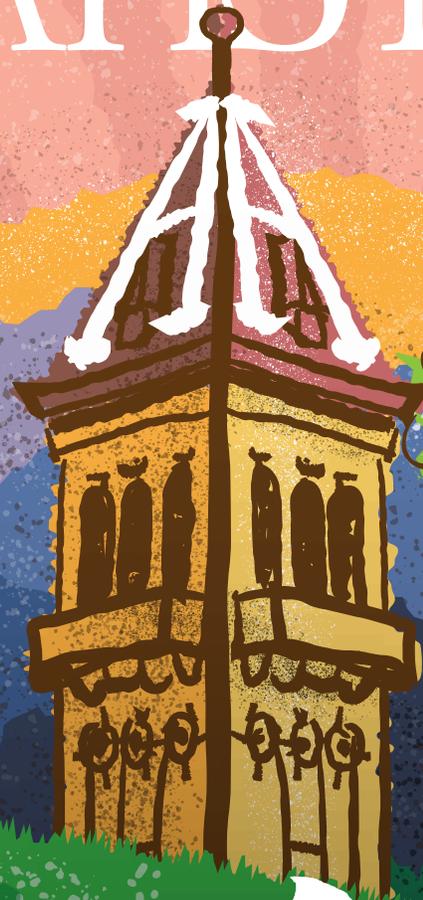
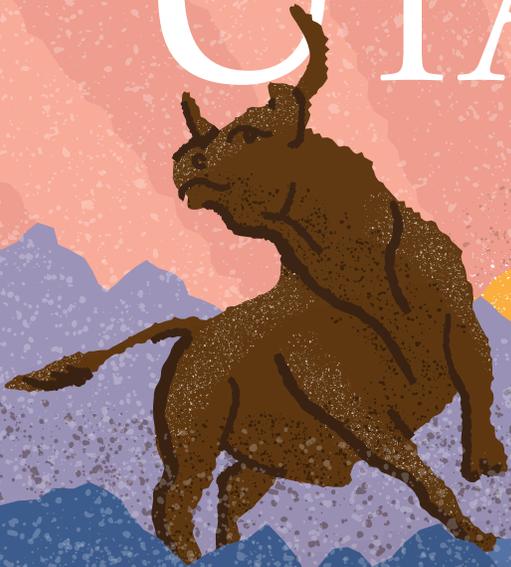


UTAH STATE

SPRING 2023



Halloween PAGE 43 (WITH TEAR-OUT MAP!)

Campuses



CREATE **YOUR** AGGIE IMPACT

The Initiative-Driven Campaign for Utah State University

Utah State University is home to the spirit of innovation. Throughout our history, we have met the changing needs of higher education with resilience and determination. Today, we are creating the future by connecting your passions with the areas where your gift will have the greatest impact.

Create Your Aggie Impact is a university-wide, initiative-driven fundraising campaign to accelerate student access and opportunity, elevate the educational experience, develop solutions to the world's challenges, and build a university of distinction.

Utah State Aggies are leaders who create transformational impact through their actions. Help us continue to effect change by creating opportunity with an eye to the future.

Visit usu.edu/advancement to learn more.



Advancement
UtahStateUniversity



The editor's son, Gabe, explores Patrick Dougherty's temporary art installation "A Restless Spell" when it was installed on the USU Logan campus in 2018. Photo by Donna Barry.

'It was a Pleasure'

I still remember playing hide-and-seek with my toddler in Patrick Dougherty's art installation "A Restless Spell" in the fall of 2018. It was a masterpiece built using six tons of willow saplings woven into a castle and erected outside Utah State University's Merrill-Cazier Library. My son wanted to live there. But the installation was never built to last. In some ways, its ephemeral nature made every day the whimsical sculpture stood feel a little bit magical. We were lucky to have so much time with "A Restless Spell."

When it finally came down in fall 2022, Dougherty wrote in an email to Elliot Nebeker, a junior who organized a vigil for the art piece, that "It was a pleasure to be on your campus and to have students help with the effort. My son Sam, who helped with the project, also sends his best regards. We think the work on your campus was one of our best." I couldn't agree more.

