



S A N D I A

LABNEWS

PUBLISHED SINCE 1949

Vol. 77, No. 23, Dec. 4, 2025

Three Sandia
engineers earn
SASE awards
Page 7

Veterans Day	6
Leaders step up	9
Sandia Serves	11
Mileposts	12

Future of geothermal in New Mexico



HARVESTING ACOUSTIC ENERGY — Mechanical engineer Melanie Schneider inspects the communication prototype, which harvests acoustic energy from the surface and uses that energy to transmit data, eliminating the need for transmission lines and reducing the risk of wellbore leakage. **Photo by Craig Fritz**

Sandia research helps realize potential of subsurface energy

By **Diana Hackenburg**

New Mexico is known for bringing the heat with its famous green chiles, but a new report points to another source of heat that's causing excitement. Project Innerspace's report titled "[Future of Geothermal in New Mexico](#)" lays out the opportunities — and challenges — to harnessing the state's geothermal resources as a reliable, sustained domestic source of energy.

One of the report's lead authors is Travis Broadhurst, a geomechanics doctoral student at UNM and an intern with Sandia's

— CONTINUED ON PAGE 4

DOE launches Genesis Mission to transform American science and innovation through AI computing revolution

By **Darrick Hurst**

Sandia is advancing the DOE's Genesis Mission to transform artificial intelligence for national security, energy resilience and scientific discovery. As the nation's engineering laboratory, Sandia applies AI at every scale — from brain-inspired grid monitoring to stockpile surveillance and agile manufacturing — to strengthen U.S. deterrence and infrastructure. With world-class platforms like the Hala Point neuromorphic system and the Cerebras Kingfisher cluster, Sandia is pioneering energy-efficient, mission-grade AI hardware and accelerating "deterrence on demand." Through partnerships with industry, academia and Tri-Lab collaborators, Sandia is shaping a secure, AI-driven future for the nation.

On Nov. 24, President Trump issued an [Executive Order](#) to launch the Genesis Mission, a historic national effort led by the DOE. The Genesis Mission will transform

— CONTINUED ON PAGE 5



WATCH PARTY — Sandia leadership watches Dario Gil, DOE under secretary for Science and director of the Genesis Mission, introduce the national effort during a live broadcast on Dec. 1.

Photo by Craig Fritz

TABLE of CONTENTS

- 1 | Future of geothermal in New Mexico *continued on page 4*
- 1 | DOE launches Genesis Mission to transform American science and innovation through AI computing revolution *continued on page 5*
- 2 | Sandia Ironwoman forever chasing a challenge
- 6 | Veterans Day New Mexico
- 7 | Kinetic careers
- 9 | Leaders give back during fall forum
- 11 | Staff step up for Sandia Serves day
- 12 | Mileposts

Sandia National Laboratories

Albuquerque, New Mexico 87185-1468

Livermore, California 94550-0969

Tonopah, Nevada | Kauai, Hawaii

Amarillo, Texas | Carlsbad, New Mexico | Washington, D.C.

Katherine Beherec, Editor kgbeher@sandia.gov
Ray Johnson, Production rbjohns@sandia.gov
Craig Fritz, Photographer cvfritz@sandia.gov
Michael Langley, California Contact mlangle@sandia.gov

CONTRIBUTORS

Michelle Fleming (milepost photos, 505-844-4902),
 Kristen Meub (505-845-7215), Troy Rummel (505-284-1056),
 Meagan Brace (505-844-0499), Mollie Rappe (505-288-6123),
 Skyler Swezy (505-850-2063), Lea Blevins (lsblevi@sandia.gov),
 Kenneth Vigil (505-537-1528), Luke Frank (505-844-2020),
 Michael Baker (505-284-1085), Valerie Yarberry (vnalba@sandia.gov),
 Magdalena Krajewski (mkrjew@sandia.gov)

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

Published on alternate Thursdays by
 Communications, MS 1468

LAB NEWS ONLINE: sandia.gov/LabNews

EDITOR'S NOTE: Please send your comments and suggestions for stories or for improving the paper. If you have a column (500-800 words) or an idea to submit, contact the Lab News editor at labnews@sandia.gov.

