars.

In the years between 1979 and 1982, the party ended. The second gas crunch accompanied the Iranian revolution in the spring of 1979. But unlike the sequence of events that followed the oil embargo of 1973, this time buyers failed to return to larger vehicles after the initial higher fuel price shock wore off. Domestic manufacturers found themselves selling all the small cars they could produce and fewer larger models. Detroit was forced to wait for new generations of small fuel-efficient cars that were still only on the drawing boards. In fact, Detroit committed to spending more money on massive redesign programs than it cost to send the Apollo mission to the moon. In other words, our

"can't do" management was spending $1 billion for every half-mile improvement in fleet average fuel economy.

1982 Recession

While Detroit was trying to make a U-turn, domestic car sales plummeted for four years, from 1979 to 1982, making it easy for me to predict that a recession was coming. This was the longest period of fallen car sales in US history. Sales in 1982 were an incredible 45 percent lower than 1978 sales had been. Instead of meeting the challenge head-on with vaunted Yankee ingenuity, Detroit instead began waving the white flag. Plant after domestic plant closed, and over 55,000 workers lost their jobs and a recession happened in 1982. As a result, the small-car fever that gripped the nation was a boon for foreign manufacturers who had long concentrated their attention on the small car segment of the marketplace.

My SRI experience in America's heartland taught me not to believe the still-accepted "econo babble" of economists, academics, Washington, and Wall Street. Typical of the "mainstream" view was Robert Bartley, editor of the *Wall Street Journal*, with whom I had the unique opportunity to debate the future of the global economy on the *Larry King Live* TV show. His view was "the 1982 recession was caused by monetary policy, for better or for worse. Or, to view it more instructively, it was caused by a timing mismatch. The tight money part of the policy mix was put in place as early as October 1979 and especially in the fall of 1980. The tax cuts didn't start until October 1981, and were not effective on a net basis until January 1983. In between, there was a recession."

Lessons to Becoming a Successful Futurist:

The economic elite completely ignored the fact that the engine running the US economy (the automobile business) had stopped, for reasons having nothing to do with the macroeconomic intellectual masturbation still being practiced by our leading economists.

Moreover, I learned firsthand that organizations are as individual as people. The factors that affect the success or failure of companies, even within the same industry, can be quite different. Therefore, a one-size-fits-all, top-down approach is of little value.

Finally, I had also observed that most of the determinants of organizational success were not the type of data even collected and analyzed by economists or others charged with determining economic direction. Of course, economic forecasting must be based on factors that actually impact organizations and propel economic growth. Therefore, my bottom-up, company-specific approach has always produced more accurate forecasts than invalid top-down macroeconomic tools and theories.

The bottom line was: For many various company and industry-specific reasons, the auto industry and many other CPC business sector clients were not predicting growth. Therefore, we predicted that the US manufacturing sector would stop growing and continue to decline and negatively impact the service and residential sectors as well.

Remember, this was at a time of years of continuing and predictable straight-line growth in the US economy and was contrary to every economic forecast including those of some SRI colleagues. Indeed, the reaction was immediate and negative when I presented this conclusion and its corollary to the the CPC Board of Directors. When I told them that since we predicted little or no growth for their clients, they had *no* need for the massive Midland nuclear electric generation facility, much less for an expanded version.

They didn't believe the conclusion, thanked me, but said they would not be using SRI in the future. In time, they would blame antinuclear protesters and other unrelated factors for their eventual decision to stop construction of the plant after wasting $4 billion of taxpayers' money. The directors cancelled the plant in 1984, making it the most costly power plan ever abandoned in the US. The plant was 85 percent complete, 13 years behind schedule, and over 20 times its estimated cost.

But being the first person to predict the decline in the US manufacturing sector—after years of continued growth—set me on a path of over five decades of helpful, mostly correct, trusted written predictions. Sadly, I still continue to view most economists as practitioners in an invalid black art cult. (My view, as well as others' supporting the need for the warning label "keep the con in economics" is spelled out in many of my books including: *Econoquake - How to Survive and Prosper in the Coming Global Depression*, Chapter 5 in *Ten Great Lies That Threaten Western Civilization,* and Chapter 5 in *The Great Unraveling*.