My own family now contains a young Sam, and I know the work at USU is among the best. For much of the last decade I've enjoyed helping to tell its stories — from the ones buried in the archives of Special Collections and Archives to those unearthed at field sites. My job has always been fun. Even when it was difficult — like during the pandemic. My small people would be playing in the background (sometimes loudly) as I wrote. I never used a filter during meetings. I never wanted to hide the chaos that it sometimes was. For instance, during interviews with USU President Noelle E. Cockett, my sons would sometimes barge in with questions. She always laughed and tried to talk with them. That is the culture of support and inclusion at USU that I will miss. Because after five years as managing editor of *Utah State* magazine, the time has come for me to move on.

And I am so pleased that our cover story, "Hidden Campus," is about some of my favorite places on USU's various campuses. I hope you will tear out the map and save it for a time when you can come back and visit again. I know I will.

Kristen Munson
Editor, *Utah State* magazine

A NOTE FROM NOELLE //



Clockwise:
USU President
Noelle E. Cockett
attends Logan's
2021 commence-
ment ceremony
during the
pandemic;
Cockett winds
the clock at the
USU President's
House; she is all
smiles during
the rainy 2021
Homecoming
parade with
Sian Smith,
USU's director of
alumni engage-
ment; Cockett,
an expert in
sheep genomics,
stands with a flock;
and Cockett attends
an event
honoring fashion
designer Bibhu
Mohapatra '98.



Grateful to be an Aggie

When I first arrived at Utah State University in 1990 as a new professor studying sheep genetics, I never imagined becoming USU's president someday.

Instead, my days were filled with organizing and delivering an animal genetics class, writing papers and grants, traveling to scientific conferences, and conducting research in my lab. The years flew by with certain memories standing out. For instance, the night we discovered the genetic marker associated with a muscling trait in sheep and I drove right through a red light I was so deep in thought. Or worrying that our bum lambs were bored so we brought them rubber balls and rings to play with (which they did not). Or seeing my son wheeling around my lab in his baby walker while I helped my lab tech isolate DNA. It's hard to believe over 32 years have passed since I came to USU and that I was USU's president for the last six years — who would have guessed ...

During my time as president, USU has increased student graduation rates, including that of first-generation students, earned the distinguished rank of an R1 research institution, benefitted from record fundraising and the generosity of alumni and friends, established a new

College of Veterinary Medicine and the Janet Quinney Lawson Institute of Land, Water, Air, and also importantly, have strengthened the university's reputation for diversity and inclusion. I am proud of these accomplishments, but it's time for me to pass the baton.

My schedule as president is loaded with events to attend. Sometimes I go because I have been asked to give opening remarks. Sometimes there are people who I want to recognize. Sometimes I attend to simply show my support from the sidelines. No matter what it is, I always leave a USU event with a tremendous surge of pride.

For instance, during Homecoming, I listened to the stories of Aggies being recognized by the USU Alumni Association and I found myself tearing up considering their impact. Graduates like Oscar Marquina '05, MBA '10, an angel investor who works to boost outcomes for Hispanic and Latinx communities, who immigrated to the United States from Venezuela and then adapted the Huntsman School of Business's motto to dare to be grateful. (Read his story on page 54). As the recipients spoke, I kept thinking "This is USU."

In November, I signed the documents to establish the Heravi Peace Institute — a gift from USU alum Mehdi Heravi '63, M.A.'64 — aimed at preparing students to enter the workforce with competency in cultural peacebuilding, conflict management, and nonprofit work.

We aren't an institution that pumps out billionaires. We don't have the person of the year gracing the cover of *Time* magazine. But all of our people have impact in today's world and all give back, no matter who they are — staff, faculty, or alumni. I am deeply honored and humbled to be part of a university that cares so much about helping others. Last fall, USU

was ranked No. 8 of all public universities by the *Washington Monthly*, whose ranking focuses on social mobility, research, and promoting public service. In other words, USU is one of the top universities propelling graduates to reach new levels of prosperity and service for themselves, their families, and their communities.

At USU, we accept 89% of applicants because our mission is to make higher education possible for all Utahns. We have kept our doors wide open and focused on developing programs to foster student persistence. We graduate more Pell grant recipients than any other public institution in Utah, and USU alumni pay back their college loans at the highest percentage in the state. Translated, this means that our degrees get students into the workforce at levels where they can thrive. These are the measures that we are proud of.