Sandia Ironwoman forever chasing a challenge



From fusion energy research to Ironman racing

By Magdalena Krajewski

Most people might try to run a full marathon or attempt a century ride before signing up to do both on the same day after swimming 2.4 miles, but Mary Alice “Mac” Cusentino is not most people.

In her work at Sandia, Mac’s research focuses on how materials could be used to one day create fusion energy. “I’m trying to take the sun and put it into a box made of materials that we find on Earth,” she said.

In other words, Mac enjoys a challenge, and that drive to push herself started early.

In 2008, Mac was a freshman at the

PUSHING HERSELF — Mac swims at the Highland Pool in Albuquerque. The swimming portion of the race has always been Mac’s least favorite part, but she’s learned to embrace the challenge.

Photo by Craig Fritz

University of Wisconsin when she decided she wanted to do an Ironman. At the time, she was just getting into running but wasn't much of a swimmer or cyclist.

"I like to push myself to the limits and see what I'm capable of," she said. "Competing in an Ironman seemed like the most extreme kind of race, so I decided that's what I wanted to do."

140.6-mile north star

Mac didn't go full Ironman right away; instead, she set that as her north star and started with an Olympic distance triathlon.

A full Ironman is a long-distance triathlon that covers a total of 140.6 miles. It starts with a 2.4-mile swim, followed by a 112-mile bike ride and concludes with a 26.2-mile run, also known as a full marathon. An Olympic distance triathlon, also known as a standard distance triathlon, consists of just under a mile swim, a 24.85-mile bike ride, and finally, a 6.2-mile run.

"I signed up for the Olympic distance race as kind of a teaser, just to try it out," she said. "Come race day, a bunch of things went wrong."

"I was a terrible swimmer and was super nervous about the swim. We were in Lake Zurich in the Chicago area, and the water was really dark and cold. In the first ten minutes, I got lost on the course, and kayakers had to steer me back to where I was supposed to be swimming," she said. "I was one of the last people out of the lake, and there were barely any bikes left. I got on mine and felt pretty good, but then I was going downhill and got a flat tire. Luckily, someone stopped to help me, but it was definitely not going great."

But then came the run, and Mac said she found her stride.

"I saw my family at the finish line and just got this rush of pride like, 'Wow, I just did that,'" she said. "I was pretty amped up to do it again, push myself and see if I could do better."

The next year, Mac competed in her first full Ironman, and since then, she's completed eight full and seven half Ironman competitions. That's 1,779.48 miles covered — and that's just on race days.

The hardest race

Competing has taken Mac all over the

country and into all kinds of temperatures and terrains, from sweltering heat and humidity in Tennessee and Florida to drier lands in Arizona and Colorado.

"My hardest race was in St. George, Utah, in 2022," she said. "The course was super challenging with over 7,000 feet of elevation gain on the bike and 1,200 feet on the run. On top of that, the conditions that day were awful. It was unseasonably warm, and the winds were intense."

"Around mile 90 on the bike, you have this 1,000-foot climb. I remember coming down on the other side and having never seen so many people sitting on the side of the road, waiting to get picked up."

Mac said this race had a 20% Did Not Finish, or DNF, rate. The average DNF rate for a full Ironman race is 10–15%.

"After I got off the bike, I sat down and thought, 'How am I going to run?'" she said, referring to the marathon up next. "I finished; it took me 16 hours, but I finished, and that felt pretty great."

Small wins add up

Not all races are as challenging as St. George, but Mac said every Ironman is a challenge.

Like her work in fusion energy, Mac sees each race as a series of incremental wins.

"The joke is we're always 20 years away from creating a viable source of fusion energy, but we've been saying that for more than 20 years," she said. "Without an actual finish line in sight, it's the incremental improvements we've made that bring me a sense of accomplishment."

