

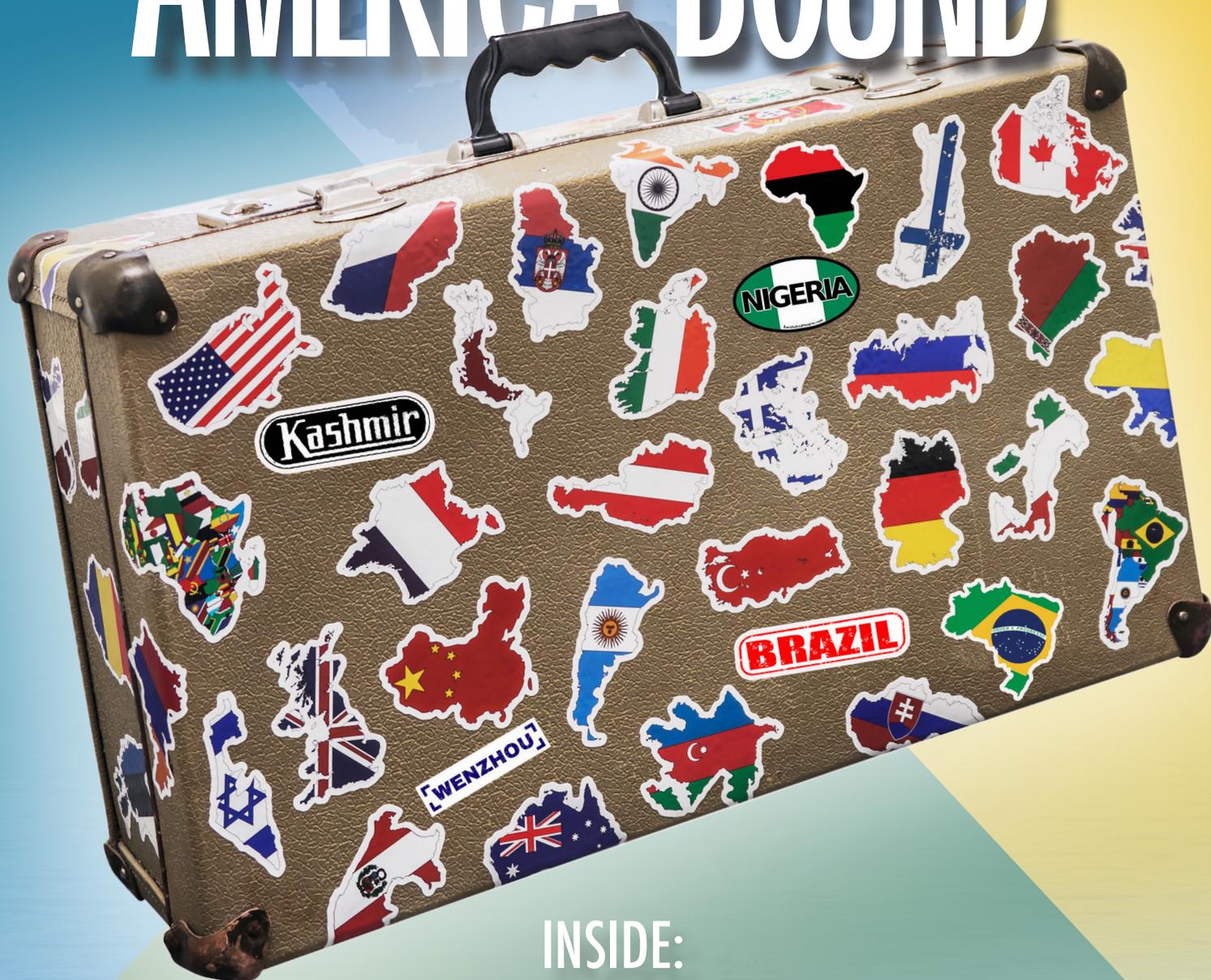
SpotLight

THE PEOPLE
WHO DRIVE
OUR SCIENCE
& TECHNOLOGY

MAY 2019

LAWRENCE LIVERMORE NATIONAL LABORATORY

AMERICA BOUND



INSIDE:
CHAMPIONS OF COMMUNICATION

WELCOME TO SPOTLIGHT

*W*elcome to the latest edition of *Spotlight*, a look at the people who make up Lawrence Livermore National Laboratory.

In this issue, we look at employees who came from foreign countries to work at a premier scientific institution such as Lawrence Livermore National Laboratory. Many of them first stepped foot in the United States as college students, but stayed and learned to live on their own in an alien land they only knew from television or stories they heard from family and friends already in the U.S.