Through my travels around the state, I've met alumni who have prioritized lifting others up along the way. People like Mika Salas '98, the superintendent of Carbon County School District, who grew up in the region and returned to focus on programming that will break the cycle of intergenerational poverty. This mentality, focused on cultivating community resilience and reaching out to others who may be struggling, is engrained in almost every Utahn I meet.

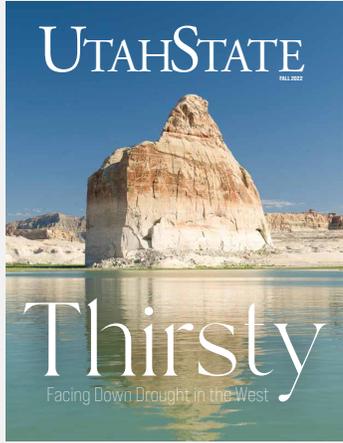
At USU, our graduates are doers who dare to be grateful. They dare to give back. They dare to have impact. I don't know if we attract those students or if we build those attributes in the students, but when they leave USU, they care. And I am so, so proud of them. And I am so, so proud to have served as USU president. Go Aggies!

Noelle E. Cockett
President, Utah State University



We welcome your thoughts. Please email letters to mageditor@usu.edu. Please include your full name, address, phone number/email address, and class year, if available, for confirmation of your identity. Letters should be 200 words or less and respond directly to an article in a recent issue of Utah State magazine. Letters may be edited for length, style, and clarity, and fact-checked as appropriate. While Utah State magazine endeavors to publish all letters that meet the guidelines, space is limited, and letters from members of the Utah State community that contribute to a diverse range of perspectives will be prioritized. Letters that violate USU's Principles of Community will not be considered.

**FALL 2023:
LAND, WATER, & AIR**



involved in teaching for Utah State at locations outside of Cache Valley, as well as on the campus. Regarding the water situation in the West, John A. Widtsoe, head of the Utah State Agricultural College and president of Utah Agricultural College, was co-author of an extremely important scientific publication in 1912. “The Movement of Water in Irrigated Soils” was recognized worldwide, including the Middle East; It was used to help manage water resources across the globe. Since the current issue of the magazine deals with water, I felt you should be aware of this very important paper from 110 years ago. I was taught chemistry and physics in the old Widtsoe Hall.

— Kenneth R. Stevens, Jr., '63 M.D.

(aside from creating better water-use habits for all of us) is that left or right, we can learn to work together again.

— Steve Merrell, '19, M.S. '22

Wow. Very important article. I spent some time in India and this article makes the West's situation sound very similar to India regarding water. Hotter temps, less rain, except there they have monsoons, which Utah does not. Still, Utah's famous snow is the typical savior, but climate change is changing that too. I'm proud of all the work these fine professionals are doing to try to find partial solutions. At least we are not ignoring the situation.

— Joseph Campo, MLA '96

A CENTURY LATER, “MOVEMENT OF WATER” STILL IMPORTANT

I appreciated the fall 2022 edition of the magazine. I attended USU from 1957 to 1963 and my father, Kenneth R. Stevens, Sr., Ph.D., was professor of microbiology and public health at USU from 1932 to the mid-1960s. He was

From the Web

From THIRSTY: FACING DOWN DROUGHT IN THE WEST

This is definitely not a political issue, but one that I think we can all agree to measures to conserve our precious fresh water. Maybe one good thing that can come of this situation

From THE CONNECTOR: BRIAN STEED LINKS NATURAL RESOURCES RESEARCH WITH POLICY

Brian Steed is such a class act. USU is fortunate to have him on campus. He will do great things to help the environment and promote sustainability in Utah and throughout the West.

— Mike Mower

**WINTER 2023:
TRANSFORMATION**



From the Web

From RAISED TO DO HARD THINGS

If you have a chance to read something today, I hope you read this. The work that Abby and ShowUpUtah.org are doing right now is some of the most important work in our state. Also, I'm the luckiest guy in the world. ❤️

— Spencer Cox, '98

Abby is the real deal. We know her and Spencer from our Fairview, second home, ward. This article is exactly how I see Abby. Thank you for putting things into words!

— Belva Whitbeck Parr

those who in the academic world are often forgotten. Thank you, Debbie and James, for sharing your love for Julie with everyone!

