

# Alumni Association



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## MESSAGE FROM ARCHIVES CHAIRMAN DON NIELSON



*Don Nielson*

Well, alumni, you are in for another newsletter full of interesting articles. I hope they will not only interest you but also stimulate you to contribute your own stories, reflective of either your time at SRI or your world thereafter.

First, you will read about our annual SRI alumni reunion, held in September. Those who attended were again pleased with the recurring friendships, socializing over hors d'oeuvres and drinks, and the informative presentations. You will find a recap of the event along with pictures, including one of a unique alumnus/a, the SRI gargoyle! We sincerely hope you will plan to attend next year when we will meet in early October, a little later in the fall when we hope to avoid the post-summer-vacation travel rush.

SRI just concluded its 70th anniversary celebration. In this issue, you will find reflections on some of SRI's important contributions as it crosses this impressive milestone. News from SRI also includes this year's SRI Fellows awards, granted to two staff members in computer science, and a couple of prestigious awards from outside SRI, one from the National Institutes of Health and the other from the Society of Motion Picture Engineers.

Two other articles tell about current SRI projects: one embodies SRI's long history in artificial intelligence and robotics, and the other is targeted toward the physically disabled, hitting right in the heart of SRI's charter. For the former, would you believe a robotic apple picker? You can even see it in action. The other describes an exoskeleton that is becoming so light and formfitting that it may be wearable under normal clothing, thus avoiding the psychological impact of its gangly predecessors. Both of these fascinating

projects are being developed by spin-offs, a very promising and profitable aspect of today's SRI.

From overseas, a valued newsletter contributor, Peter Weissshuhn, recalls a very heart-warming account of Christmas as he was growing up in occupied Czechoslovakia during WWII. And just when you think you know someone at SRI through their professional talents, you are surprised they have other unexpected interests. Jim Colton has been a casual photographer for most of his life, but he decided after retirement to better define his picture-taking talent. In a very insightful article, he shows how his new focus on photography becomes a window into the world his lens captures.

In *What Are They Doing Now?* we again display the quality of many SRI alumni by how they contribute after leaving the institute. Barbara Grosz was a prominent member of the Artificial Intelligence Center for many years before she decided to move to Harvard. Here we give you a brief recap of how much she has accomplished and still is accomplishing in her field and in her contributions to the elevation of women in the university setting. She is remarkable.

Finally, we repeat our plea for your help in keeping our Association intact. If you live in the Menlo Park area and have even a little spare time, we could benefit from your considering the roles we again mention. Hall of Fame nominations are also welcome anytime, and they necessarily begin with you. So, please search your SRI past for someone you believe to be deserving.

May your holidays, like the glow of a sizable and "well-embered" Yule log, warm you all over! And Happy New Year!

**2016 Alumni Annual Reunion**

On the 15th of September, the Alumni Association held its 21st annual reunion in the International Building at SRI. As is the tradition, it began with a lot of socializing and eating, proving that in a limited sense even the more mature among us can multitask. It was great to see those whom we would not get an update on any other way. There were perhaps 80 or so attending, and there was also one uninvited guest who seemed to offer a friendly scowl to everyone. It was the SRI gargoyle, and it towered above the bar as if to be checking IDs! A bit unnecessary, of course. But having



joined SRI near Halloween in 1980, it is a bona fide alumnus (alumna?) whose tenure at SRI rivaled those of many of the alumni who came. (See the August 2016 newsletter for the story of the gargoyle.)

Between this opening, a convivial melee where we all strove to speak with as many friends and colleagues as we could, and the capstone chocolate fountain at the end, we squeezed in a set of memorable events.

First, we learned of the status of the institute from its President, Steve Ciesinski. (For those of you not aware of the new title structure at SRI, the officer formerly called the President and CEO—Bill Jeffrey—is now the Chief Executive Officer, and several of the division heads have presidential titles. Steve’s function comes close to that of a chief executive officer.) Next we heard about the state of information security from Peter Neumann, and finally came the Hall of Fame Awards and the raffle. Boyd Fair again emceed the event.

**Status of the Institute**

Happily, Steve affirmed that the state of SRI is good. He stressed Bill Jeffrey’s strategic observation that the world’s research funding, as a percentage, is moving away from the U.S. government toward other countries and, especially, the commercial sector. But the U.S. government will always be an important source of SRI’s revenue. There is a continuing push toward “One SRI,” particularly pertaining to SRI’s international initiative, “Global Partnerships,” and its intellectual property component, SRI Ventures. A new



SRI Award System is designed to motivate these initiatives. Importantly, the first award, Change the World, will be offered for both unclassified and classified work. The SRI Fellows Award will remain the same. (The first recipients of the new awards will be included in a future newsletter.)

**SRI Achievement Awards**



Award	Recognizing
Change the World	Researcher or team that created a solution with potential for delivering a safer, healthier and/or more productive world
“One SRI” Collaboration	Team that leveraged multi-division collaboration to deliver a successful technical or non-technical solution
World-class Operations	Individual or team that generated an outstanding idea or solution for improving SRI’s operations
Living our Mission	Individual who demonstrates commitment to our mission through daily actions and leadership
The “New Mimi” Community Award	Individual whose volunteer service made a significant impact in the communities in which SRI operates

The inventive approach to bring early-career staff into the proposal-winning arena is the method mentioned in the August newsletter, the Shark Tank. It is one method to award adequate IR&D dollars to fund new ideas, but one with a definite training aspect. There are two Shark Tanks: one is for staff who received their degrees less than 5 years previously, and the second for those with 5 to 10 years since their degrees. The second Tank stipulates that the proposed work be interdivisional!

Steve cited some of the interesting projects that are under way and that promise to make important impacts. SRI venture income is strong, as are the bookings for this year.

**Computer-Related Risks: A View of the Future from the Past and Present**

Beginning way back in the 1980s, Peter Neumann compiled one of the world’s largest inventories of computer and networking mishaps. Thus, he is among the most informed of the world’s experts on information security, or should we say “insecurity”? His talk at the reunion reaffirmed the extensive vulnerabilities we have all read about and individually face each day and the bleak prospect that things will improve anytime soon. Even if we gain a more disciplined approach to the design of trustworthy software systems, the human element will always remain as a vulnerability. Moreover, the perpetrators are legion and now include foreign governments.



When asked what we common folk could do to lessen our risk of intrusion, he asked the questioner what kind of computer he used. The answer was a PC, and Peter suggested that he get a Mac since, in his opinion, they are less vulnerable. But he didn't elaborate. Peter also answered other questions and left a handout.

**Alumni Hall of Fame Inductions**

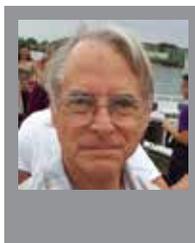
The Alumni Hall of Fame Awards went to two teams of two each. One award was for an early vision module that served as the input sensor system for robotic arms; the second was for a sophisticated military ground training system that has made a very important impact for our Army and National Guard. The former was to Gerald Agin and Gerald Gleason of SRI's Artificial Intelligence Center, and the latter was to Michael Boldrick and Gerald Lucha for SRI's DFIRST program. Gerald Agin was not able to make the ceremony, and but he was represented by his daughter, Rebecca Agin. The other three gave some very insightful remarks about their work and the impacts that have resulted.



To inform you more about their contributions, it is probably simplest to just repeat here their citations:

**Gerald Agin and Gerald Gleason**

Though a long time coming, it is common today to see the fruits of artificial intelligence appearing all around us. Part of that world is a set of computer vision systems that mimic our own sensing and reasoning capabilities. One of the earliest versions of such a system was developed forty years ago, when Gerald Agin and



*Gerald Agin*



*Gerald Gleason*

Gerald Gleason developed the "SRI Vision Module," which analyzed two-dimensional images to locate and inspect manufactured parts. The emphasis was on material handling and, in particular, assisting the use of robots in manufacturing. According to a 1983 NASA report, their contribution became the "basis for several sophisticated commercial vision systems." SRI sold this module to 15 different companies and in doing so helped them introduce computer vision into the automation systems that began appearing in the 1980s and 1990s. The success of this new sensory feedback technique gave SRI a lasting reputation in the field.