Another profile takes a look at Lab Energy Program chief scientist Roger Aines, who along with his wife Amy, share why they decided to write a book about communicating science. Their book, “Championing Science: Communicating Your Ideas to Decision Makers,” published in January, already sold out once on Amazon.

We hope you enjoy this issue of *Spotlight*. We’d also like to hear from you. Send us your thoughts and suggestions, whether it’s what you like — or even if you don’t — about this magazine, or if there is something you would like to see in coming editions. You can reach us at pao@llnl.gov



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COMMUNICATING

Roger and Amy Aines spent nights and weekends at home for two years writing, editing, revising and publishing their book, “Championing Science: Communicating Your Ideas to Decision Makers”

LIKE A CHAMP



By Anne M. Stark

You can't miss Roger Aines when he enters a room. With his quaff of white hair and notable mustache, it's not just his look. He commands the room with his easy-going, confident personality.

A personality that is so passionate about the planet that he thrives on explaining it to people — in plain English.

After 34 years at Lawrence Livermore National Laboratory, Aines, a geochemist who heads the Director's Carbon Initiative, has learned a thing or two about communicating his ideas to key decision-makers to achieve his goals.

But he also wants to inspire a younger generation to do the same thing. Two years ago, he and his wife Amy, a communications consultant, decided “why not write a book?” That book, “Championing Science: Communicating Your Ideas to Decision-Makers,” was published earlier this year by UC Press.

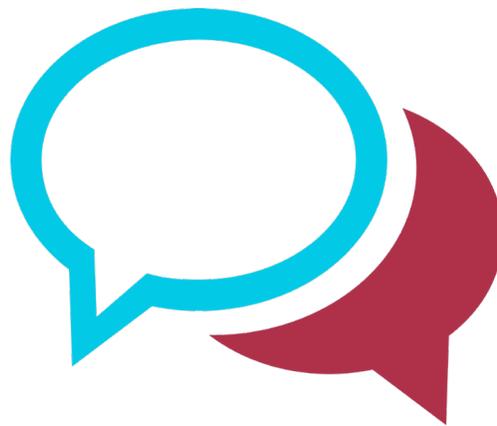
“I've worked with scientists doing presentations for years and realized there's a set of things that most communicators could do better. I thought it might be useful to write them down.”

– Roger Aines

They were inspired by the belief that breakthroughs in science often happen by building on small ideas. Their goal is to help scientists make sure their good ideas get heard and gain support.

“When he proposed this project, I realized it was the perfect marriage of our careers. That was long before I said yes to getting married. Our book is as much about how to communicate as it is about building relationships and bonds of trust. ”

—Amy Aines



The book offers a practical guide to optimizing all aspects of communication. Its aim is specific: Use proven methods to motivate decision-makers and colleagues to support, fund and implement work. Their approach hinges on a concept the authors refer to as being “self-aware and self-correcting.” They believe that a keen awareness of one’s personal style and an openness to external feedback can help a scientist modify rough spots and smooth out his or her communication, with more efficient transfer of information being the welcomed byproduct.

“I’ve worked with scientists doing presentations for years and realized there’s a set of things that most communicators could do better,” Roger, 62, said. “I thought it might be useful to write them down.” When he suggested they write a book together, Amy was intrigued by the idea.

“When he proposed this project, I realized it was the perfect marriage of our careers,” Amy said. “That was long before I said yes to getting married. Our book is as much about how to communicate as it is about building relationships and



In their off time, Roger and Amy Aines like to spend time with their dog Rylee, who constantly entertains them.

bonds of trust. We have tremendous respect for each other's expertise and thoroughly enjoyed the collaboration."

Nights and weekends for the next two years were never the same. Writing, editing, revising and publishing was a new experience for the pair.

The book has sold out once on Amazon and Roger and Amy have been asked to give presentations to companies and government agencies on how to better communicate science. They even gave a presentation at the Laboratory in early February, just a month after their book came out.

A life of science

Roger's road to science came early in life. Growing up on a farm in Ohio, he said he always was engaged in nature. "Understanding how the world worked drew me in, and I'm a major nerd," he said, chuckling.

At the Lab, Roger is the Energy Program chief scientist, which conducts government and private sector research in clean energy technology. He holds a bachelor's degree in chemistry from Carleton College, and a Ph.D. in geochemistry from the California Institute of Technology. He created the Carbon Initiative at LLNL to understand, develop and implement technologies for the removal of carbon dioxide from the atmosphere, so-called negative emissions technologies. His LLNL career has ranged from working on nuclear waste disposal, environmental remediation, application of stochastic methods to inversion and data fusion, management of carbon emissions including separation technology and monitoring and verification methods for sequestration.