Early SRI Concepts in Natural Language Now Coming into Play

By Don Nielson

Sataya Nadella, CEO of Microsoft, has just announced Copilot, an adjunct to the Office suite that uses a very flexible natural-language interface similar to that of OpenAI's ChatGPT, in which Microsoft is heavily invested. During his introduction, Nadella mentions Doug Engelbart as creating the second out of perhaps only four or five critical steps in the history of human-computer interaction.

To me, Copilot is a remarkable addition to human-computer interaction and, like ChatGPT, is a powerful gatherer of information and presents a useful point of departure for a wide variety of projects at hand. It also builds on some early SRI concepts.

Many years ago, in SRI's Computer Dialogue Lab, an informal place for collaboration in human-computer interaction, a simple, experimental, and telling result appeared at the hand of Phil Cohen. If the way to access an object of information is on the screen, the easiest way for humans to retrieve it is to point to it. If it is not on the screen, the easiest way is to ask for it. That latter way ideally means the use of natural language, spoken or written. Enabling that second way has, to me, never been more clearly expressed than in what Microsoft is announcing. This certainly isn't meant to be a plug for Microsoft, but I believe it is a meaningful step forward. You can judge for yourself here: https://www.youtube.com/watch?v=Bf-dbS9CcRU.

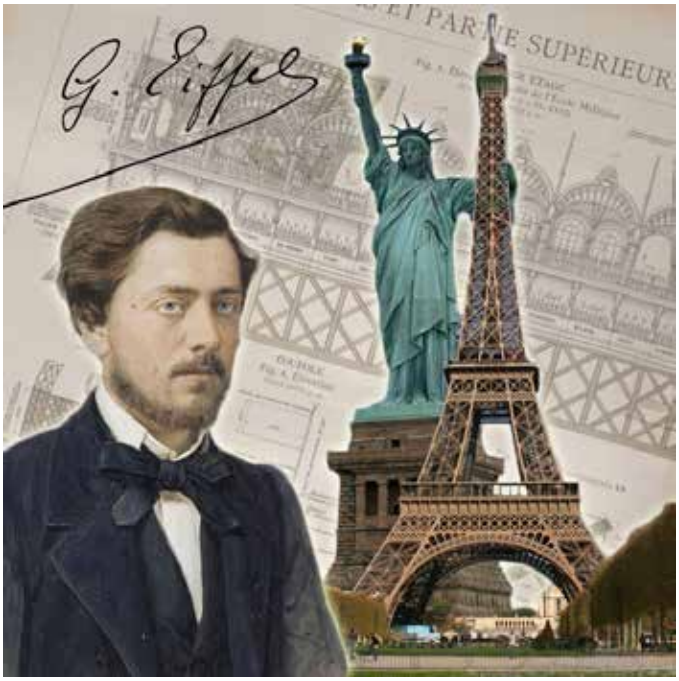
INTERNATIONAL JOURNAL

A Remarkable Engineer: Gustave Eiffel

Peter Weisshuhn sent some interesting facts from an article in the March 10, 2023, *Times of London* about the planned celebrations for the centenary of the death of Gustave Eiffel (1832–1923). Apparently, Eiffel joked that his tower in Paris had become more famous than he, France's greatest engineer, with more than 500 projects in 30 countries. One of these was the frame for the Statue of Liberty in New York. All his projects were in cast iron, of riveted construction. Quoting the *Times*:

> The [Eiffel] Tower, then the highest in the world, was built in 26 months. The 18,038 metallic parts were made in Eiffel's factory before being transported to the site, where they were put together by up to 300 workers using 2.5 million rivets.

Thank you, Peter, for these riveting details.



Marie desJardins Honored by the AAAS

Marie desJardins has been elected as a 2022 AAAS (American Association for the Advancement of Science) Fellow. This is one of the most prestigious honors in the scientific community. In its January 2023 announcement, AAAS wrote that its 2022 Fellows class "includes 508 scientists, engineers and innovators spanning 24 scientific disciplines who are being recognized for their scientifically and socially distinguished achievements."

Marie was at SRI from 1992 to 2001. After leaving SRI, she spent 17 years at the University of Maryland, Baltimore County, as a faculty member and associate dean. In 2018, she moved to Boston to become the Inaugural Dean of the College of Organizational, Computational, and Information Sciences at Simmons University. She left Simmons in March 2022. Marie reports that she has been spending some time consulting "but mostly enjoying being a new grandmother to Finn, who was born in September 2022." Marie is in the Bay Area regularly and would love to connect with her former SRI colleagues.