**Michael Boldrick and Gerald Lucha**

In 1995, SRI won a project from the Defense Research Projects Agency (DARPA), the technology of which would meet a significant need in American ground forces. As the Middle East conflicts began to draw in Army National Guard troops from across the nation, it was clear that these forces needed pre-mobilization training. SRI's technology, called Deployable Force-on-Force Instrumented Range System (DFIRST), could instrument ground force soldiers and their equipment so well that training maneuvers could realistically simulate battlefield conditions, as well as augment mission planning and assessment. The program was so successful that for more than two decades Army National Guard



*Michael Boldrick*



*Gerald Lucha*

units and the U.S. Army became strong advocates and sponsors of this sizable and still ongoing work. Though it obviously takes teams to make efforts of this size work, in this case two people stand out: Gerald Lucha, for leading the design and implementation of the enabling technology, and Michael Boldrick, for his leadership in building the long-term sponsorships and hiring the appropriate staff for such military fieldwork. The awardees' complementary contributions have enabled SRI to contribute markedly to the readiness of our troops as well as the overall health of the Institute. The program, one of the largest at SRI over its 20-year history, grew to such importance that in 2015 it was spun off as an SRI subsidiary.

**A Successful Event and Thanks**

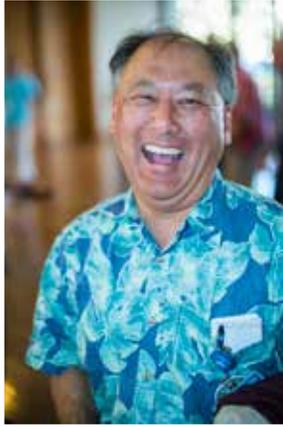
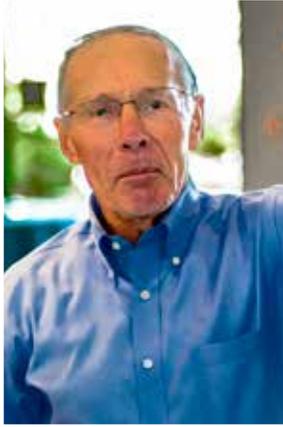
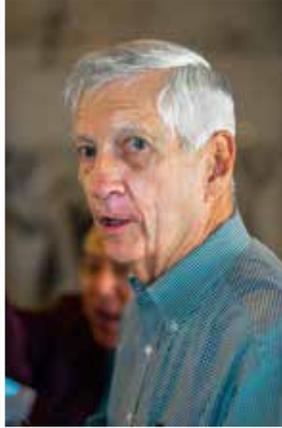
In summary, because of the extraordinary efforts of a few, the reunion went off very well. At the risk of leaving someone out, we should thank Dave Harvey for getting it scheduled, securing speakers, and arranging the food with Arturo

Franco and his conference services crew; Augustina Biosic for compiling the attendance and getting volunteers for the reception table; the volunteers who staffed the table: Martha Agreda, Katie Kaattari, and Sally Longyear; Joyce Berry for the name badges and Hall of Fame certificates; Gary Bridges for the photography; Linda Hawke-Gerrans for the Hall of Fame and SRI gargoyles posters; Don Nielson for securing the gargoyles to put on display; Boyd Fair for conducting; and, finally, a deep thanks to Staff Programs manager Sandy

Hinzmann and the SRI Credit Union for the gifts they provide each year for our raffle.

Our attendance was down a bit from past years, probably because, as claimed by many of those unable to attend, it occurred too early after the traditional summer vacation schedule. We will rectify that problem for next year. Now here are some images of those who were there.







## SRI Turns 70!

On November 7, 2016, SRI celebrated its 70th anniversary. SRI was founded on November 6, 1946, by the trustees of Stanford University, with a charter to “promote and foster the application of science in the development of commerce, trade and industry. . . and the improvement of the general standard of living and the peace and prosperity of mankind.” Originally named Stanford Research Institute and located at the former site of the U.S. Army’s Dibble Hospital in Menlo Park (its current location), SRI separated from Stanford University in 1970 and was renamed SRI International in 1977. Today, SRI is the second largest employer in Menlo Park, after Facebook, with 1,373 workers in Menlo Park and 2,100 employees worldwide.

## 70 Years of Innovation

It is amazing to consider that the small, nonprofit institute founded by Stanford University trustees just after World War II has not only survived but thrived. As a result of new venture creation and licensing of its breakthrough technologies alone, SRI has launched more than 60 ventures, with a total market capitalization exceeding \$20 billion to date.

The depth and breadth of the institute’s accomplishments have led to a multitude of innovations. The range of scientific endeavors to which SRI has contributed is impressive: computing science, engineering, materials science, robotics, artificial intelligence, atmospheric science, biomedical sciences, education policy, and economics, to name a few. SRI researchers have contributed to projects as diverse as the development of laser eye surgery, the magnetic ink account numbers printed on all checks, and the federal Head Start education program, as well as early innovations leading to color television, HDTV, and Blu-ray Discs. Other notable examples include the following:

- Human-Computer Interactions

- The Mouse and Interactive Computing—The first demonstration of the computer mouse and interactive computing in 1968 by Doug Engelbart and the SRI Augmentation Research Center team has been called “the Mother of All Demos.”



- DARPA’s CALO to Siri—Siri, the world’s first Virtual Personal Assistant (VPA), arose from

decades of artificial intelligence (AI) research at SRI. The technology was developed through the SRI-led Cognitive Assistant that Learns and Organizes (CALO) project, the largest known artificial intelligence project in U.S. history.

- Life-Saving Drugs

- Antimalarial Treatment—The malaria treatment halofantrine was developed by SRI for the U.S. Army in the 1970s and distributed by the World Health Organization (WHO), saving millions of lives over the years.
- Cancer Drug Development—In 2009, the FDA approved pralatrexate, a treatment for peripheral T-cell lymphoma. Research on this class of drugs, called antifolates, began in the 1950s at SRI, where researchers worked to discover and develop new antifolates and other chemotherapies that would be effective against tumor cells. A subsequent scientific collaboration among SRI, Memorial Sloan Kettering Cancer Center, and Southern Research Institute led to identification and development of pralatrexate, followed by successful clinical trials conducted by Memorial Sloan Kettering Cancer Center. Most recently, SRI has been conducting significant research in immunotherapy, the latest frontier in cancer treatment.

- Advanced Robotics

- Shakey the Robot—A subject of SRI’s Artificial Intelligence Center research from 1966 to 1972, Shakey was the first autonomous mobile robot capable of sensing its environment and then navigating its own course. (You can visit Shakey at the Computer History Museum in Mountain View.)
- Medical Robotics—SRI’s novel approach to robotic-assisted minimally invasive surgery led to the 1995 formation of spin-off Intuitive Surgical, Inc. The prototype for Intuitive’s surgical robot system was developed at SRI in the 1980s as part of a U.S. Army contract.

- Education Insights

- In 1975, the Individuals with Disabilities Education Act was passed, and SRI designed and then conducted two large national longitudinal transition studies of special education students, which tracked the students from secondary school into adulthood. Results were instrumental in

improving the U.S. education system, particularly for students with disabilities.

- Satellites and Radars
  - Since the 1960s, SRI has delivered novel radio frequency and optical sensors to gauge the impacts of “space weather” on the Earth. From the Pioneer 6 satellite to the current string of miniaturized satellites (CubeSat) now conducting research missions, SRI provides innovative space instruments to the Department of Defense, NASA, and NSF.
  - SRI researchers developed a low-power miniaturized radar for detecting changes in the Earth’s surface and used the world’s most powerful radars to detect Earth-crossing near-Earth asteroids.
  - Leveraging lessons learned from more than five decades, SRI recently launched spin-off company LeoLabs, Inc., to fill a market need to track commercial satellites and space debris.