He's passionate about where the planet is heading. The Carbon Initiative evaluates the role of negative emissions technologies to address the portions of carbon emissions that cannot be controlled at their source. These include carbon management in industry and biofuel production, mineral carbonation,



methods to increase soil carbon storage and new approaches to efficiently utilize carbon dioxide and biologic carbon for long-lived products.

"I love what I do, and I think I have an ability to make a lot of impact," he said.

His career in carbon management spans 20 years, beginning with the original GeoSeq program that began the DOE efforts in underground carbon storage. He has worked in storage and capture of carbon dioxide and led LLNL's efforts to manage pressure in underground storage by extracting and treating brine. Having decided that capturing CO₂ was the real limitation to application of carbon capture and sequestration, he began a program to dramatically increase the rate of absorption in capture systems through synthetic catalysts mimicking carbonic anhydrase, and more recently, improving the surface area of solvents by encapsulating them in polymers that are transparent to CO₂ flux.

The garden is a sanctum

Roger comes from a long line of horticulturists. His grandfather earned a Ph.D. in horticulture and specialized in mushroom cultivation. He went on to import plants to the U.S., including the Deodar cedar tree, and raised peonies. In fact, he was the only East Coast grower to cultivate peonies. "All the women in the family have a peony named after them," Roger said. But Roger's favorite flower is the iris, since it is too warm in Livermore for peonies.

Roger combined that love of horticulture with his passion for conserving water and saving the planet when he recently landscaped both his front- and backyards with drought-tolerant native plants.

"When we bought this house, it was beautifully landscaped," Roger said. "But I realized one night when I was at In 'N' Out burger that they had all the same plants. Amy and I wanted something that reflected the beauty of our local hills and was in keeping with our climate."

With a large deck, a recirculating pond and creek, corten steel vegetable planting beds and fruit trees, Roger finds solace in his garden "The goal of having a garden is not to have to garden. It's to just enjoy being in it."

As for retirement, he has no plans for it any time soon because he's bringing global coalitions to bear on the daunting climate issues, and he is especially inspired by creative solutions from the young scientists he works with at the Lab. "I always say I put beans on the table, and they bring back giants."

In a recent off-site presentation to students, business people and employees, Roger Aines discusses the Carbon Initiative, a project to understand, develop and implement technologies for the removal of carbon dioxide from the atmosphere, so-called negative emissions technologies.



Born and raised in Brazil, Ana Paula de Oliveira Sales came to the United States to attend college in upstate New York. She met and married her husband, Todd Wasson, while in graduate school at Duke University. After relocating to California, the couple welcomed their daughter, Julia, in 2015.

As one of the premier scientific institutions in the country, Lawrence Livermore National Laboratory attracts some of the most brilliant minds from all over the world. Some have traveled farther than others. Of the Lab's nearly 7,000 employees, fewer than 300 are citizens of foreign countries.

Many of the Lab's foreign nationals first stepped foot in the United States as college students, chasing their dreams of getting an elite education in America, seeking a fresh start, establishing their independence and learning to live on their own in an alien land they only knew from television or the stories they heard from family or friends already living in the U.S.

Through it all, they've struggled, they've strived and they've stayed. These are some of their stories:



COMING TO AMERICA

Foreign-born employees turn their trials, tribulations into triumphs

By Jeremy Thomas

ANA PAULA DE OLIVEIRA SALES

The best of both worlds



On Brazil's northeastern coast, a land of oil, sand dunes and sun-drenched beaches, lies the tropical city of Natal. In her youth, Ana Paula de Oliveira Sales spent a lot of time in the clear, warm waters swimming, windsurfing and sailing. She had a large extended family and many cousins; her grandfather built an apartment building, giving each of his children a floor so they could live together.

Sales always admired the United States. Her parents were engineering professors at a local university and had earned their master's degrees in the U.S. Sales visited the States for the first time as a child, meeting the Texan family that hosted her father when he was a high school exchange student. It was the pre-internet days, and the host family had a lot of misconceptions about Brazil.

"People were asking us if we had cars," Sales said, laughing. "They thought it was the jungle, they were flabbergasted that our lives were not that much different than theirs. It was hilarious."