— Adam Geddes, '03

I've worked with James Cook for four years and had no idea this had occurred. He's a great colleague and mentor at work. I am very grateful for the example to me of giving back to the community in the shadow of such a devastating loss.

— Tyrel Rupp, '16

From TURNING GRIEF INTO GOOD

What a blessing to have two individuals take their pain and turn it into blessings for others, an example of “ashes to beauty.” Debbie and James have had their hearts break and have filled those cracks with love and kindness by serving others with this scholarship. This scholarship represents “love” and a desire to help

Julie's memory helped break the cycle of poverty in my family. I am the 10th of 11 children and am the only one to graduate college. It's the first time in four generations on my father's side. I am forever grateful for the strength of Debbie and James. They are wonderful people. When I talk about my college experience one of the people I will mention to my kids is Julie Cook.

— Wayne Montgomery, '22



Rylie McMurry, a member of Utah State's sports medicine staff, provides treatment for an Aggie soccer player.

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43 // Cover Story

A Guide to Hidden Campus

University campuses can feel static. The same old buildings and pathways generations of students traverse day after day for years. But college campuses are often layered with history and hidden gems. Utah State University's campuses are no different.

Features:

20 // On the Move: 50 Years of Title IX

Women weren't always encouraged to play sports or given the same opportunities in school as their male peers. Title IX changed that. But for some Aggies, the change came a little too late.

28 // Building a Better Blue

Police reform can be a polarizing issue. But many police departments are increasingly burdened with calls they are not equipped to handle. USU faculty and alumni are working to improve modern policing in ways that benefit officers and the communities they serve.



Watch for these QR symbols throughout the magazine to view web extras such as videos, conversations, and survey data.

▲ 36 //

Keeping Athletes on the Field

Injuries can plague collegiate athletes, robbing them of precious playing time. A photo essay exploring USU's athletic trainers who keep players healthy and on top of their game.

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- 53 // The Unforgiving Work of Surprise**
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- 60 // Look Back – Adieu to the 'Do and the Barbershop**

Where is This?

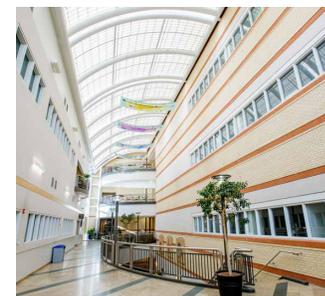


Photo by Levi Sim.

First right answer wins Aggie gear.
mageditor@usu.edu

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On the Cover: Clockwise from top left: Bull statues, buildings with hidden history, indoor ficus trees, giant fry sculptures, Utahraptors, wooden clogs, fallout shelter signs, and painted rocks are just some of the hidden gems tucked away on the various statewide campuses. Illustration by Liz Lord '04.



It's been an absolute banner snowpack year to start the first half of this water year. We couldn't have written a better script on how this would play out up to this point.

— **Jon Meyer**, Utah State University researcher and assistant state climatologist, on the winter's snowpack levels. In mid-January, many areas of the state were over 175% above normal, the result of the return of the jet stream — the fast and narrow current of air flowing from west to east that directs storms across the western United States. But Utah's drought is not over. While the wet and snowy start to 2023 is a good first step, Utah must stack up multiple winter seasons of significant snow events. "I've used the phrase, 'It's a marathon, not a race.'"



RESEARCH

A Shrinking Great Salt Lake Approaches Hypersalinity

Image of the receding Great Salt Lake from EROS Center/USGS.

Brine shrimp are adapted to live in salty water, but even they cannot survive hypersaline conditions. In the past 20 years, Lake Urmia in Iran, a sister lake to the Great Salt Lake, has experienced a near total collapse of its brine shrimp population as salinity nearly doubled.

Researchers at Utah State University and Tarbiat Modares University report the Great Salt Lake faces a similar

trajectory as salt concentrations spike, potentially jeopardizing Utah's \$70 million brine shrimp industry.

The Great Salt Lake is divided by a causeway and its northern arm, Gunnison Bay, has reached 330 grams of salt per liter due to drawdown from drought, urban growth, and agricultural irrigation. Brine shrimp have all but disappeared. The southern arm, Gilbert Bay, remains

at-risk of hypersalinity if water levels continue to drop.

The researchers published a paper in the open-source journal *Water*. They warn that the collapse of brine shrimp and brine fly larvae populations would have catastrophic ecological consequences for migratory bird populations and for the economics of the lake.