### The Next 70 Years

To thrive for 70 years, SRI has not only had to maintain its leadership role in cutting-edge scientific investigations and innovations, it has also had to adapt to changes in the political, legal, commercial, and financial environments. Such changing environments will continue to challenge SRI. However, as Don Nielson writes in his SRI blog, several aspects of SRI as a 70-year-old “start-up” make it different from other start-ups and may continue to be the foundation for its longevity: it is an institute centered on a cause (not a commercial entity focused on profit); the diversity of its endeavors helps stabilize it during unpredictable and changing times; its range of clients—in government, academic, and commercial sectors—also offers stability during turbulent periods; and, perhaps most important, it is a home for scientists where they can extend their research know-how and pursue their research interests in almost any field of their choosing.

As SRI’s Chief Executive Officer, William Jeffrey, notes: “Today, SRI remains a remarkable place for scientists and engineers to come to create the future, work across boundaries with like-minded people, and develop cutting-edge technologies in a spirit of entrepreneurship, and for the common cause expressed by our mission—to change the world, making people safer, healthier, and more productive!”

### Want to Know More?

Previous issues of the Alumni Association Newsletter have contained many articles on SRI’s history and research, particularly the December issues, which report on talks given at the annual reunions. Check them out at <https://www.sri.com/about/alumni/alumni-newsletters>.

Here are some online resources for more information on the anniversary and SRI’s history:

William Jeffrey’s blog entry on 70 years of SRI innovation: <https://www.sri.com/blog/70-years-sri-innovation>.

SRI press release on the 70th anniversary: <https://www.sri.com/newsroom/press-releases/sri-international-celebrates-70th-anniversary-world-changing-research>.

Donald Nielson’s blog entry on the anniversary: <https://www.sri.com/blog/sri-startup-celebrating-its-70th-year>.

Timeline of SRI’s corporate history: <https://www.sri.com/about/corporate-history>.

SRI’s Timeline of Innovation: <https://www.sri.com/work/timeline-innovation>.

Article on the anniversary in *The Almanac*: <http://www.almanacnews.com/news/2016/11/13/sri-international-turns-70>.

Article on the anniversary in the *San Francisco Chronicle*: <http://www.sfchronicle.com/business/article/Menlo-Park-developer-of-computer-mice-and-Siri-10610732.php>.

Article on the anniversary in the *San Jose Mercury News*: <http://www.mercurynews.com/2016/10/27/menlo-park-sri-international-turns-70-next-month/>



## 2016 SRI Fellows Awards Recipients: Karen Myers and Ulf Lindqvist

SRI's Fellows Award, established in 1980, recognizes exceptional staff members for their outstanding accomplishments. It is SRI's highest recognition for technical, scientific, or professional contributions. The award is given to individuals whose work enhances SRI's image as a leading research and problem-solving organization.



### **Karen Myers, Principal Scientist and Program Director in SRI's Artificial Intelligence Center**

Karen Myers is being recognized for her path-breaking work on mixed-initiative artificial intelligence, which aims to support humans in complex tasks, rather than simply automating

the tasks themselves. Key areas of accomplishment include:

- Introducing the notion of *advice* to the world of automated planning and scheduling problems, in which a human can lay out general constraints on an otherwise autonomous system. A related technique is *plan sketching*, in which the human outlines a solution, which is then fleshed out by an automated system.
- Developing methods through which a computer can learn to perform tasks after being provided a demonstration by a human. This technology, much of it developed during the CALO project, was deployed in the Command Post of the Future (CPOF), a command and control system in wide use within the U.S. Army. This work was honored with a Deployment Award at the prestigious conference *Innovative Applications of Artificial Intelligence*.
- Pioneering concepts in areas of intelligent assistance technology, helping to organize information or tasks and making context-sensitive recommendations aimed at improving human performance. One outcome of this work is *Task Assistant*, a distributed collaboration tool deployed in Afghanistan and with the U.S. Pacific Fleet.

Myers has a B.Sc. in mathematics and computer science from the University of Toronto and a degree in piano performance from the Royal Conservatory, also in Toronto. After earning her Ph.D. in computer science at Stanford in 1991, Myers joined SRI. Since then, she has brought in and led 30 projects at SRI and has more than 90 publications and 4 patents. As a program director, she continues her career-long concern with human-computer collaboration and now

leads a team focused on developing intelligent systems that facilitate human-machine collaboration.



### **Ulf Lindqvist, Program Director in SRI's Computer Science Laboratory**

Ulf Lindqvist is being recognized for his leadership of several consortia with government and industry to improve cybersecurity in society's critical infrastructures. Key areas of

accomplishment include:

- Helping to establish and lead LOGIIC, an industry-government technology partnership between the Department of Homeland Security (DHS) and leading oil and gas companies to improve cybersecurity in the petroleum industry; similar efforts are under way with the automotive and natural gas distribution industries.
- Leading the DHS Science and Technology Directorate support contract at SRI since 2004, which includes developing the DHS roadmap for cybersecurity research and helping DHS's program succeed and increase its budget from \$3 million to \$80 million per year.
- Playing a key role in establishing multidisciplinary research projects under the Institute for Information Infrastructure Protection (I3P) and leading several of its efforts in security for supervisory control and data acquisition (SCADA) and process control systems, and leading technology transition efforts resulting in commercialization of several technologies from I3P member organizations.

After completing his Ph.D. in computer engineering at Chalmers University of Technology in Sweden in 1999, Lindqvist joined SRI. Now, as a program director in the Computer Science Laboratory, he leads research projects in cybersecurity, infrastructure systems, intrusion detection in computer systems, and security for systems that interact with the physical world. In addition to his more than 30 publications, he was recently named chair of the IEEE Computer Society's Technical Committee on Security and Privacy (2016-2017); before that, he was vice chair of the IEEE Cybersecurity Initiative (2015). Lindqvist is recognized as a research community thought leader, is frequently featured in cybersecurity-related news reports, and is currently the leader of SRI's strategic initiative for securing the privacy and security of the Internet of Things.

For more information on Lindqvist and the Internet of Things, see the video at [https://www.youtube.com/watch?v=AKvqn\\_BcNpc&feature=youtu.be](https://www.youtube.com/watch?v=AKvqn_BcNpc&feature=youtu.be).

## Parijat Bhatnagar Wins Prestigious NIH New Innovator Award



Parijat Bhatnagar, a program director for Cell-Based Medicine in SRI Biosciences, has received a 2016 National Institutes of Health (NIH) Director's New Innovator Award. This award, part of the NIH High-Risk, High-Reward Research program, is designed to support exceptionally creative, early-career researchers who propose innovative, high-impact projects.

As part of the award, Bhatnagar has received \$3 million in funding from NIH's National Institute of Biomedical Imaging and Bioengineering for 5 years toward development of a therapeutic platform using cell engineering and directing it against dengue virus, with potential applications for other cell-based malignancies. Also, his work in immunotherapies for solid tumors is funded by the National Cancer Institute's Innovative Molecular Analysis Technologies program, which supports potentially transformative technologies.

Therapeutic windows of drugs vary dramatically for each individual and the degree of a disease as it evolves. Excessive doses can lead to toxicity, while insufficient doses are ineffective and lead to drug resistance. Bhatnagar and his team are engineering cells that will actively travel to disease sites in the human body, assess the disease burden, and synthesize proportionate amounts of therapeutics to neutralize the disease. "This has the potential to replace passive drugs with ones that will actively search for disease and then regulate the assembly of complex drugs at the desired site of action in the body," said Bhatnagar.

Information about Bhatnagar's NIH project, titled Self-Assembled Therapeutics with Spatiotemporal Resolution, can be found at the following link: [https://projectreporter.nih.gov/project\\_info\\_description.cfm?aid=9167420&icde=31358941&ddparam=&ddvalue=&ddsub=&cr=1&csb=de fault&cs=ASC](https://projectreporter.nih.gov/project_info_description.cfm?aid=9167420&icde=31358941&ddparam=&ddvalue=&ddsub=&cr=1&csb=de fault&cs=ASC).