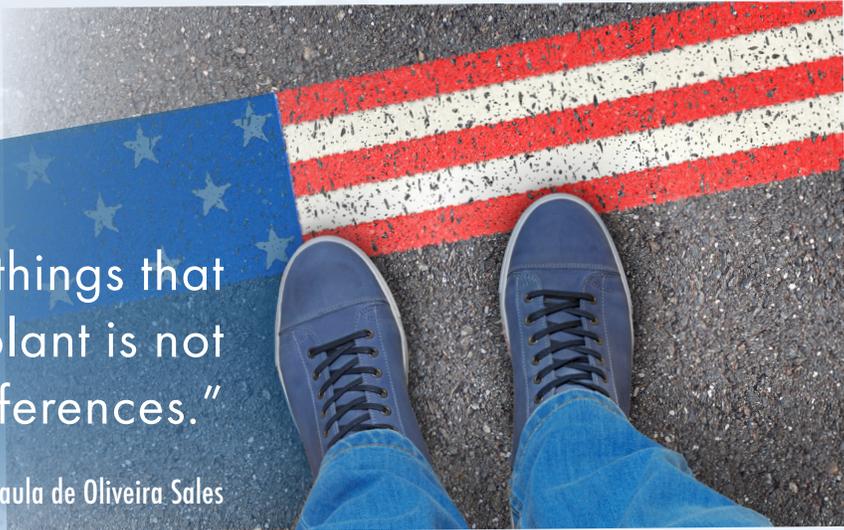
Sales studied biology in college, and in her sophomore year she applied to the Institute for International Education, a nonprofit that offered scholarships to exchange students who wanted to be educated in the U.S.

Sales thought it would be an exciting adventure. She was accepted into Bard College, a small liberal arts school in upstate New York. She moved there in 2001.

"It was really hard for me to come to terms with leaving [Brazil]," Sales said. "It's not a patriotism thing, but more of a family thing. I had this huge support system, many friends and the idea of removing myself from that was, and still is, a painful idea. But I've come to terms with it. When I had the chance to come here for school, I didn't think twice."

Her Brazilian university wouldn't accept the college credits she earned from Bard, so rather than go back home after a year as she had originally planned, Sales decided to stay and finish her degree at Bard. Life at Bard, she said, was a "complete culture shock."

"The part of Brazil where I'm from wasn't cosmopolitan," Sales said. "It's mostly Brazilians who are from there; it's very homogenous. Whereas in college



“To this day, one of the things that is hardest as a transplant is not getting pop culture references.”

– Ana Paula de Oliveira Sales

I met people from all corners of the world, and I loved it. It’s something I would have never had if I stayed in Brazil, and I think it made me more open-minded.”

Sales was struck by the structure and formality of American culture. Brazilians tend to be more laid back and spontaneous, she said, whereas in the U.S., “everything has to be planned and on a schedule.” She also was surprised by the Americans’ sense of personal space and individualism. But the toughest challenge, she said, was familiarizing herself with cultural idiosyncrasies.

“To this day, one of the things that is hardest as a transplant is not getting [pop culture] references,” she said. “You don’t realize how much your teenage years influence the rest of your life in terms of what you find funny or compelling. I had a completely different perspective than Americans, and sometimes it was hard to relate to them.”

Following her graduation from Bard, Sales applied to graduate school at Duke University in North Carolina. While attending Duke, she met and married her husband, Todd Wasson, an American. He landed a job at LLNL while she finished up her Ph.D. Sales followed Wasson to the Lab soon afterward and relocated to California. They welcomed their daughter Julia in 2015.

“The whole time I was dead-set on going back to Brazil,” Sales said. “I told my husband we’d move to Brazil after grad school, but then he finished before I did and he didn’t want to give up his job at the Lab, so I said ‘fine, I’ll go to California.’ So, I came here and really fell in love with it.”

Once she settled in the East Bay, Sales enjoyed the relaxed, small-town vibe of Livermore, the mix of nature and urban spaces in the broader Bay Area, the wineries, the proximity

to Silicon Valley and nearby world-class universities. Livermore’s wineries and green rolling hills reminded Sales of a resort town.

“You can drive 40 minutes to San Francisco and have access to the opera and the ballet and first-class musicians and comedians,” she said. “There is all this culture, but then you can drive a few hours to Lake Tahoe, which is the most beautiful lake I’ve ever seen in my life. It’s almost unreal. Geographically, I find this place amazing. It’s a unique and rich place in a lot of ways. I’m happy to raise my child here.”

She misses her family in Brazil, but stays connected with them through WhatsApp, a popular instant messaging service. She visits about once a year to catch up with family and friends, and they often visit her in the States. The gatherings are always a “big celebration,” she said, but she is keenly aware Brazil is experiencing major changes and challenges with violence while she’s away. Sales said she wants her daughter Julia to experience Brazil over a longer period, perhaps in a few years, to allow her to learn about her roots and form bonds with her extended family.

“Most [expatriates] have a bittersweet feeling about being gone,” Sales said. “For me, there’s always a fair amount of guilt for denying my daughter the childhood I had with a large family. Here she has no extended family, but luckily, we have a tight group of friends, which has become our ‘California family.’ But on the other hand, she lives in a much safer place and has access to many more opportunities than she would’ve had in Brazil, so it’s a give and take. It’s important to me for her to appreciate her Brazilian heritage and be close to her extended family. I’m very strict about speaking Portuguese to her, and I’m very proud that she is completely bilingual. I try to do my best to give her the best of both worlds.”