"And I use that mindset when I get ready for a race. 140.6 miles is intimidating to think about as one block, so I break it up, each chunk being its own little accomplishment that brings me closer to the finish line," she said. "When I'm swimming, I focus on getting to where the buoys change



THE SWIM — Sandia materials scientist Mary Alice Cusentino went from being a casual runner her freshman year of college to completing 17 triathlons in just as many years.
Photo by Craig Fritz

color, which means the swim is halfway done, and I'm that much closer to my favorite part, the bike. That's where I get to enjoy the scenery, let my mind wander, and sing whatever song I have stuck in my head. By the time I get to the run, I'm tired, so I divide 26.2 miles into smaller races: a half marathon, a 10K, a 5K. It's basically a collection of small wins I can celebrate along the way."


Doing hard things

Mac's Ironman journey has run parallel to her educational and professional one — from undergraduate school to earning her doctorate, starting at Sandia as a postdoc in 2018, and now being a principal member of the technical staff. Both paths have been undeniably challenging, but doing one hard thing alongside, yet separate from, the other has helped her with both.

"Knowing that I can do something really hard, like complete an Ironman, has given me the confidence and perseverance I've needed to push through other challenges in school and in my work pursuing fusion energy," she said.

Mac went from being a casual runner to having 17 triathlons under her belt.

"I skipped ahead," she said. "So now when I think about what's next, most races feel like less than I'm capable of."

Today Mac has her sights set on a new north star, a 50-mile ultramarathon, and something tells us this won't be her last. 

Geothermal

CONTINUED FROM PAGE 1

Geothermal Research department. Travis called the report “seminal,” saying he expects it to “kick-start a lot of things.”

The report’s nine chapters range from characterizing the state’s subsurface resources and potential applications to the regulatory, environmental and stakeholder factors that must be considered in the development of geothermal projects. “For geothermal developers, having one single document that includes all that up-to-date information is really helpful,” Travis said.

Barriers to entry

Despite the enthusiasm generated by the report, geothermal energy still faces multiple barriers to development in New Mexico and beyond. Geothermal systems traditionally require three things: hot rocks, water and permeability within the rock so the water can flow. According to Giorgia Bettin, manager of Sandia’s geothermal research group, it is a challenge to find resources that meet these conditions.

“Discovering and developing geothermal resources can be very expensive. Traditionally, half the cost of development has just been drilling,” said Giorgia, who was a contributing author on the report.

Geothermal wells are typically located in harder, more abrasive rock formations with higher temperatures than oil and gas wells. These conditions impede the use of many traditional oil and gas tools used for drilling, as well as for sensing the environment and monitoring operations. Having suitable tools could help to reduce the risk of failure, and ultimately, lower costs for geothermal development.

Further, sometimes the conditions are not quite right for a conventional geothermal system. Enhanced geothermal systems can fill this gap by injecting fluid into hot rocks to stimulate permeability and heat production, but more research is needed to optimize their performance.

Even with these challenges, New Mexico has several advantages over other states in pursuing geothermal, Travis said.

“New Mexico’s got great subsurface potential,” he said, adding that the state



PROTOTYPE PREPARATION — Melanie Schneider prepares the testbed for the evaluation and optimization of an innovative prototype that leverages the casing string as an acoustic waveguide to enable wireless power and communication for downhole sensors. **Photo by Craig Fritz**

ranks among the highest for possible power generation. Geologic features like the Rio Grande rift and Jemez Lineament — the most active volcanic feature in the Southwest — have resulted in hotter temperatures closer to the surface, providing abundant subsurface heat across the entire state.

Travis also noted that New Mexico has a strong base of technical expertise developed through the oil and gas industry. Additionally, the state is home to multiple leaders in geothermal research and development, including Sandia.

Building on a rich history

Sandia’s [geothermal research group](#) has been actively working to remove these barriers to geothermal development since the 1970s.

“We are the longest continuously operating geothermal program in the whole national lab complex,” Giorgia said. “Many national security applications require drilling expertise, so we leverage a lot of those investments for our geothermal work and vice versa.”

Notably, Sandia scientists helped advance the diamond-based drill bits instrumental to the U.S. shale revolution. That research originally began in support of geothermal systems and is now being used

to [inform geothermal well drilling](#) to reduce costs.