## R. Norman Hurst Receives SMPTE Award for Work in Color Camera Signal Circuit Design



In October 2016, R. Norman Hurst, principal software engineer for the Products and Solutions Division at SRI, received the Camera Origination and Imaging Medal Award from the Society of Motion Picture and Television Engineers® (SMPTE®). SMPTE, an internationally recognized and

accredited association founded in 1916 as the Society of Motion Picture Engineers (SMPE), has been a leader in setting motion-imaging standards and guidelines and promotes education for the communications, media, entertainment, and technology industries. The award recognizes significant technical achievements related to invention or advances in imaging technology, including sensors, imaging processing electronics, and the overall embodiment and application of image capture devices. Hurst received the award for his work in color camera signal circuit design, particularly for his invention allowing independent control of selected color areas, also known as skin detail. This technique has been an essential part of color television production for more than 25 years.

In 1999, Hurst won a Technology and Engineering Emmy® Award for developing the MPEG Compliance Bitstreams DTV testing technique. In 2013, in addition to being inducted as an SMPTE Fellow, Hurst received SMPTE's Digital Processing Medal Award for his invention of methods for splicing MPEG-2 transport streams, the creation of test bitstreams for evaluating the performance of video and audio compression equipment, and the development of electronic test patterns to evaluate video encoding and processing systems.

Do you enjoy watching television or going to the movies? If so, you can thank Norman Hurst and his colleagues for their inventions in imaging technology, dating back to the days of RCA Laboratories, which became Sarnoff Research Center and, subsequently, the SRI Princeton community. Norman's contributions are just part of a rich heritage of innovation by these organizations. We would very much welcome tales of the Princeton heritage by anyone intimately familiar with it. It would benefit not only us as alumni but the current SRI staff as well.

## Recent SRI Robotic Spin-offs: Apple Pickers and Body Builders

### Abundant Robotics: Creating Robotic Solutions for the Hardest Jobs in Agriculture

Apples, the most commonly consumed fresh fruit in the United States, are not easy to pick, especially without damaging them. That's why they are harvested by hand. Abundant Robotics, a recent spin-off of SRI's robotics group, hopes to change that. Dan Steere, CEO of Abundant Robotics, noted that orchard yields have significantly improved during the last two decades, but labor productivity has not. The new company plans to commercialize and build on several years of successful research initiatives in agricultural robotics at SRI by automating the apple-picking process.



The proposed robot uses a vacuum attachment to gently pull the apples from the tree at a rate of one fruit per second. Recent breakthroughs in computer vision and image processing have made it possible to automate a task as demanding as picking apples, which involves differentiating fruit from tree limbs, trunks, and leaves without damaging parts of the tree or other fruit. However, challenges remain: Not only do the computer software and hardware have to meet precise engineering requirements, all components must be robust enough to stand up to varied outdoor environments. Fortunately, field trials with orchards in Washington state and overseas in Australia to date are encouraging.

Backed by research funding from the Washington Tree Fruit Research Commission and SRI, Abundant Robotics has closed its initial investment round. The company hopes to have its autonomous, robotic apple pickers in production and at work in orchards within 2 years. Future development may focus on other produce.

You can see the robotic apple picker in action at <http://www.goodfruit.com/growers-get-peek-at-automatic-picking-machine-video/>.



### Superflex: Helping People Achieve Their Physical Potential

As we all know, the human body can be a fragile thing. That is especially true for individuals with mobility impairments due to disease, local injury, or recent surgery. Superflex is a soft, lightweight "exosuit" that fits snugly over the wearer's body and contains onboard sensory elements that detect and learn the wearer's movements to provide additional power at the precise moment it is needed. Superflex, Inc., founder and CEO Rich Mahoney, who left his job as director of SRI Robotics to launch the company, notes that the technology is designed to add strength around joints in a comfortable way to help reduce fatigue.



Originally developed for the DARPA-funded "Warrior Web" program to reduce fatigue in soldiers carrying heavy backpacks, the Superflex exosuit has components that can be used for mobility assistance in various settings. The exosuit is different from current exoskeletons in that it uses new muscle-like actuation, comfortable and soft skin attachment, and electronically releasable spring elements to store energy and minimize mass, bulk, and noise. Motion sensors, accelerometers, and gyroscopes read the speed and angles of the wearer's legs and adjust the movements of the exosuit accordingly.

Mahoney and his team are developing a business model and meeting with potential investors and business partners to obtain the level of investment needed to bring the prototype to market. Superflex expects to announce its product focus by the end of the year. As with many of SRI's spin-offs, the likelihood of success is high because the technology is vetted at SRI before being offered outside the institute.

## My Christmas 1944

By Peter Weisshubn

In my hometown, Troppau (now Opava in the Czech Republic), 250 km east of Prague, Christmas came in two instalments, the first on 6 December. That evening, St. Nicholas visited the homes of children to reward the good and to admonish—or worse—the bad. Six years old and aware of certain failings, I had mixed feelings about his visit. After supper, when the doorbell rang, I sought out the corner farthest from the door. At my side were my 5-year-old sister, no angel either, and our 2-year-old brother, blissfully unaware of any fault but seized with the shared anticipation that had been building all day.

The great man entered, his stout body clothed in red, with black boots and a long white beard, his sanctity proclaimed by a bishop's mitre and crosier. His gruff voice inquiring—unnecessarily—whether there were children in the house left no doubt about his authority. Above all, Mother had impressed on us, we must never lie to him as he knew everything. He was not alone. His helper, a small, bent fellow, all in black, followed close behind. He threw down a sack from which dangled a child's leg in a brown stocking and a black shoe. As St. Nick told us solemnly, children who lied ended up in the sack and were taken away to Beelzebub. (After they had gone, Mother assured us that the leg was only a stuffed stocking.)

Glaring over his beard, St. Nick leafed through a big book for my name. His brow furrowed as he read out the charge: *I had broken a neighbour's window with a snowball. Did I admit it?* I did. *Was I ashamed?* I was. *Would I ever do such a thing again?* No, never. *Would I promise to be a good boy henceforth?* I promised. The inquisition over, I was given the choice of reciting a poem or singing a song, presumably to show I had a good side. I recited the short poem Mother had taught me in anticipation. Then he smiled, handed me an apple and some nuts, and patted my head. My sister got off too lightly I thought. Only one of her minor misdeeds had been recorded. Could it be that St. Nicholas did not know everything? Our little brother escaped altogether. It's tough to be the eldest.

At bedtime, Mother spent longer with me than usual, presumably concerned that the visitation might cause a

nightmare. I asked her why children must not lie when the newspapers did. I knew they lied, as Mother had told me more than once. She had said that whenever the German armies suffered a defeat, the papers claimed a victory. A sure sign was the red headlines over such reports. She knew they were lies because she listened secretly to a Swiss radio station that reported the unrelenting progress of the Allied armies on all fronts. I also knew that I must tell nobody of this, as the Gestapo would take her away if they found out. To my questions she replied that I would understand one day.

The second instalment began in the morning on Christmas Eve, when a large tree was delivered and erected in the lounge, the door closed to us children. When we next saw the tree, before supper, it was hung with coloured glass balls and birds, tinsel, and angel hair all lit by dozens of beeswax candles. It was magical. The gramophone played Christmas music, and the combined aroma of the tree, the candles, and Mother's baking filled the room. Best of all, there were presents under the tree. Mine was a wooden train with an engine and three carriages painted in primary colours. As I reached for it, Mother stopped me saying that the paint was still sticky, so I must not touch it. If it were dry tomorrow, I could play with it then.

I slept well that night. The Allied bombers, which in recent weeks had been pounding our town, had stayed away. Mother said they celebrated Christmas, too. In any case, there was cloud cover, which meant no sirens, no anti-aircraft fire, no bombs—and no midnight dash from a warm bed into the cold cellar.