Congratulations, Marie, on your election as an AAAS Fellow and on your new grandchild!

Sally Longyear Memorial Service

As you may know, Sally was inducted into the SRI Alumni Association Hall of Fame at the annual Alumni Reunion held on October 6, 2022. Sally was ecstatic about this honor, but sadly passed away a few days before the event. Sally's name is now permanently displayed on the Hall of Fame board located in the SRI International Building.

A celebration of life service is being held for Sally, and all are welcome to attend. Details are shown below. There will be a reception immediately following the service.

Sunday, June 25, 2023
2:00 p.m.
First Congregational Church of Palo Alto
1985 Louis Road
Palo Alto, CA

If you can't attend in person, you can join the celebration online at: FCCPA.org. Select the "Join Us Live Online" link to open a Zoom window.

Stein Schjolberg Has Published a Book on Cybersecurity

Stein Schjolberg has written *A Proposal for a United Nations Convention on Cybercrime*, in which he presents the case for a United Nations Convention "to achieve standards and norms for security, peace, and justice in cyberspace." Stein has dedicated the book to the memory of Donn B. Parker, his mentor at SRI from 1981 to 1982.

A complete copy of the book can be accessed at: https://srialumni.org/newsletters/2023/Schjolberg-Cybercrime.pdf

HALL OF FAME

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.

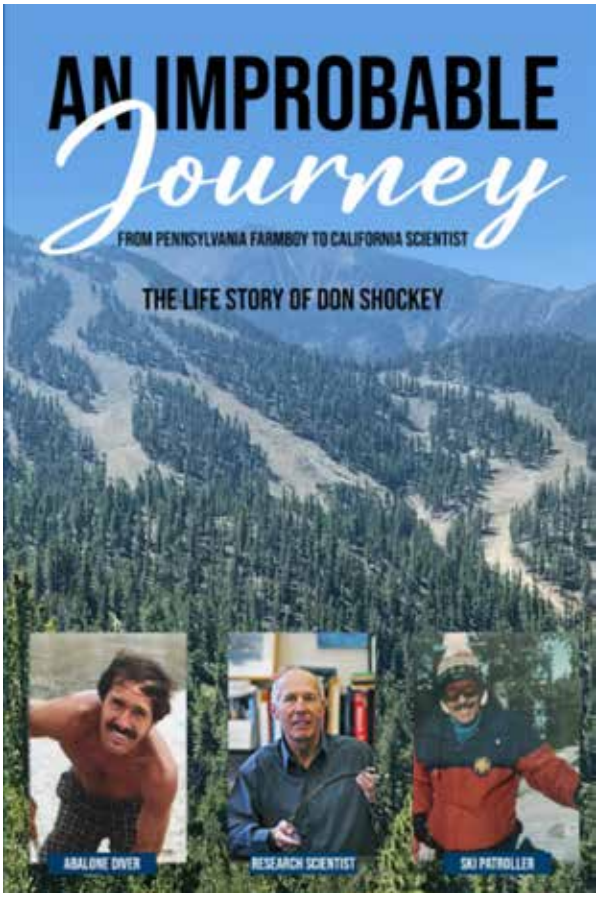
Please prepare a write-up of about 300 words indicating how your nominee meets these criteria. If you have questions about the nomination process, members of the Steering Committee will be happy to answer them. Send the write-up or questions to steering-committee-alumni@sri.com or SRI Alumni Association,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

Don Shockey Has Published a Book on His Life Story

Don Shockey has written *An Improbable Journey: From Pennsylvania School Farm Boy to California Scientist*, in which he shares facts and stories from all the decades of his fascinating life.

On the book's back cover Don writes: "I was reading my biography on the NASA.GOV website, and I thought to myself, How did I get here? The son of steel mill worker, a kid who worked on a farm every day after school in rural Pennsylvania, I never dreamt I would be a physicist addressing critical fracture issues at a prestigious research institute, serving on the NASA panel of Materials Experts, or leading the exciting life I have in California—diving for abalone in the Pacific Ocean, backpacking the length and width of the Sierra Nevada mountains, and providing first aid to skiers on the slopes of a major ski resort. Looking back, I see the key event was a mysterious letter I received at age twenty-one—a result of the core principles instilled in me by my parents and my early life experiences."

If you would like to read the entire book it's available from Amazon online (click here).