A Shrinking Pando

Pando, more than 100 acres of quaking aspen in south-central Utah and considered the world's largest living organism, is a group of genetically identical stems that share a root system. And it's beginning to break up, says **Paul Rogers**, adjunct professor of ecology and director of the Western Aspen Alliance. He completed the first comprehensive evaluation of Pando five years ago, which showed that ungulates, primarily deer, were browsing new aspen sprouts, leaving a forest of aging stems. He found that Pando was slowly dying.

A natural experiment occurred when managers erected fencing around about half of the stand. Rogers evaluated the strategy and found that 16% of the stand is adequately fenced with new aspen suckers

surviving. About one-third of the stand had fencing in a state of disrepair and where old and dying trees outnumber the young. The unfenced portion of Pando had the bulk of young sprouts browsed over. These hard-hit zones are now shifting ecologically in distinct ways, in effect breaking up this historically uniform forest. Mature aspen stems that die without being replaced allow more sunlight to consistently reach the forest floor, which alters plant composition. Rogers reported his findings in the journal *Conservation Science and Practice*.

But fencing is not the solution to Pando's survival, Rogers says. "If we try to save the organism with fences alone, we'll find ourselves trying to create something like a zoo in the wild. ... We'll ultimately need to address the underlying problems of too many browsing deer and cattle on this landscape."



Making Space for Rare Plants and Energy Development

The Colorado Plateau is awash with rare plants like milkvetch, beardtongue penstemon, and sclerocactus. It's also home to abundant oil, gas, and alternative energy potential scattered among a patchwork of land ownership. USU researchers **Joshua Carrell, Edd Hammill, and Thomas Edwards** are mapping strategies to accommodate both proposed energy projects and the survival of rare plants.

Oil drilling infrastructure can damage plant communities through direct habitat loss, but it can also create barriers for seed dispersal, introduce exotic species, disturb pollinators, and produce increased dust, which can disrupt photosynthesis. One recent project proposed adding hundreds of miles of new roads and pipelines with hundreds of thousands of acres of land. Previous science suggests that if, at a minimum, 30% of a threatened plant species can be protected, a community can hold on to the potential for long-term survival. USU's team modeled how rare plants are distributed across the Colorado Plateau that includes strategies for structuring energy projects to optimize the use of space to minimize their impact. They found the minimum number of sites required to cover 30% of each species at the lowest financial cost to developers.

"The key to finding workable solutions in these kinds of circumstances is to think both like an ecologist and an energy developer, and to work within that space," says Thomas Edwards. "Conservation planning frameworks don't always incorporate real-world limiting factors such as financial considerations, business risk and land ownership. But those considerations are essential for finding workable solutions."

This water year is a crucial opportunity to mitigate ongoing damage to the Great Salt Lake ecosystem. There is still time to turn this around, but we need the next steps to be decisive and well-coordinated.

— **Patrick Belmont**, co-author of a recent report calling for legislative action to increase water flow to Great Salt Lake. Winter storms brought higher than average snowpack to Utah — a gift during the ongoing 20-year drought. Since 1850, Great Salt Lake has lost 73% of its water and 60% of its surface area, exposing millions of people living nearby to toxic dust plumes and reducing habitat for native species. If the drought persists, as climate scientists forecast, reaching a stable level of inflow would require water use cuts of up to 50% around the Great Salt Lake watershed.

Biochemists Discover Potential CRISPR Breakthrough

Google “CRISPR research” and you will find stories of scientists using the gene editing tool to prolong the lives of some children with leukemia resistant to standard treatments and repair defective genes associated with a rare white blood cell disorder. And scientists are just getting started.

In two papers recently published in *Nature*, Utah State University biochemists **Thomson Hallmark and Ryan Jackson**, along with collaborators, described the structure and function of a newly discovered CRISPR immune system, Cas12a2, that operates “unlike anything that’s been observed in CRISPR systems to date,” says Jackson.

Bacteria fight viral infections by encoding traces of viral DNA into their genome in the form of RNA sequences. These clusters of regularly interspaced short palindromic repeats (CRISPR) trigger an immune response when an associated enzyme detects and binds to a matching DNA sequence and shuts off the gene target before it can damage the cell. Cas12a2 functions similarly to the better-known CRISPR-Cas9, but it binds a different target with very different effects.