Giorgia’s team also develops instrumentation that can withstand the harsh conditions associated with drilling for geothermal resources. “A lot of the work we do is changing the oil and gas tools to make them more robust,” Giorgia said.

These sensors can be applied alongside experimental work and modeling and simulation to understand, predict and control the creation of engineered reservoirs for enhanced geothermal systems.


“Sandia has done a lot of work in understanding fracture development and fracture mechanics, particularly in geothermal environments,” Travis said. “We’ve done [studies using novel techniques](#) to try to understand how to best create fractures and then evaluating the fractures that you do create. The insights gained from this work are facilitating enhanced geothermal systems projects not just in New Mexico but across the country.”

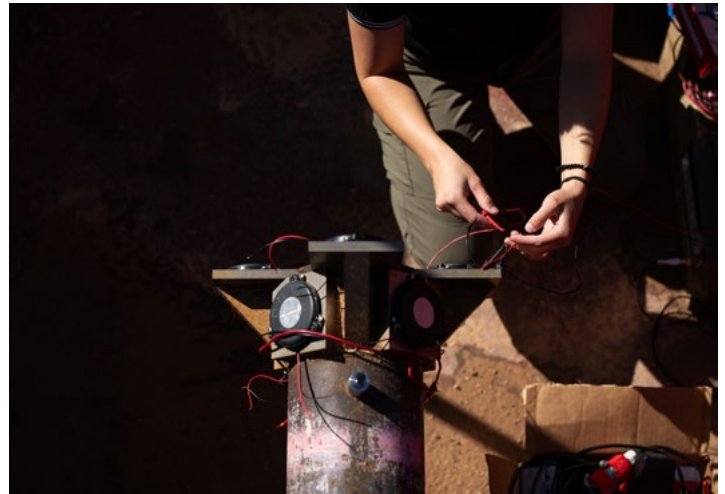
Partnering for impact

The geothermal research team prides itself on partnering with other national laboratories, government agencies, universities and industry to ensure their innovations have real world impact.

Sandia, for example, worked with the geothermal equipment, instrumentation and testing company Thermochem to build a prototype high-temperature, high-pressure sensor for downhole electrochemical assessment. This tool fills a gap in the geothermal industry by enabling the measurement of downhole chemistry to better understand the lifespan of a well.

In another lifespan-related project, Sandia is leading a working group of national laboratories to model and validate the economics of technologies across the entire well life cycle. “People tend to look at just the cost of drilling and completing wells. We’re trying to look holistically to see the risks and costs of new technologies from planning all the way to decommissioning,” Giorgia said.

Sandia has three current geothermal research projects based in New Mexico, and the team anticipates that number will continue to increase. “There’s a big push in the U.S. right now to develop geothermal and the report really brought some excitement and visibility to New Mexico at the right time,” she said. 



TESTBED SENSORS — Mechanical engineer Melanie Schneider attaches sensors in a testbed where a 1,000-foot bore hole is laid horizontally to allow for work on both ends.
Photo by Craig Fritz

Genesis Mission

CONTINUED FROM PAGE 1

American science and innovation through the power of artificial intelligence, strengthening the nation’s technological leadership and global competitiveness.

The ambitious mission will harness the current AI and advanced computing revolution to double the productivity and impact of American science and engineering within a decade. It will deliver decisive breakthroughs to secure American energy dominance, accelerate scientific discovery and strengthen national security.

“Throughout history, from the Manhattan Project to the Apollo mission, our nation’s brightest minds and industries have answered the call when their nation needed them,” said U.S. Secretary of Energy Chris Wright. “Today, the United States is calling on them once again. Under President Trump’s leadership, the Genesis Mission will unleash the full power of our national laboratories, supercomputers and data resources to ensure that America is the global leader in artificial intelligence and to usher in a new golden era of American discovery.”

The announcement builds on President Trump’s Executive Order [Removing Barriers to American Leadership In](#)

[Artificial Intelligence](#) and advances his [America’s AI Action Plan](#) released earlier this year — a directive to remove barriers to innovation, reduce dependence on foreign adversaries and unleash the full strength of America’s scientific enterprise.