“Geographically, I find this place amazing. It’s a unique and rich place in a lot of ways. I’m happy to raise my child here.”

- Ana Paula de Oliveira Sales

Now settled in the East Bay, Sales enjoys Livermore’s relaxed, small-town vibe, the greater Bay Area’s mix of nature and urban spaces, the wineries, proximity to Silicon Valley and nearby world-class universities.



SAM ADE JACOBS

The land of promise

While growing up in Nigeria, Sam Ade Jacobs attended a Catholic high school, where he was taught by British and Irish missionaries. Seeking to further his education in “the land of opportunity,” he first stepped foot in America to attend Texas A&M University. In Texas, he married his wife Wura, who also is a Nigerian citizen and Ph.D. degree holder. The couple have two children.

The most populous country in Africa, Nigeria is divided among tribal lines, and between the predominately Christian south and majority Muslim north. Growing up in a household of five children, Sam Ade Jacobs spent his early years in southwest Nigeria with members of his Yoruba tribe. He learned to speak three languages, including English and his native tongue.

When Jacobs was 11, he moved north to Minna, the cosmopolitan capital of the Niger State, where he was exposed to many different tribes and dialects. There, he attended an academically demanding Catholic school — the principal was an Irish priest, and every summer Irish and British missionaries would come to teach. Jacobs’ father passed away when he was 12, and Jacobs was raised by his

mother. Most of his early life was devoted to studying.

“We had a good middle-class life,” Jacobs recalled. “We were able to go to school, we had food to eat, we had clothes to wear. We aspired to be something. Typically, in Nigeria your parents prepare for your education, it’s your license to freedom. So, my growing up was focused on schoolwork, for good or bad. But it was mostly good. We didn’t have much of a life, but that paid off.”

After high school, Jacobs returned south to attend Ladoke-Akintola University, where he began a five-year program in electrical engineering. In his fourth year, he went off to intern at a startup company, where he built microprocessor boards and programmed devices. As his interest in computer software grew, so did his dream to come to the United States. He taught computer



science at a high school in northern Nigeria, part of a one-year mandatory national youth service. He later earned his master's degree at Covenant University in southern Nigeria.

In Africa, Jacobs explained, it's common for extended family to care for a family member's needs. It's also common for students to study abroad. When Jacobs was a freshman, his uncle, a professor of medicine with degrees from universities in the United Kingdom, offered to pay for his schooling, including a Ph.D. program, and the education had to be done overseas. Jacobs narrowed his choices down to the U.S. and the U.K., because he could speak English and had family in both countries.

"We grew up being taught that the U.S. is the land of opportunity and the land of freedom, that sort of stuff," Jacobs said. "That's what we would talk about when we would chat amongst ourselves. And of course, the U.S. also has a lot of educational programs in many parts of the world, including Africa, so you grew up thinking of America as the land of promise."

Jacobs picked Texas A&M in College Station, Texas, where he had landed a graduate assistantship. He also had a best friend at Texas Tech and family members in Dallas. When he arrived, it was the first time he had ever stepped foot in America. The weather was unseasonably cold, and school was out for winter break, so Jacobs decided to explore.

"It's common in Nigeria to see people walking on the street," Jacobs said. "I decided I would walk down to Walmart to get myself a warm winter jacket. Part of the culture shock was that nobody was walking in the street and I was like, 'this is weird.'"

"I immediately got myself a taxi. I had no credit card, so I had to carry a lot of cash with me. But the good thing was people were really helpful. The first apartment I rented [my landlord] went out of her way to help me do grocery shopping for the first time. This was somebody I had never met. The kindness and hospitality were nice."

Jacobs said college helped hasten his assimilation. The first person he met at Texas A&M was Guatemalan, and Jacobs realized he and the other international students were in the same boat. They were given a one-week initiation into American culture. He began associating with classmates of varied backgrounds and visited the homes of his new American friends to watch football games.

"We know so much about America in Nigeria, but unfortunately I never knew anything about American football," Jacobs said. "Because we grew up watching American movies, you have an idea [about the culture], but getting used to it happens over time — and it's probably still happening. Things like what makes Americans laugh, the jokes, now I get that, but it took time."

Jacobs didn't have access to Nigerian food (the closest thing was Chinese takeout) until years later when he got his own car and could drive to Houston to shop at Nigerian grocery stores. Phone calls home were expensive. There were language quirks, too —

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— Sam Ade Jacobs





After relocating to the Bay Area to take a job as a computer scientist at Lawrence Livermore National Laboratory, Jacobs found there were few Nigerians in the community. However, he considers himself lucky in his transition to American culture because he relates well with all kinds of people. He plans on starting the American citizenship process soon.

he wrote English in the British fashion and had to get used to American spellings, vocabulary and to writing less formally. He found the American obsession with individualism “a little strange,” but grew to accept it.