Plan to Attend the Spring Fling at the Computer History Museum in Mountain View on Thursday, May 4, beginning at 11:30 a.m.

Join your fellow alumni on Thursday, May 4, for a visit to the Computer History Museum and learn more about SRI's contributions to the museum. Please arrive at 11:30 a.m. and explore on your own until lunch at 12:30 p.m.

This is a free event for all alumni members and their guests. Please send in your completed reservation form, including your lunch choice, to the SRI Alumni Association by May 1. If you'd prefer, you can email the required information to steering-committee-alumni@sri.com. For questions, please contact Dave Harvey at dave.harvey620@gmail.com. We hope to see you there!

SRI International Alumni Association Cash Flow/Income and Expense

Year ending December 31, 2022

CASH BALANCE as of 01/01/22		**$38,419.36**
INCOME		
Cash income from membership dues and fees	$5,680.00	
Dividend income from SRI Federal Credit Union account funds	$14.35	
TOTAL INCOME	$5,694.35	**$5,694.35**
EXPENSE		
Hall of Fame plaque and plates	$62.34	
Newsletter (postage, printing, etc.)	$1,334.37	
Catered Reunion	$5,322.99	
Spring Fling @ Burgess Park	$1,305.75	
TOTAL EXPENSE	$8,025.45	**$8,025.45**
CASH BALANCE as of 12/31/22		**$36,088.26**

The SRI Alumni Association welcomes new members:

Oluwaseun Akinyemi
Tim Perkins
Noelle (Karen) Smyth

And welcomes back previous members:

Pat Byrge
James R. McDonald
Steve McElfresh
Barbara Means
Nora Ongpin
Steven L. Smith
Roger Vickers

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

Directory Addendum

As a reminder, we will no longer be publishing a directory addendum three times per year. Instead, please refer to the 2023 Membership Directory that you should have recently received. If you would like contact information for any new member that is not listed in the directory please send an email request to the Steering Committee at steering-committee-alumni@sri.com

CREDIT UNION NEWS

Rae Lyn Burke

Rae Lyn Burke, an eminent San Francisco Bay Area virologist, died October 30, 2022, after more than 14 years of early-onset Alzheimer disease. Her accomplishments in the fields of infectious diseases and vaccine development still have a powerful impact, even a decade and a half after the progression of her disease forced her to retire from the work she loved.

Born on April 25, 1948, Rae Lyn was the daughter of two schoolteachers. She spent most of her childhood and young adulthood in Reno, Nevada. In 1966, after winning numerous state and national academic awards in high school, Rae Lyn was chosen as one of the two Presidential Scholars from Nevada, leading to her thrilling meeting with President Lyndon Johnson.

Rae Lyn earned her undergraduate degree with honors at the University of Nevada, Reno. She was also an accomplished gymnast, winning a state title on the uneven bars. She earned a PhD in chemistry at the State University of New York at Stony Brook. It was there that her interests began to evolve from traditional chemistry to the increasingly intriguing field of DNA.

After completing her PhD, Rae Lyn was a postdoc at the University of California, San Francisco (UCSF). She arrived at UCSF at a particularly exciting time, when DNA synthesis and sequencing were just taking off. Rae Lyn fit in immediately, spending long hours in the cold room, achieving remarkable success in purifying important proteins and recording her work with a meticulous precision that made her notebooks prime exhibits in future patent battles.

Her postdoctoral work finished, Rae Lyn's next step was not immediately clear, as most science faculties had few to no women. Indeed, UCSF at the time was—reluctantly—hiring its first female faculty member in the Department of Biochemistry and Biophysics. There was another option, however, that was even riskier for a woman than seeking a faculty position. Some scientists were taking tentative steps toward creating biotechnology companies. At that time, the future of biotechnology seemed as dubious as putting a human on Mars. Showing again her quiet fearlessness and penchant for risk-taking, Rae Lyn left UCSF to be employee number six at a new startup, Chiron. Rae Lyn's brilliance and industriousness made her an essential part of the early small team that raised Chiron to international prominence.

Rae Lyn gained increasing respect during the 15 years she spent at Chiron. The program she headed, creating a vaccine against the herpes virus, was the first Chiron project to progress to Phase 3 clinical trials in humans.

She later became a consultant, including for Elan Corporation on a vaccine approach to Alzheimer disease. In an ironic twist, years later she became a patient in the clinical trial for the drug she developed.