Secretary Wright has designated Under Secretary for Science Darío Gil to lead the initiative. The Genesis Mission will mobilize the DOE’s 17 national laboratories, industry and academia to build an integrated discovery platform.

The platform will connect the world’s best supercomputers, AI systems and next-generation quantum systems with the most advanced scientific instruments in the nation. Once complete, the platform will be the world’s most complex and powerful scientific instrument ever built. It will draw on the expertise of roughly 40,000 DOE scientists, engineers, and technical staff, alongside private sector innovators, to ensure that the United States leads and builds the technologies that will define the future.

The Genesis Mission will focus on addressing three key challenges of national importance:



AI REVOLUTION — President Trump issued an Executive Order to launch the Genesis Mission, aimed at harnessing AI and advanced computing to double the productivity and impact of American science and engineering within a decade.
Image courtesy of the DOE

- **American energy dominance:** The Genesis Mission will accelerate advanced nuclear, fusion and grid modernization using AI to provide affordable, reliable and secure energy for Americans.
- **Advancing discovery science:** Through DOE’s investment and collaboration with industry, America is building the quantum ecosystem that will power discoveries — and industries — for decades to come.
- **Ensuring national security:** DOE will create advanced AI technologies for national security missions, deploy systems to ensure the safety and reliability of the U.S. nuclear stockpile, and accelerate the development of defense-ready materials. 

Honoring veterans at Sandia



TOKENS OF APPRECIATION — Doug Kothe, executive champion of Sandia's Military Support Committee, presents Labs employees who have served in the U.S. military with commemorative coins in recognition of their past and ongoing service to the nation. Approximately 800 U.S. military veterans are part of Sandia's workforce. "They're the best of what our country has to offer," Doug said.

Photo by Craig Fritz



A DAY TO REFLECT — Doug Kothe, associate Labs director for Advanced Science and Technology, chief research officer and Military Support Committee executive champion, takes a moment during his keynote talk while recalling playing taps at his father's funeral. "Veterans walk among us and work beside us every day. You carry a common bond in the belief of freedom and the honor of duty to country with a keen sense of sacrifice necessary to live in this great nation," Doug said. "Our veterans have shown and continue to exhibit and live Sandia's call to render exceptional service in the national interest. May we all follow their lead."

Photo by Craig Fritz



SALUTING SANDIA'S VETERANS — Eric Busse, center, and fellow Air Force veterans stand, some singing, the branch's official song, "The U.S. Air Force," during Sandia's Veterans Day ceremony Tuesday Nov. 11, at Steve Schiff Auditorium. The Sandia Singers choral group performed the national anthem and the service songs of each U.S. military branch. "As we reflect today, I hope we all carry that spirit of Veterans Day beyond this ceremony. Let's strive to embody the same integrity, courage and selflessness that our veterans have shown. To all the veterans with us today, and to those watching from afar, thank you for your service, your leadership and your example. You make Sandia and our nation stronger," Labs Director Laura McGill said in her opening remarks.

Photo by Craig Fritz

Kinetic careers

Sandia engineers scoop up three national awards

By **Luke Frank**

Science can be as dynamic as the researchers who explore it. The Society of Asian Scientists and Engineers is recognizing three Sandia engineers who pushed beyond the boundaries of linear research to expand their knowledge and impact across multiple fields.

Mechanical engineer Anton Sumali earned an SASE Career Achievement Award, chemist and nanoengineer Bishnu Khanal received an SASE Professional Achievement Award and transportation systems engineer Esther Woon Lyn John was honored with an SASE Promising Professional Achievement Award.

Each has their own journey but with striking similarities — constantly moving forward, continually learning, pivoting to

new endeavors and applying past experience to master fresh challenges along the way.