“Most of African culture is a communal society — you know your cousins, your uncles and your aunts. You call everyone uncle, even if they’re not really your uncle, as long as they’re older than you,” Jacobs said. “That has its advantages and disadvantages, because people will get into your business too much. I think Nigerians in America have come to live with [individualism] as the American way. You are responsible for your own decisions. It imbues independence in you to be able to fight it out, to go through the rough times with gratitude, which makes you stronger in a way.”

In grad school, Jacobs interned at LLNL and married his wife Wura, who also is a Nigerian citizen. By the time he finished his Ph.D., the couple had two kids. He moved the family to North Carolina in hopes that Wura, a newly minted Ph.D. herself, could work at Research Triangle Park. Instead, his wife got a teaching position at California State University, Fullerton and Jacobs got hired at the Lab, attracted by its “hybrid of academia and industry,” world-class computing machines and the challenge of developing himself around other brilliant people. Jacobs would fly to Southern California every weekend to be with his family, until they all moved north to the Bay Area last year.

Jacobs found there were few of his fellow countrymen in his new surroundings. Those he knew of were spread out, mostly students or busy Silicon Valley professionals. This spring, his family was able to host a group of Nigerians, and Jacobs occasionally connects with local Nigerians via email and at special events. He finds it difficult to impart the Nigerian culture on his children, who don’t speak the language and identify as American.

Jacobs said he plans to start the American citizenship process soon. He considers himself “lucky” in transitioning to American life because he relates well with all kinds of people. Though he didn’t always have everything he needed, he’s tried to blend in, and continues to go through the process.

“I think I had some misconceptions growing up,” Jacobs said. “You never think of America having homeless or poor people, but the reality is you come here and realize there are challenges to every community and every society. You realize you have to work hard, you have to be a better person and you have to be a better citizen, in the sense that you pay your taxes, you raise issues when they are not going well, but at the same time not get in people’s business. Now that I have kids, I’m trying to bring them up properly. You have to be involved in their education because nobody will do it for you.”



Lawrence Livermore National Laboratory neurotechnology engineer Komal Kampasi and her husband, Arpit, met in Mumbai, India while Komal was in college. After spending several years involved in a long-distance relationship while they were living in the United States, Komal and Arpit were married in a quiet beach town near Mumbai in 2019. They live in San Francisco.

KOMAL KAMPASI

A journey between two valleys

Hailing from Kashmir, a picturesque valley in the Indian Himalayan Region, Komal Kampasi was brought up in a close-knit family, living amongst her parents and both sets of grandparents, who placed a high importance on philanthropy and social commitments. Her childhood was typical for a kid in the 1990s, playing videogames, watching television and hanging out with family and friends.

Kampasi's father was a surgeon, her mother a professor of botany, so a lot of talk around the dinner table revolved around science, medicine and higher education. Kampasi always was passionate about technology and cultivated an interest in biomedical engineering. At the age of 17, she moved to Mumbai to pursue her calling. Much like New York, Mumbai is a city that never sleeps, and

Kampasi enjoyed the bustling lifestyle. She met her boyfriend there, Arpit, who would play a major role in her life.

Even in high school, Kampasi realized that India didn't have much research and development in bioengineering, and not many schools offered it. So she decided to come to the United States for her master's and Ph.D. Her parents, who always pushed her to get the best possible education, supported her decision. Until she arrived in Ann Arbor to attend the University of Michigan, she had never stepped foot in America. It was very cold, she recalled, but scenic, beautiful and welcoming.

"I did have family in the States, and we had a few conversations with them about moving here and what to expect in terms of transitioning."



Kampasi moved to the U.S. from India's Kashmir region to earn her Ph.D. from the University of Michigan. A "Wolverine for life," Kampasi now lives in San Francisco with her husband, Arpit, who she married earlier this year. She feels right at home in the Bay Area, where she is surrounded by supportive colleagues and friends.

Kampasi said, "As far as adjusting to the lifestyle, it wasn't much of a change for me. People who moved here in the '80s or '90s might have experienced a different thing, but thanks to globalization, life in many major cities around the world is kind of the same. I think my experience in Mumbai prepared me to transition here."

Though much of daily life aligned with what she was accustomed to, Kampasi did notice differences between the American and Indian educational systems. College life in the States was more practical than theoretical, she thought, and more streamlined than Indian universities. The campus, to her delight, was more like a small town than a school.