Rae Lyn was also a consultant with SRI. Recognizing her talents, SRI recruited Rae Lyn as director of Infectious Diseases, which she built into one of the most well-funded research groups at SRI. When she retired at age 59, she was responsible for the largest amount of National Institutes of Health funding of any scientist at SRI.

Throughout Rae Lyn's career, from her PhD program to every company where she worked, she was one of the only women at her level. She always pushed boundaries, paving the way for women scientists who followed.

Rae Lyn had an adventurous spirit. In the 1970s, she undertook a backpacking trip to Machu Pichu, long before it became a tourist destination. She bought and equipped two sailboats and learned to be an ocean sailor, including sailing with her husband, Reg Kelly, from San Francisco to Mexico twice and a three-week trip from Rarotonga to Hawaii.

She had a great family life with her husband and children, Dylan and Colin. At the family house in Lake Tahoe, they hiked and swam in the summer and skied in winter. The family went scuba diving in Sulawesi, trekked through isolated villages in Laos, climbed to Buddhist shrines at the mountainous Sikkim-China border, and visited, with an armed guard, remote archeological sites in Cambodia before the guerrilla war there had ended.

Rae Lyn is remembered as a fun-loving, adventurous genius who would have found the COVID pandemic absolutely fascinating.

Based on an obituary published by the San Francisco Chronicle *online.*

Michael Cowperthwaite*

Michael Cowperthwaite died in his home on Christmas night, 2022, 14 months after he was diagnosed with congestive heart failure.

Born in Keswick, Cumbria, England, on June 18, 1932, Michael was the eldest of two children of Harold and Peggy Cowperthwaite. Michael grew up surrounded by the majesty of Skiddaw mountain and the tranquility of Derwentwater and spent his childhood with a close-knit circle of family, friends, and neighbors. He left Keswick as a young man, but his heart remained there, as he often spoke fondly of his family, friends, and the experiences of his youth, frequently slipping into his native Cumbrian dialect.

Michael attended Keswick School and played rugby there until he was sidelined by injury. In 1950, he appeared on the silver screen in a small role in *The Clouded Yellow*, which starred Jean Simmons and Trevor Howard and was partially shot in the Lake District. Showing a keen interest in chemistry, mathematics, and science, Michael was an inquisitive student and the first in his family to attend university. He studied at Victoria University of Manchester where he earned first a Bachelor of Science and then a Doctor of Philosophy in Chemistry.

Michael married Margaret Byrne of Leigh, Lancashire, England, in 1956. The two had met in Keswick where Margaret had a summer job and then ran into each other again on a bus in Manchester during their university years. In 1959, Michael had a postdoctoral research position at Cornell University in Ithaca, New York, during which time his son Jeremy and daughter Janet were born. The young family returned to England in 1961, where Michael was employed at the Explosives Research and Development Establishment in Waltham Abbey, Essex.

In 1964, Michael was offered a position at SRI in Menlo Park, California, so the family sailed through the Panama Canal on the *SS Diemerdyk* to San Francisco. Two more sons were born in California, Stephen and Scott.

Michael spent 32 years at SRI, during which time the results of his work were published in numerous papers and journal articles. He was internationally regarded as a brilliant theorist who valued mathematical rigor and made profound contributions to many areas: shock wave propagation in chemically reactive systems, thermodynamics and equations of state, shock wave stability, detonation, and Lagrangian analysis. His children fondly remember the years when their father was rarely without a tablet of yellow lined paper full of equations.

After he left SRI, Michael spent several years consulting and working with colleagues, spending a memorable year at the University of Poitiers in France. Michael was elected a Fellow of The American Physical Society in 2003 for seminal contributions to his fields of expertise.

Michael had many interests throughout his life. As a young father, he played amateur soccer, which was popular with British expats in the Bay Area, both for the recreational aspect and the community it created. He was an avid runner for many years and followed many sports teams, but none more closely than his beloved Manchester United Football Club. He had culinary interests, too, drying the apricots from his trees, becoming a grill master, and savoring a glass of red wine. The many avian visitors to his garden gave Michael great pleasure.

Michael enjoyed discovering the beauty of Northern California, taking his family on vacations to the Santa Cruz coast and the Sierra Nevada foothills. He loved traveling for business and pleasure and returned to his hometown as often as he could.