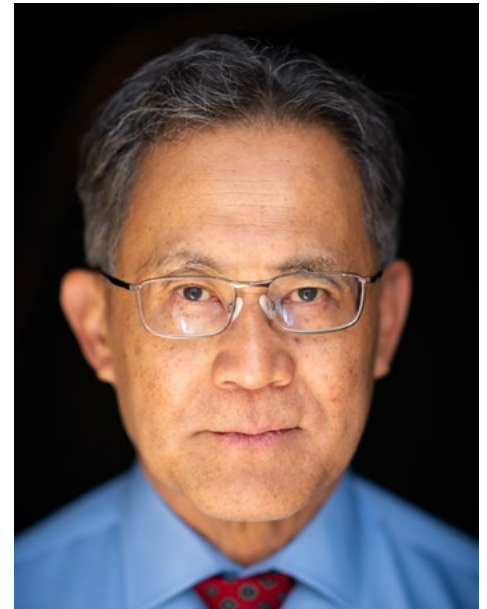
Anton Sumali — SASE Career Achievement Award

Mechanical Engineer, Manager, Research and Development Science and Engineering, National Security Programs, Autonomous Sensing and Control

Anton Sumali began his career in 1987 as a control systems engineer in the petroleum industry in Southeast Asia after earning a Bachelor of Science degree in mechanical engineering from Indonesia's Bandung Institute of Technology. "It was a thriving business with a lot of money, but I found it uninspiring," Anton said.

After a few years, he realized he enjoyed the engineering and learning aspects but not the business side, so he returned to school, earning advanced degrees in mechanical engineering from Virginia Tech.

"It took me too long to earn my master's and doctorate. As intrigued as I



CAREER KUDOS — Sandia mechanical engineer and manager Anton Sumali receives an SASE Career Achievement Award for his 20-plus years of pioneering work in advanced autonomous flight and space systems, among other professional accomplishments.

Photo by Craig Fritz

was with engineering, I learned something about myself," he said. "I loved school — learning, exploring and exchanging ideas. I was drawn to academia and wanted to stay." And so he did, landing an assistant professor position at Purdue University.

Then came the Sept. 11 attacks, which affected people he knew, including his Ph.D. student and her family. Its impact on Anton was profound. "At that time, I happened to sit in on a Sandia Labs student recruiting presentation and was compelled by the national security work being done here," he said.

He took a yearlong leave from Purdue and worked in structural dynamics at the Labs. He was hooked and, in 2002, joined Sandia full time working on micro electro-mechanical systems. "I enjoyed it so much, partly because it was an extension of my Ph.D. work," he said.

Over the next decade, his skills as an engineer and manager synthesized with his passion for learning, teaching and mentoring. That made him a natural fit to establish and lead the **AutonomyNM Intern Institute**, a Sandia innovation hub supporting advanced flight and space

Sandia National Laboratories

holiday GIVING drive

NOVEMBER 24 - DECEMBER 17

tiny.sandia.gov/holidaygiftdrive

systems focused on sensing, navigation, guidance and control for hypersonic vehicles.

In addition to making breakthroughs in artificial intelligence and reinforcement learning, Anton helped energize the institute, which brings in promising university students each summer. “That’s exciting for me,” he said. “We develop new talent from top universities to actually apply AI to national security.”

Guidance for up-and-comers:

“Learning is not a task or project or accomplishment — it’s a state of mind that enriches your life. Enjoy learning everything you can but maintain your focus on improving your career.”



CAREER KUDOS — Sandia chemist and manager Bishnu Khanal receives an SASE Professional Achievement Award for his 10-plus years of groundbreaking work at Microelectronics Industries and, more recently, at Sandia’s Microsystems, Engineering, Science and Applications divisions, the Materials Mechanics and Tribology department and the High-Reliability Innovative Technologies and Surveillance department.

Photo by Craig Fritz

Bishnu Khanal — SASE Professional Achievement Award

Chemist, Manager, Research and Development Science and Engineering, Nuclear Deterrence Components and Production, High-Reliability Innovative Technology and Surveillance

Bishnu Khanal grew up in a small village in western Nepal, where he was encouraged

to focus on school — a focus that sparked a lifelong interest in science, math and problem-solving.

After earning his undergraduate and master’s degrees in chemistry in Nepal, Bishnu stepped into academia as a graduate chemistry lecturer at various colleges in Kathmandu. “I didn’t know what came after earning my master’s, but a Ph.D. seemed like the next step,” he said.