At Michigan, Kampasi spent long hours at her grad lab, which she found both "tiring and fun," and attended football games in the "Big House" (Michigan Stadium). She met people from different countries and backgrounds, joined sororities and the Indian student association, and enjoyed interacting with a wider and more diverse crowd.

Kampasi also was able to spend vacations and holidays with her extended family living in Maryland. Arpit was going to school at Carnegie Mellon University in Pittsburgh, and the two would make the five-hour drive to see each other. Before Kampasi graduated, Arpit got a job at a medical robotics company in Sunnyvale, and the couple was able to maintain their long-distance relationship for four years.

While still working on her Ph.D., Kampasi met Lab employees at conferences, read positive reviews of the Lab on Glassdoor and applied. When she visited for the first time during her on-site interview, she liked the team, the prospective projects and found her potential co-workers warm and friendly. She knew it was to be her next step. In 2017, Kampasi was hired as a postdoc. She relocated to San Francisco, where she reunited with Arpit, who also was living in the city.

"We weren't really looking to live in the same city at that point," Kampasi said. "We are both career-ambitious and have always wanted the best opportunities for each other. But somehow it happened that the job I liked the most was also in the Bay Area, so it was kind of a stroke of luck."

Though India remains close to her heart, Kampasi feels at home in San Francisco. It's a bit of a commute to work, she admits, but she likes the diversity and wealth of things to do. On weekends, she gets together with friends she met from Mumbai and Michigan who happen to live in the city, too. She misses her family in India and celebrating festivals with them, but tries to recreate the charm as best as she can.

"We stay in touch with all the cultural festivals through the year, and there are quite a few when you talk about India," Kampasi said. "We get together with our group of friends and try to celebrate those festivals with as much as we can do being so far away. We dress up, prepare home-cooked meals and revisit our childhood memories of those festivals. In some way that helps us feel connected to our roots."

Kampasi calls and texts her family often, and travels to India about once a year. It's usually an exhausting, but fun-filled whirlwind tour that takes her to different parts of India over several weeks to reconnect with friends and family.

"Every year I visit I can see things transitioning," Kampasi said. "India 10 years back was different than it is now. The lives in these cities are becoming more and more like how it is here. I can see that gap getting thinner and thinner with each passing year, which is good because it doesn't seem like you're traveling over seven seas to be at some other place."

In March, Komal and Arpit were married in a quiet beach town near Mumbai, the city where they met. Now that she's through with school and settling down, Kampasi wants to revisit painting, music and dance, her favorite hobbies while growing up. She also loves to travel and would like to do more of it to explore and experience different cultures.

"The last few years have been kind of busy, first with my studies, then finding a job and now getting married," she said. "I'm looking forward to having more time for myself and doing things I haven't been able to take time out to do in the past few years. I'm excited for this next phase of life."

Kampasi is residing in the U.S. on her temporary H1-B visa and is open to either getting a Green Card or returning to India if the right opportunity presents itself. Being a foreign national in the States hasn't been an issue for her; she feels fortunate to have been surrounded by like-minded, supportive colleagues and friends.

"I've been lucky to get exactly what I expected to get out of the last decade," she said. "I've had a privilege to get a great education, marry my best friend, visit places across the globe and make my own life choices. My journey has been very fulfilling so far. I look forward to sharing my experiences with others in every way possible."



CONGWANG YE

A second home

An engineer at Lawrence Livermore National Laboratory, Congwang Ye moved from Wenzhou, China to Indiana to attend Purdue University for his master's and Ph.D. After 10 years in the U.S., Ye said he's used to the American way of life and considers it his "second home." He and his wife, Shuang, live in San Ramon with their two children, daughter Amelia and son Brayden.



The "warm city" on China's east coast, Wenzhou, is dotted with canals, ponds, lakes and wetlands. Born and raised there, Congwang Ye never imagined he would end up living half a world away. The pier was a short walk from his childhood home, and Ye would take a ferry to Jiangxin Guyu — Chinese for "lonely island in the center of a river"—for outdoor adventures. Fresh seafood, shrimp and crab always were abundant on the dinner table.

Ye's father Runhui was a polymer engineer and director of a chemical laboratory, and Ye would visit him at work, where he learned about science experiments. His mother Hongping was a high school English teacher, and Ye, an only child, spent a lot of time at the school, reading and getting to know the older students. When he had been just a year old, his mother had gone to St. Louis, Missouri for a brief teaching assignment, staying with an American host family. Her experience made Ye aware of the United States. After he attended college at Zhejiang University in Hangzhou, earning his bachelor's degree in materials engineering, he applied to American schools.