But the paint on my train was not dry in the morning. Nor did it dry in the weeks ahead. The train sat on a piece of cardboard on my windowsill, to be admired but not touched. The paint must have lacked an essential ingredient. The train I never played with was left behind, along with most of our possessions, when we joined the exodus from our town as the rumble of the Russian artillery approached from the east.



## What It's Like to Be Stranded on an Island with Fidel Castro



*By Jim Colton (Poulter Lab 1968-2012)*

During my 45 years at SRI, I took many snapshots. But when I retired, I joined the Palo Alto Camera Club, where I learned what good photography is. The club provided excellent instruction, as well as the motivation to pursue excellence, just as I did in my work at SRI. You can see some of my photographs at <http://jimcolton.zenfolio.com/>.

In February 2015, I traveled to Cuba as a visiting artist. This status gave me complete freedom. On a typical organized tour of the country, a government guide takes you only to approved places and lets you talk only to approved people. In contrast, I could go anywhere and talk with anyone. To help in this regard, one fellow photographer had numerous local contacts that we could and did use.

The photography opportunities in Cuba—the people, the Spanish colonial architecture, and the musicians—are so numerous that I went a little nuts and took 5,000 photos.



*Street scene in Havana after an evening rain.*

For my friends I show about 60 of my best photos. For my enemies I show all 5,000!

I quickly decided to focus my photography on how Cubans live because since the Cuban Revolution they are de facto stranded on an island with Fidel Castro. During the revolution, from 1953 to 1959, Castro preached socialism as the ideal form of government. In 1959, he took over all property, including many sugar plantations, factories, and casinos that were owned by Americans as well as Cubans. As a result, the United States initiated a trade embargo against Cuba. Castro soon found out that Cuba didn't have the income to survive on its own. So he formed an alliance with the Soviet Union and became a communist dictator. The Soviets gave financial and other aid to Cuba. In turn, Cuba gave the Soviets a presence in the Western Hemisphere.

As a communist state, the government owns all property, so Cubans cannot own a house or an apartment. The government provides living quarters for all Cuban citizens; however, the living quarters are minimal. For example, we visited one former mansion with 42 rooms owned by a wealthy businessman before the revolution. The building now houses 42 families, one in each room. If a family has more than one child, they can request larger living quarters. The new quarters may be a great distance from their current location, which of course means leaving neighbors, friends, and schools. So they may or may not elect to move.

We visited a building with a beautiful exterior that was built in the 1930s as a hotel. After the revolution, the owner of the hotel fled to Miami, leaving all his wealth behind. His daughter, however, elected to stay in Havana because she was a dancer in the world-famous Tropicana nightclub, a prestigious job for a young woman at that time. She was also given a place to live—one room in the hotel that her father once owned. We visited her in her home and learned about her life as a dancer and her life in a one-room apartment for the last 56 years.

The government used to do a reasonable job of maintaining living quarters for its citizens, but this service has degraded over time. A famous story that is told in Cuba is about a woman who calls the government about a maintenance problem:

Woman: The door of my apartment fell down. Can you fix it?

Government: Yes, we can fix it on November 18, 2019.

Woman: Morning or afternoon?

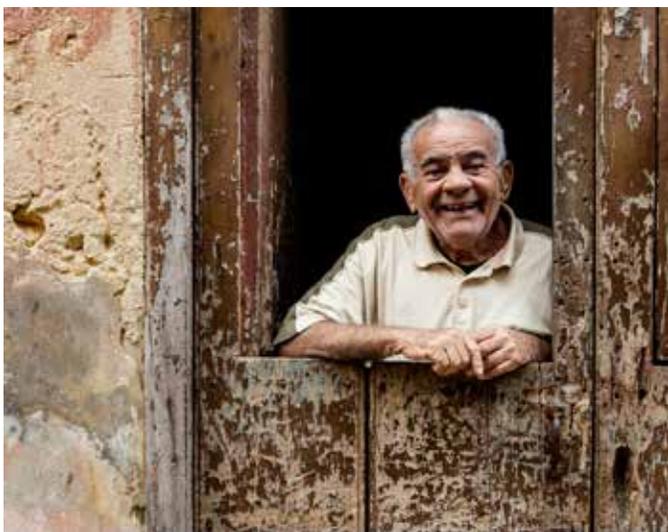
Government: Afternoon.

Woman: Good, because the plumber is coming in the morning.

The reality is that for several years the government has not provided any maintenance for living quarters in Cuba. The citizens themselves correct small problems, like building a makeshift railing from wood to replace a wrought iron railing that collapsed. But the citizens aren't able to correct large problems. For lack of maintenance, parts of buildings, or indeed an entire building, will collapse on a regular basis in Cuba.

Cuba claims to have full employment, and indeed every citizen has a job. To achieve this, all the work is more or less uniformly divided among all the people. With this arrangement, each job can be done in only two or three days each week, and pay is commensurate with the length of time worked. So most Cubans have very little money. Some Cubans receive money from relatives in the United States. Some earn a little extra money on the side, like by selling cigars on the black market. This is illegal, but the government looks the other way as long as the extra income doesn't become excessive.

Most Cubans have plenty of free time. Since they have little money, they find ways to use their time that don't cost money. The number one way is socializing. On any street in Havana on any day, you will find Cubans standing outside their apartments or in the doorways of their apartments spending hours talking to passersby. For example, I was approached by a Cuban in front of his apartment who proceeded to tell me how much he loved the New York Yankees. The highlight of his day was to read about the Yankees game in the newspaper, one of the things in a foreign paper that were not censored.



*Cubans are friendly and want to talk to Americans.*

The conditions in Cuba are not all bad. In 1959, Castro initiated a policy of free education for all Cuban citizens that still exists today. Schooling is required for everyone through high school. You can go to college, law school, or medical school free of charge as long as you qualify. The literacy rate in Cuba is the same as it is in the United States. One testament to a well-educated society is Cubans' ability to keep '40s- and '50s-era American cars running for more than 50 years. Since they can't buy parts, they are extremely clever at adapting parts from other machines or making parts from scratch to keep the cars running.

Che Guevara was a revolutionary who established a program of free medical care for all Cuban citizens that still exists today. Cuba doesn't have the high-tech medical devices that we have, but the health care system puts more emphasis on preventive medicine. The result is that the life expectancy in Cuba is the same as it is the United States. The medical school in Havana trains many of the doctors in South America and has even trained some American doctors.

Another revolutionary started a program to support the arts in Cuba, and the program still exists today. If you have the necessary talent, you can receive free training to become a musician, singer, painter, poet, writer, dancer, or sculptor. Then, rather than scrambling around to make a living, you can get a government job to practice your art. Cuba hosts worldwide music and arts festivals and is known for its artists' outstanding contributions to the arts.



*The great music of Cuba is part of the Santeria religion.*

Cubans are a much happier people than one would expect, given their living conditions. I think there are several reasons for this. First, most Cubans have grown up under the current system and, because information is controlled by the government, don't know how the rest of the world lives. Second, with few exceptions, most Cubans have about

the same standard of living, so there seems to be little envy of one's neighbors. Finally, Cubans have a culture filled with music and dance and socializing, which are strong components of happiness anywhere.

When I was in Cuba, there had been no fundamental changes for the last 56 years. Now changes are starting to be made. The United States and Cuba have started to reestablish relations. Although expensive, cell phones can now be purchased by Cubans, and Cubans can have limited Internet access. Unused land can now be privately owned. There is more tolerance of outspoken opposition to the government. Some privately owned businesses, mainly restaurants, are allowed and are prospering. It seems that

other privately owned businesses will also be allowed. But change will be slow.

One thing I hope will not change, at least in terms of the final product, is the very successful Cuban tobacco industry. I visited a tobacco farm where a man had been rolling cigars for 50 years. He rolled a cigar for me, and I smoked it on the spot. It was *so much better* than the White Owl cigar I smoked in college. In fact, it was so good that although I went to Cuba as a nonsmoker, now I'm trying to start!