In 2005, he was accepted to Rice University in Houston to pursue a doctorate in chemistry and nanotechnology. There, he excelled in nanomaterials and nanotechnology research and earned several national awards and fellowships.

Bishnu joined Los Alamos National Laboratory in 2009 for postdoctoral research in semiconductor quantum dots and rods. He worked briefly as a research and development engineer at Micron Technology before joining Intel in 2011 as a research and development process engineer. There, he led advanced process development and technology transfers.

In 2018, he joined Sandia to lead advanced optical photolithography R&D activities at the Microsystems, Engineering, Science and Applications complex, or MESA. He quickly became an innovator in patterning technologies, including complementary metal-oxide semiconductors and quantum computing.

In 2022, Bishnu was selected as R&D manager to lead the Materials Mechanics and Tribology department. Today, he leads a diverse team focusing on commercial electronics components and their surveillance.

His dynamic career often summons knowledge from previous jobs, whether it’s product development, quality assurance or management styles. “So much of my previous knowledge is transferable to present day problem-solving,” he said. “It seems that almost every skill set I have acquired can be applied to a new challenge.”

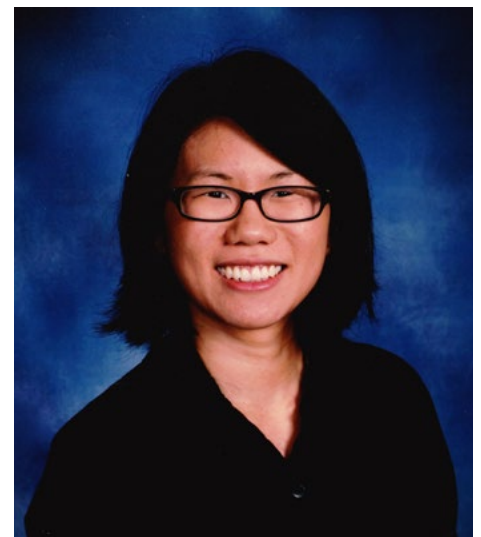
He’s also energized by leading others. “There’s something rewarding in stepping outside of problem-solving on my own and watching the entire team solve problems,” he said.

Outside work, Bishnu is establishing a

trust to support underprivileged students in his home village in Nepal. “I want every child to know the possibilities that exist beyond the world they live in,” he said. “Some kids just need that little extra support, like I did. Who knows what they can grow up to accomplish?”

Guidance for up-and-comers:

“Work hard, stay focused and be consistent in everything you do. It doesn’t matter how big or small the task is. Do it right, do it well and do it with enthusiasm. Make it successful, and people will take notice. Then bigger things will come your way.”



CAREER KUDOS — Sandia computer engineer Esther Woon Lyn John receives an SASE Promising Professional Achievement Award for her recent innovative modeling and simulation feats advancing national security programs related to anomaly threat mapping and nuclear deterrence programs.

Photo courtesy of Esther John

Esther Woon Lyn John — SASE Promising Professional Achievement Award

Computer Engineer, Research and Development Science and Engineering, Data Science, National Security Programs, Complex Systems Risk and Resilience

In just 10 years, Esther John has held influential positions at Cornell University, the World Bank and now Sandia Labs. At Sandia, she has applied her skills in data science and analytics to create actionable national security tools, including anomaly threat mapping for body scanners and logistics models for nuclear deterrence programs.

Her academic path began in math and continued into operations research and programming focusing on modeling and simulation, culminating in a doctorate in transportation systems engineering with an emphasis in transport economics.

"I liked math and the logic and reasoning it presented," Esther said. "But I didn't know anything about computer science until undergrad."

In her second year of undergrad, a compulsory computer course led to a passion for programming, eventually shaping her focus on modeling and simulation.

During her doctoral program, she became deeply engaged in systems engineering modeling. "The math, logic and reasoning kept presenting themselves in various forms, like behavioral economics and transportation," she said.

Professionally, Esther's journey has mirrored that interdisciplinary approach. Despite the lack of obvious connections, none of her professional pursuits are

happenstance. "My career path has evolved through my experiences and networking," Esther said. After a colleague from Cornell joined the World Bank, she was brought on as a transportation engineering consultant focusing on port infrastructure — experience that now ties directly to her global supply chain and security research at Sandia.