"I knew if you want to do hardcore science and research, [the U.S.] is the place to go," Ye said. "I wanted to give it a try and see what it felt like. It was also a challenge for me. You go to a totally different place all by yourself and see if you can survive. To this day, I think I did OK. It was a big challenge, but it helped me grow faster."

Ye moved to Indiana to attend Purdue University for his master's and Ph.D. Coming to the U.S. for the first time, Ye had many worries, but also many adventures. There was no fresh fish or crab to speak of, and he had to drive an hour to Indianapolis to find a good Chinese market. Indiana also had corn fields and snow, which were completely foreign to him. He bought phone cards to call home, and although he missed his family, the sense of independence was exhilarating.

A stranger in a strange land, Ye was forced to develop living skills and learn to properly speak English, which he had picked up by watching old-time American television shows. His use of dated terminology often earned him a good-natured ribbing from friends.

"The first challenge was the language," Ye said. "I was not afraid to speak, but my accent and my grammar were bad. Another challenge was the value system is very different. It took a while to realize and adapt to that and find a way to blend in or get used to it. It's still difficult. Sometimes I have to search online or ask my American friends why things in daily life are done this way instead of another way. I'm always learning."

Most striking, Ye observed, was the Americans' sense of individuality and how they treated their private lives. In China, Ye was close with everyone on his street, "like being part of a big family." Americans also had different ideas about personal space. In China, it's common for friends or colleagues to walk side-by-side in close contact, he

said, and talk about their lives in a way Americans weren't comfortable with. Though he cared about others, Ye said he "learned to not be nosy."

After a year at Purdue, Ye took a trip back to China and married his wife Shuang, who he had met in junior high school. She was working as a nurse at a prestigious hospital and left the job after only a year to live with Ye in America. It gave Ye a sense of home that he had been missing, and he remains "forever thankful for her sacrifice." The couple's first child, Amelia, was born in Indiana.

When Ye was finishing up his Ph.D., LLNL needed a specialist in microfluidics and capsules for a carbon capture project, exactly what Ye had worked on in graduate school. Though he had offers from industry, Ye decided LLNL was "a no-brainer" because of the job flexibility and commercialization prospects. Shuang was pregnant with their son Brayden when they followed the old Route 66 to California. One of the first things Ye bought in his new home was an instrument for his wife called a guzheng, which she had played for 20 years before coming to the U.S. It had been impossible to find in Indiana, but it was readily available in San Francisco.

Ye liked the Bay Area's coastal climate, which reminded him of the weather back home, and felt welcomed by the sizable Chinese community and the Laboratory. Ye moved his family to San Ramon, next door to another Chinese family, and connected with other Chinese through the Lab and through a Chinese church. These days, he often enjoys potluck dinners and parties with his Chinese friends, where he can enjoy feeling like part of a big family again.

"Livermore and the Bay Area feels closer to my hometown," Ye said. "At Purdue, I didn't have many choices, and definitely not live fish, crab or lobster. But here, it's much more convenient. You have 99 Ranch (Market), you can go to Chinatown or San Francisco or Oakland, and you have even more choices, so it feels great. It's actually one of the major reasons why my wife supported this move."

Ye doesn't visit China often, primarily due to travel restrictions. His travel visa expires every year, and it can take up to two months to renew it. When he reflects on his native country, Ye thinks about

"I knew if you want to do hardcore science and research, the U.S. is the place to go."

- Congwang Ye

his grandparents most (his grandmother passed away earlier this year), the food and his old friends. Technology has made it easy to stay in touch with family though; he and his children video chat with them almost daily.

"When they're having a big party or gathering, we can see them and say hi to everyone," Ye said. "With technology, it helps. We don't feel so isolated now. I can imagine people that were like me 20-30 years ago would've been really challenged to stay in touch with family. The whole world is becoming more connected with the internet and smart devices. It definitely feels much better."

Ye recently marked 10 years in America. He's thought about becoming a U.S. citizen, but it's a long process, requiring a five-year waiting period after he obtains his Green Card. He is pursuing permanent residency as an "outstanding researcher" to ease travel. The criteria are getting more stringent, he said, but he hopes working at a national laboratory will help his chances.

Though there is some impact on projects that require a security clearance, Ye stays busy and is continuing to develop himself in his career and expand his network. He wants his research to impact both global missions and people's daily lives.

"There are still lots of challenges and adventures, but I feel like I'm settling down and getting more used to the life here," Ye said. "If I go back to China and try to drive, or get around the city, I'm not used to it because it has been developing very rapidly and things have changed a lot. Deep inside though, China will always be my home, because I spent more than 20 years there. In my mind, home is where your parents are. But this is becoming a second home."

SpotLight

THE PEOPLE
WHO DRIVE
OUR SCIENCE
& TECHNOLOGY

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