Michael was a loyal friend and family member. He generously opened his home on many occasions to those who needed a place to stay. He made his own decisions about everything until the very end. One of his dear friends said frequently, "I've never met anyone who tried harder to be himself."

Michael was preceded in death by his wife, Margaret. He is survived by his children, Jeremy, Janet, Stephen, and Scott; granddaughter, Alice Kilduff; sister and brother-in-law, Hazel and Ian Forsyth; nephews, Nicholas and Duncan Forsyth; niece, Janice Brooke; and many treasured friends.

Based on an obituary published by Legacy Remembers *online.*

Robert W. Simon*

Robert "Bob" W. Simon died on December 17, 2022, at his home in Los Altos in the presence of his family. He was 91.

Bob was born in San Francisco but grew up in Southern California, in Claremont and Pomona. He lettered in track and field in high school and broke the school's records in the mile and the half-mile in his junior and senior years. His best time in the mile was 4:12.8. Bob's athletic skills and academic achievement drew the attention of a coach from Stanford University, where he received an athletic scholarship.

While at Stanford, Bob served in the Air Force ROTC. He was commissioned in 1954 and was stationed at Travis Air Force Base after completing pilot training. He was copilot of a C-124 Globemaster, commonly known as "Old Shaky," and his primary route was to Tokyo.

During advanced pilot training at Reese Air Force Base in Lubbock, Texas, Bob met Annette "Annie" Cochran, a Texas Tech University student, on a blind date. They were married in 1955.

On leaving the Air Force, Bob returned to Stanford to pursue an MBA. Soon after, he began working at SRI, where he had two life-changing experiences. The first was an 18-month residency, with his family, in Dacca (Dhaka), East Pakistan (now called Bangladesh). Extensive family travels were a part of this experience, with visits to Nepal, Afghanistan, Cambodia, and India.

The second experience was the opportunity to make a documentary film about the postwar generation and how the attitudes of college students were changing. John D. Rockefeller III and Bill Hewlett were among those who requested private viewings. Bob wrote about this film, *Voices of Tomorrow*, in the December 2022 issue of this newsletter (https://srialumni.org/newsletters/2022/AlumNews-Dec-2022.pdf).

After leaving SRI, Bob had a 23-year career at Stanford, including serving as assistant dean for corporate development for 15 years at the Graduate School of Business. In 1985, as Stanford was gearing up for its 1991 Centennial celebration, the Simons moved to New York City to open a regional office for Stanford.

Shortly after the Centennial campaign ended, Bob became director of development for North America for the American University in Cairo. He retired in 1994.

Bob was well known by family and friends as a writer of "light verse." In 1968, he wrote "Elizabeth's Christmas" for a colleague for an office holiday party. From that moment, he was hooked, having found, as he said, "a rewarding way to comment on the world around me." For nearly 50 years, Bob wrote more than 40 poems inspired by family life, friends' foibles, and special occasions. One of his poems was printed on a Caltrain poster for a campaign promoting the romance of train travel. Perhaps the apotheosis of his hobby, however, was when Ted Koppel recited lines from Bob's Stanford Centennial Poem as part of the big anniversary celebration in 1991. Bob published a book of his poems in 2000.

Bob was part of a Veterans Memorial Association that led to the commissioning of the Cradle of Liberty statue at Shoup Park in Los Altos. He later organized the 20th anniversary celebration of the statue with sculptor R. J. Truman.

For eight years, Bob enjoyed writing "Rhyme on My Hands," a semimonthly column— containing a poem—for the *Los Altos Town Crier*'s Lifestyles section. His *Town Crier* colleagues, who nicknamed him "Rhymin' Simon," found him a kind and witty presence, with a twinkle in his eye. The headline of the *Town Crier*'s obituary names Bob as "Longtime Los Altos poet laureate."

Besides poetry, Bob enjoyed graphic design and photography. He shared his time and creativity with such groups as Foothills Congregational Church, Los Altos United Methodist Church, Stanford University, the Los Alto Library Endowment, Sons in Retirement, and the City of Los Altos, as well as several candidates for public office.

Bob is survived by his wife of 67 years, Annie; son, Glenn; daughters, Suzi and Sally; and five grandchildren.

Based on an obituary published in the Los Altos Town Crier *online.*

*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://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.

SRI ALUMNI ASSOCIATION NEW MEMBERSHIP ENROLLMENT *(Please don't use for renewing your membership)*
First Year's Membership Free!

Date: _____

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