At the Labs, Esther devises simulation-based logistics models and data-driven analytics for the Transportation Security Administration, Customs and Border Protection, NNSA and DOE. "There are so many different projects to work on, and we need a different approach for every single one of them," she said. The breadth of her studies and prior work fosters unique approaches to current challenges.


"I find modeling and simulation — translating real-world problems into a computer programs — enable us to explore different scenarios, develop solutions and present them to the client," she said. "That exploration is really interesting for me." She

applies these skills to a wide range of topics: transportation research, energy policy, community detection algorithms, rail delivery and more.

Esther is also a prolific mentor to local middle and high school students, as well as Sandia interns and staff. "I've always enjoyed mentoring," she said. "It's the one thing from academia that I really miss. There's more than one way to learn, and I learn so much from people with whom I interact."

Guidance for up-and-comers:

"Aim high and aim wide. See what's out there, what kind of work you can do and what you might enjoy. Take every experience as it comes and don't lock into something just because someone tells you to. Explore!"

Each SASE award recipient must be actively working in an IT, engineering or scientific field; have made significant, measurable contributions; and demonstrate consistent commitment to the growth and advancement of their discipline. 



Leaders give back during fall forum

HANDS-ON LEADERSHIP — Directors Sarah Allendorf, left, and Matthew Burger sort and pack-age onions at Roadrunner Food Bank, one of five volunteer projects during the annual Fall Leadership Forum. **Photo by Amanda Armenta**



SORT AND STACK — Director Heidi Ammerlahn organizes donations at Albuquerque Public Schools Community Clothing Bank and School Supply Barn during the Fall Leadership Forum volunteer event.

Photo by Craig Fritz

SERVING TOGETHER — Sandia managers and directors organize donations at Albuquerque Public Schools Community Clothing Bank and School Supply Barn during the Fall Leadership Forum.

Photo by Craig Fritz



CLEAN SWEEP — Senior counsel Mike Pratt cleans up at The Storehouse New Mexico Food Pantry during the Fall Leadership Forum volunteer event on Nov. 18.

Photo by Craig Fritz

Staff step up for Sandia Serves day



STRONGER TOGETHER — Project manager Josie Gallegos, left, and financial specialist Denise Johnson pull up a row cover during a Seed2Need event in Corrales, New Mexico, on Nov. 1. Nearly 45 volunteers spent the morning winterizing gardens. Seed2Need gardens grow about 1.5 acres of vegetables that are donated to Roadrunner Food Bank and distributed throughout New Mexico.

Photo by Craig Fritz



CLEARED OUT — From left, Larry Johnson, Dan Bolinteanu and intern Mayah Drayton gather yard trash in a container. A group of 15 people volunteered with Greater Albuquerque Habitat for Humanity to repair a neighbor's home.

Photo by Natalie Sommer



BOTTOM OF THE BOX — Computer scientist Samuel Englert, center, hands cucumbers to cybersecurity researcher Peter Clark during a sorting and packaging project at Roadrunner Food Bank on Nov. 1.

Photo by Katherine Beherec



COUNTLESS CUKES — Electrical engineer Michael Harcourt pours previously sorted cucumbers into a container on Nov. 1, before Roadrunner Food Bank distributes them to people across New Mexico.

Photo by Katherine Beherec



MATERIALS PREP — Lisa Cowley, right, holds a piece of lumber steady while Larry Johnson cuts the right size for a backyard ramp. Larry and Lisa volunteered through Sandia with Greater Albuquerque Habitat for Humanity’s Habitat Repair Program. **Photo by Natalie Sommer**

Mileposts



Rekha Rao 35



Julie Ludwig 30



Kathryn Hanseimann 25



Renee Holland 25



Delvin Wood 25



Mario Chavez 20



Doug Fried 20



Kari Bachmann 15



Noel Duran 15



Jeffrey Hunter 15



Art Machtinger 15



Benn Tannenbaum 15