*Editor's note: The era of Fidel Castro in Cuba is over. Castro died September 25, 2016, at age 90.*

## CREDIT UNION NEWS



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## AIC Alumna Chairs AI100 Committee

“Artificial Intelligence and Life in 2030” is the first report of the One Hundred Year Study on Artificial Intelligence (AI100), an ongoing project hosted by Stanford University.

The AI100 standing committee is chaired by **Barbara J. Grosz**, who worked in the Artificial Intelligence Center (AIC) at SRI from about 1975 until 1986, after receiving her Ph.D. in computer science at UC Berkeley. She is now a professor at Harvard.

She recently gave a talk at Harvard on the report and the future of artificial intelligence. (Visit <http://news.harvard.edu/gazette/story/2016/09/what-artificial-intelligence-will-look-like-in-2030/>.)

In 2015, Barbara received the International Joint Conference on Artificial Intelligence (IJCAI) Research Excellence Award for her pioneering research in natural language processing and in theories and applications of multi-agent collaboration.

In 2009, she received the ACM/AAAI Allen Newell Award for “fundamental contributions to research in natural language processing and in multi-agent systems, for her leadership in the field of artificial intelligence, and for her role in the establishment and leadership of interdisciplinary institutions.”

Barbara is the Higgins Professor of Natural Sciences at Harvard University’s School of Engineering and Applied Sciences. She joined the Harvard faculty in 1986 and served as the first dean of science at Harvard’s Radcliffe Institute for



Advanced Study from 2001 to 2007, designing and building its science program.

From 2008 until 2011, she served as dean of the Radcliffe Institute. The institute includes the Schlesinger Library, one of the largest U.S. repositories of manuscripts and archives relating to the history of women.

Barbara is also a member of the American Academy of Arts and Sciences (2004) and the National Academy of Engineering (2008). She is a fellow of the American Association for the Advancement of Science (1990), the Association for Computing Machinery (2004), and the Association for the Advancement of Artificial Intelligence (AAAI) (1990); in 1993, she became the first woman president of the AAAI. She serves on the executive committee and is a former trustee of the IJCAI, and she is a vice president and member of the executive committee of the American Philosophical Society.

## The Alumni Association Needs Your Help

The Alumni Association has openings for Steering Committee members and encourages you to lend your support. As a committee member, you will interact with former SRI colleagues as you help plan events, work on the archives, edit the newsletter, or help keep track of the association's finances. We currently need volunteers to fill the following positions:

- Main chairperson
- Hall of Fame chairperson
- Secretary
- Newsletter coordinator or managing editor
- Backup editor
- Backup newsletter layout artist
- Backup treasurer

If you would be interested in volunteering for one of these positions or would like further information, please send a message to [steering-committee-alumni@sri.com](mailto:steering-committee-alumni@sri.com).

## Call for Nominations

The Alumni Association's Hall of Fame honors former SRI staff who have excelled in contributions to their field, to SRI, or elsewhere. Those selected for induction have invariably been pleased with the recognition. But, as with any formal recognition, it doesn't happen without nominations. You are among those we rely on for such awareness. Isn't there someone that you know of and admire who may be deserving? Suggestions from the broad membership help give legitimacy to the process. You can see the selection criteria, previous inductees, and more online at <https://www.sri.com/about/alumni/members-alumni-hall-fame>. So, please feel free to send a nominating paragraph or more to [steering-committee-alumni@sri.com](mailto:steering-committee-alumni@sri.com). We promise we will give it every consideration. Thanks!

## Directory Addendum

The enclosed directory addendum (covering the period August 1, 2016, to November 30, 2016) contains new members and corrections. Please add it to your 2016 Directory.



The SRI Alumni Association welcomes new members:

**Judith (Judi) Adams**  
**Michael Boldrick**  
**Vinay Chaudhri**  
**Gerald Leong**  
**Mark Plascencia**  
**George von Haunalter**

And welcomes back previous members:

**Greg Bohlmann**  
**Gerald (Jerry) Lucha**  
**Robin Riviello**

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



### Frank Cuomo



Frank M. Cuomo of Princeton, New Jersey, passed away peacefully on October 4, 2016, surrounded by his loving family. A longtime groundskeeper, he was 85.

Frank was born in Ischia, Italy, in 1931 and moved to the United States in 1952. He married his loving wife, Alba, in 1958 and shortly began a family. His lifelong passion for gardening led to an extraordinary career in groundskeeping at the Princeton campus of RCA Laboratories, later to become SRI's David Sarnoff Center. After a career of 62 years, Frank retired in 2014 to cheer Italian soccer (Forza Napoli), care for his own lawn and garden, and relax at his home on the New Jersey shore, boating and fishing.

Frank was predeceased by his sisters Anna DeMeglio, Renata Lupa (Joseph), and Francesca Porcaro (Luigi). He is survived by his loving wife of 58 years, Alba; sister Clara (Silvio); daughter Teresa Pietrefesa (Craig); son Vince (Lisa); three grandchildren; and many cousins, nieces, and nephews.

*Adapted from an obituary in the Trenton Times, October 6, 2016.*

### Robert Daly\*



Robert "Bob" Francis Daly of Mount Pleasant, South Carolina, husband of Geraldine Cline Daly, died Tuesday, August 16, 2016. He was 83.

Bob was born October 23, 1932, in Chicago, Illinois. He earned a Ph.D. in electrical engineering from Stanford University.

He came to SRI as a Research Engineer in the Communication and Propagation Lab in 1959. He was a Senior Telecom Scientist when he left SRI in 1981. Bob's later career included working for the United States Senate's Office of Technology Assessment.

Bob was a lifetime member of the Institute of Electrical and Electronics Engineers. He was the author or coauthor of over 20 publications and was in *American Men and Women of Science*.

Bob was a marathon runner, expert do-it-yourselfer, excellent cook, and avid reader. He was a devoted husband, father, and grandfather.

He is survived by his wife, Geraldine Daly of Mt. Pleasant, South Carolina; son Robert F. Daly, II (Alison) of Asheville, North Carolina; daughters Maura Daly (Mark) of Richmond, California, Cathleen Daly of Berkeley, California, and Shannon Daly Marchell (Richard) of Mt. Pleasant, South Carolina; grandchildren Charlotte Marchell, Jackson Marchell, and Holden Marchell; and sisters Mary Ann Jedrejczak, Lori Coons, Carolyn Daly, and Franny Richardson.

*Adapted from an obituary in the Charleston Post & Courier on August 18, 2016.*

### Ann Geoffrion



Ann Geoffrion, computer expert, died at the University of Vermont Medical Center Hospital on the morning of September 26, 2016, after a brief struggle with pneumonia. She was 79.

Born May 16, 1937, in Exeter, New Hampshire, Ann grew up in Newmarket, New Hampshire, and attended the University of New Hampshire, majoring in physics. She went to graduate school at the University of Arizona, where she studied astrophysics. Ann coauthored a paper stating that water is present on Mars, which NASA confirmed just in 2015.

Ann moved to California to join SRI in 1971. She progressed from a Senior Systems Analyst to a Systems Programmer in the Software Support Department. She retired in 1991 as Operations Manager in Computer Systems and Service. In later years, Ann joined Foothill-De Anza Community College in Los Altos Hills, California, as Director of Academic Computing.

During her tenure at SRI, Ann worked on the development of the computer mouse, which at the time consisted of a wooden block on wheels. Ann often spoke fondly of those early days of computing and of the lasting friendships she formed at SRI while being active in a broad range of computer and digital communications projects that helped define our modern Internet world.

She lived in La Honda, California, but family connections in the Northeast led her to buy a cabin in Alburgh, Vermont. She divided her time between Vermont and California. She and her sister Rosalie (“Geoff”) started a horse-breeding business—Vermont Warmbloods—in 2004, and they frequently traveled to Germany and elsewhere in search of the perfect bloodline (and the perfect glass of wine).

Ann was an avid pilot and a commercial flight instructor for many years, maintaining full certification throughout her life. She also loved golf, classical music, politics, and economics. She was a no-nonsense person, friendly and kind, with a quiet, self-deprecating sense of humor. She was often and aptly described as a warrior.

Ann leaves behind three younger siblings: sisters Anita Stockwell (Richard) of Jericho, Vermont, and Rosalie Osol (George) of Williston, Vermont, and brother Leo Geoffrion (Olga) of Saratoga Springs, New York.

*Based on an obituary in the Burlington (Vermont) Free Press on September 29, 2016.*

### Geneva Haertel



Geneva Haertel passed away August 31, 2016, at El Camino Hospital in Los Altos, California. She was Director of Assessment Research and Design in the Center for Technology in Learning at SRI. In 2014, she was named an SRI Fellow, the institute’s highest honor for technical achievement. She was also honored with a Mimi Award in

2008 for excellence in mentoring staff.

Geneva was born in Hazleton, Pennsylvania, the only child of a mechanic and a schoolteacher. She received a B.S. in education at Kent State University, Kent, Ohio. She taught kindergarten after graduation and later returned to Kent State to earn a doctorate in educational psychology. She was there in 1975 and witnessed the legendary campus shootings. Before coming to SRI in 1998 as a Senior Education Researcher, Geneva provided counseling to students in the Chicago, Illinois, troubled inner-city schools and collaborated with evaluation theorist Michael Scriven to develop a teacher-evaluation framework.

In her distinguished career in educational methodology, Geneva was instrumental in the development of sophisticated technology-based assessments that enable measurement of important aspects of knowledge that previously were not measured.

Geneva authored a book chapter, based on her work with inner-city students, that described how social-emotional factors, such as resilience, influenced children’s learning achievement—a precursor to current educational work in grit and growth mind-sets. She also collaborated with educational psychologists Margaret Wang and Herb Walberg on an extensive meta-analytic literature review of factors influencing student learning; it has been cited more than 1,100 times.

She had 30 years of experience in conducting research on assessment, student learning, and K-12 education programs. Under Geneva’s leadership, SRI’s educational-assessment practice brought in more than \$68 million in R&D funding.

Geneva is warmly remembered and honored by many colleagues within and outside of SRI, who recall an enthusiastic and inspiring scholar, a caring mentor, and a true friend. Geneva is survived by several cousins.

### Robin Jones



Robin Jones, former head of SRI’s Metallurgy Department, passed away on August 20, 2016, at age 76.

Robin Leslie Jones was born in Newcastle-on-Tyne, England, on May 19, 1940, into a family of athletes. He did his undergraduate studies at Cambridge and continued for a Ph.D. in metallurgy. In 1966 he emigrated to the United States and took a position with the Franklin Research Institute in Philadelphia.

Robin was particularly interested in embrittlement of alloys used in nuclear reactors and geothermal brines. He came to SRI in 1972 and was appointed Metallurgy Manager in the Materials Laboratory. With his bright mind and strong interpersonal skills, he quickly attracted new clients, initiated joint research efforts with other SRI labs and divisions, doubled the metallurgy staff, and became department head.

During this time, he rode his bike to work, played softball and badminton, and backpacked in the Sierra.

While at SRI, Robin was recruited to serve on the National Materials Advisory Board for the study of titanium. His technical prowess, new ideas, and people-management skills caught the attention of his clients, and he was constantly courted to join their staffs.

He left SRI to join EPRI (the Electric Power Research Institute) in Palo Alto, California, in 1978 and retired from there 29 years later, having become Vice President for Nuclear, with a staff of some 350 people. During those years, he continued to engage and work with his former SRI colleagues on EPRI-sponsored research projects.

Robin is remembered at SRI as a friend and for his kindness, generosity, and keen wit (delivered in a British accent). He loved classical music, reading, maps, and all forms of athletics, especially running (and later cycling).

Survivors include his wife, Anne; sons Adrian (Angelique) of San Francisco, California, and Nick (Emily) of San Mateo, California; and grandsons Dean and Owen.

*Modified from an obituary by Don Shockey that appeared in the SRI Scene.*

### Harold Lindgren



Harold Alan Lindgren (Hal to all who knew him) passed away in his sleep early Saturday morning, August 20, 2016, in his 88th year. He survived three cancers in his lifetime and remained active until last April, when a surgery slowed him down.

Hal and his wife, Beverly, were both born and raised in Minneapolis, Minnesota, where he earned his master's degree in engineering from the University of Minnesota. They raised five children in Minnesota, Florida, and California. He moved the family to California in 1959 to work for SRI as a Research Engineer in the Graphics Sciences Lab.

After two years, Hal left SRI to take a post with Aeronautical Radio. His last job was with Teledyne Ryan in Florida, where he retired in 1995.

He most recently lived in North Miami with his daughter

Cynthia. Family and friends often called him "Renaissance Man"; he was an aeronautical engineer, a builder, a musician, a pilot, and a dreamer.

Hal was preceded in death by his beloved wife, Beverly, (2012) and son John (1988). He is survived by sons Steven (Trudy) and Scott (Beverly), daughters Mari Lindgren Knutt (Jim) and Cynthia Lindgren Adam (Ricardo), and four grandchildren.

*Adapted from an obituary in the Miami Herald on August 24, 2016.*

### Sandra Lawall

Sandra Lawall, former administrative supervisor, died in September 2016 after a brief illness. Sandy began her 32-year career at SRI in 1967 as a report typist in the centralized Publications Department. In the 1970s she supervised other typists in a general typing pool, and in the 1980s she worked as an administrative assistant and administrative supervisor for the Remote Measurements Laboratory, which became the Acoustics and Radar Technology Laboratory within the Systems Technology Division. She retired in 1999 and moved to Arkansas to spend time with her grandchildren. Sandy's colleagues will miss her (often sarcastic) sense of humor, her ability to help in any situation, and her heart of gold.

*Obituary written by Jeanie Graham.*

### John Lomax\*



John Lomax, 90, died on July 23, 2016, at the Acacia Creek retirement community in Union City, California. John had a long career at SRI, retiring in 1990 as Assistant Director of the Telecommunications Department in the Engineering Research Group.

John Benjamin Lomax was born December 22, 1925, in Kenvir, Kentucky, and grew up in southern Illinois and West Virginia. He joined the U.S. Navy in 1943 as an Apprentice Seaman, attended naval electronics schools, and then served as an instructor; he married in 1945. John earned a BSEE in 1950 from the University of Washington and worked four years for Boeing Airplane Co. as a design engineer. He served as the union negotiator for 6,000 engineers for two years.

John earned an MSEE at Stanford and joined SRI in 1955 as a Senior Research Engineer. According to Don Nielson, he was an early member of the Radio Systems Lab, but his real forté was in leading and managing projects. Don recalls a fine example of John's engineering leadership from 1962: "The Russians had broken the test ban treaty and President Kennedy ordered the U.S. testing to resume, the focus of which was communications and radar. The communications test bed consisted of 12 sites located throughout the Pacific Ocean: from Rarotonga to Alaska and Okinawa to Palo Alto. It was a massive undertaking under unimaginable time pressure, that lasted all year. Through it all John calmly and successfully led its design, construction, and operation. That competence and confident leadership were John's hallmark for over 30 years at SRI."

In 1974, John left SRI to establish the Law Enforcement Support Agency, a 911 center in Tacoma, Washington. As CEO there, he established operating procedures and policies and managed operations of the agency. After 4 years, he returned to SRI for another 12 years, working in communications research and design and in management. His work was largely about survivable emergency communication systems and digital networks. He also consulted with venture capital firms, reviewing technical details of proposed investments. He was the author or coauthor of more than 80 professional papers and research reports. He retired at the end of 1990.

John was also a public servant. He served two terms on the Board of Directors of the Black Mountain Resource Conservation District (1968–74). He was elected three times to the Board of the West Bay Sanitary District in Menlo Park. He also worked on flood prevention on San Francisquito Creek.

As a private citizen, he served as an assistant scoutmaster and taught gun safety at Stanford University.

John's avocation was genealogy. He published four books on the descendants of Lomax immigrants to the colonies.

John's wife of more than 60 years, Ruby, predeceased him. Survivors include sons William, Gregory, and Kenneth; daughter Lynn Lomax Grassano; and eight grandchildren.

*Compiled from information in the Menlo Park Almanac on February 23, 2005; the Breeze-Courier (Taylorville, Illinois) on November 21, 2016; and an obituary by Don Nielson for the SRI Scene.*

## Camille Marder



Camille Marder, longtime member of SRI's Education Division from 1988 until her retirement in 2013, passed away October 3, 2016, at her home in Mountain View, California, after fighting a year-long battle with cancer.

Born February 1, 1947, in Pennsylvania, Camille grew up in Miami, Florida. She lived some five years in Spain after high school and spoke fluent Spanish. After a year in England, she returned to the United States and completed her undergraduate studies in Miami, with honors. She received her Ph.D. from Stanford University in 1988. Her studies there included extensive course work in statistical research methods—skills that were in great demand and highly appreciated by her SRI colleagues.

Her versatility as a researcher and her just-do-it attitude enabled her to contribute to a wide array of SRI projects in multiple centers in the Education Division. Projects included *Following the Leaders*, *Thinking with Data*, and a portfolio of large-scale national longitudinal studies of children and youth with disabilities across the age range, including the *National Longitudinal Transition Studies*.

Camille also was a dedicated and talented mentor of junior staff, who appreciated benefiting from her research experience and from her genuine interest in them and in helping them reach their potential at SRI.

Camille was an opera lover. She also gained fluency in Portuguese and became enthusiastic about all things Brazilian. Her boundless interest in and concern for others also extended to people outside the center and outside SRI. For example, Camille served as translator and advocate for several SRI cafeteria and janitorial staff who spoke limited English, helping them to gain citizenship and deal with other bureaucratic issues. She also became a Big Sister for two young sisters who had little family support. Camille provided them with love and financial support for almost two decades, even extending that support to their two daughters.

She is survived by her sister, Paula Wilson, who shared homes with Camille in Miami and Mountain View in recent years.

*Contributed by Mary Wagner and colleagues.*

**Robert Gordon Murray\***

Robert Gordon Murray, of Palo Alto, California, passed away on September 23, 2016, four days shy of his 91st birthday.

Bob was born in Indianapolis, Indiana, on September 27, 1925. By the age of 23, Bob had worked as a candy-bar maker at the Mars bar factory, served two years in the military, discovered his natural talent for hockey, and graduated with a degree in chemical engineering from the University of Colorado at Boulder. He had also married Barbara; they had grown up in the same neighborhood and fallen in love while working at a lakeside resort.

Bob became an engineer at Goodyear Atomic in Ohio, during which time he and Barbara had three children. In 1964, the family moved to Palo Alto. Bob served at SRI as a Senior Chemical Engineer until he retired in 1994.

At SRI, Bob was active in the labs and pilot plants of the Chemical Engineering Department. He researched ways to turn natural substances into energy sources, including one process that would convert household and agricultural wastes into fuels.

Bob continued to play hockey after college and well into his eighties, playing in the Bay Area with the Roosters Hockey Club and in the Snoopy Senior Hockey Tournament since its inception in 1975. Even in his nineties, Bob continued to manage the team and skate with a walker he fashioned from old hockey sticks and skate blades.

Bob is survived by his wife, Barbara, daughter Lynn (Jim), daughter-in-law Tammie, and four grandchildren. Through the years, Bob and Barbara endured the devastating loss of two of their children, Glenn and Merri, to cancer.

*Abridged from an obituary in the San Francisco Chronicle on November 6, 2016.*

**Louis F. Schaefer**

Louis F. "Lou" Schaefer of Mountain View, California, died on Friday, September 16, 2016, at age 82. Lou died while driving his car on U.S. Highway 101 in Menlo Park. According to a Caltrans spokesman, "He died after being

struck in the neck by what appears to be a large metal screw-on nozzle cap that came off the back of a Caltrans water truck." It flew through the air and crashed through his windshield. After being hit, his car struck the center divider before eventually coming to a stop. No other vehicles were involved.

Lou came to SRI in 1971 and retired in 1998 as a Senior Research Engineer in the Applied Electromagnetics and Optics Lab.

**James J. Tietjen**

James Tietjen passed away on Wednesday, August 10, 2016, at home in Belle Mead, New Jersey, with his loving family by his side. He was 83. After a long career at the David Sarnoff Labs, he served three years as SRI's President (1990-1993).

Jim was born in New York City on March 29, 1933. He received his B.S. degree, cum laude, in chemistry from Iona College in 1956. Jim found time to win the New York City pocket billiards championship in 1954. He was awarded M.S. and Ph.D. degrees in physical chemistry in 1958 and 1963 from the Pennsylvania State University. In 1985 he was awarded Penn State's highest honor: Distinguished Alumnus.

He began a long and successful career at RCA, joining RCA Laboratories in 1963. Initially, Jim worked primarily on the preparation of a broad range of semiconductors by chemical-vapor-transport reactions. This work led to the development of a series of new and improved electronic devices. He has been credited with key gallium nitride research producing blue light-emitting diodes (LEDs), which ultimately made flat-screen-television production more feasible. This research also advanced the thinking about LED lighting that we have today. Jim was the author of more than 30 published articles, primarily related to materials and components research.

Jim received RCA's highest technical honor, the David Sarnoff Award for Outstanding Technical Achievement, in 1967 and again in 1970. He held executive positions including President and CEO of RCA American Communications, Inc., and President and CEO of the David Sarnoff Research Center. Jim successfully led negotiations resulting in General Electric's donation of the RCA Laboratories to SRI,

thus preserving one of the nation's leading technical research facilities.

He then became President and CEO of SRI International from 1990 to 1993. After leaving SRI, he became Dean of the Howe School of Technology Management at the Stevens Institute of Technology in Hoboken, New Jersey. He led the growth of this graduate program, the nation's first School of Technology Management, to 1,600 students. Training in the Howe School brought leadership opportunities to many young technical minds.

He served on numerous boards and committees and held prominent roles within the Federal Communications Commission, NASA, and the National Academy of Sciences.

Jim loved watching sports with his family, avidly rooting for his beloved New York Yankees, Penn State Nittany Lions, and the Chatham Athletics. He enjoyed playing tennis and golf. Jim also loved his yearly vacations to Chatham, Cape Cod, a 40-plus-year tradition, and holidays in the Poconos.

Surviving are his loving wife of 57 years, Mary-Ellen; sons Russell (Stacy) of Pittstown, New Jersey, and Keith (fiancée Lisa Kushman); four grandchildren; and siblings Patricia Enne and George Tietjen.

*Modified from an obituary in the New York Times on August 13, 2016, and from one that appeared in the SRI Scene.*

## Irving Yabroff\*



Irving Wollin Yabroff, a resident of Saratoga, California, passed away on June 19, 2016. He had been at SRI for 26 years.

Born in Oakland, California, on January 28, 1928, Irving from the age of 7 grew up in Los Gatos, California, at The Children's Country School (now Hillbrook School). After serving in the army and completing his Ph.D. at Stanford University in 1955, he began work at SRI in Weapons Systems Development as a Research Engineer. He was a Senior Resource Analyst in the Center for Resource and Environmental Systems Studies when he retired in 1981. He and friends then started a company to produce software for investment clubs.

Irving is survived by his wife of 59 years, Lou Dalbom Yabroff, sons Martin (Eve) and Richard (Loretta), eight grandchildren and three great-grandchildren, and his brother Lawrence (Mary).

*Adapted from an obituary in the Los Gatos Weekly Times on July 17, 2016.*

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\*Member of the SRI Alumni Association

The Alumni Association extends sincere condolences to Joyce Berry,\* whose husband, Don, passed away on November 29, 2016. Don took many photos at alumni events that were featured in the newsletter over the years. His presence and contributions to the Alumni Association will be greatly missed.

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