“The Cas12a2 protein undergoes major conformational changes upon binding to RNA that opens an indiscriminate active site for DNA destruction,” Jackson says. “Cas12a2 destroys the DNA and RNA in



target cells, causing them to go senescent.”

Using cryo-electron microscopy, the USU team demonstrated this unique aspect of CRISPR-Cas12a2, including its RNA-triggered degradation of single-stranded RNA, single-stranded DNA and double-stranded DNA, resulting in a naturally occurring phage defensive strategy called abortive infection, which prevents pathogens from replicating.

“If Cas12a2 could be harnessed to identify, target and destroy cells at the genetic level, the potential therapeutic applications are significant,” Jackson says. “We’re just scratching the surface, but we believe Cas12a2 could lead to improved and additional CRISPR technologies that will greatly benefit society.”

UNIVERSITY AFFAIRS

USU Launches Heravi Peace Institute

In 2022, USU established an interdisciplinary initiative in the College of Humanities and Social Sciences aiming to prepare students to enter the workforce as changemakers adept at cultural peacebuilding, conflict management, and nonprofit work. In November, **Mehdi Heravi** '63, M.A.'64 donated additional resources, including a generous endowment to subsidize institute students who will

be known as Heravi Peace Scholars. The Heravi Peace Institute, named for the long-time advocate of peace and community in the face of differences, will be the first of its kind in the Intermountain West.



USU President Noelle E. Cockett signs founding documents for the new peace institute with Mehdi Heravi. Photo by Levi Sim.



SPACE DYNAMICS LAB

Illustration courtesy of NASA/Daniel Rutter.

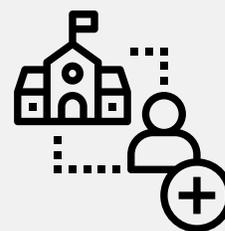
SDL Aids CAPSTONE Mission

There is a lot riding on a spacecraft about the size of a microwave oven. The **Cislunar Autonomous Positioning System Technology Operations and Navigation Experiment (CAPSTONE) CubeSat** is a pathfinder mission for the Lunar Gateway — a moon-orbiting outpost that is part of NASA’s Artemis program that will serve as a staging point for deep space exploration. Iris Radio, a deep-space radio built by USU’s Space Dynamics Laboratory, transmits critical information between the satellite and operators on Earth and recently began operating on CAPSTONE, which entered a lunar orbit on Nov. 13, 2022, and is the first CubeSat to orbit Earth’s moon.



I am ecstatic to have two institutions I love and cherish working together to advance opportunities that will have a positive impact on students, research, and training. The partnership between Fort Valley State University and Utah State University demonstrates the power of collaboration and will serve as a model for land-grant and other universities to follow.

— **Paul Jones** '86, M.S.'89, President of FVSU, on a memorandum of understanding signed in October 2022 to cooperate on activities of mutual interest, such as development of research collaboration, educational program development, student support and trainings, and to promote faculty and student exchanges.



USU experienced record enrollment in fall 2022 at its residential campuses in Logan, Price, and Blanding among first-year students who recently graduated high school. First-year student enrollment was up 13.3% over last year in Logan and up 14.1% overall across the university's state-wide system.

What Is Your Aggie Passion?

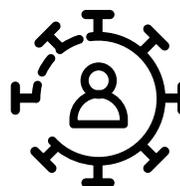
“Utah State changed my life,” says **Marshall Crawford**, current chair of USU’s Foundation Board and senior advisor for the U.S. Treasury International Affairs Office of Technical Assistance.

“I loved how my USU experiences transformed me by exposing me to so many opportunities.”

That is why he is eager to help USU make a difference for Aggies in the future through the launch of the university’s *Create your Aggie Impact* campaign, which pairs donors’ passions with goals that promote growth and enhancement initiatives in every area of the university. It aligns with priorities highlighted in USU’s *Strategic Plan, Aggie Action 2028* and focuses on four priorities: accelerating student access and opportunity through student scholarships, elevating the education experience by hiring top faculty members, developing solutions to global challenges through expanded research opportunities, and enhancing the university’s distinction through enrichment projects, expansions, and innovations.

More than 17,500 people have made gifts to USU over the past two years, helping 2021–22 become a record-breaking fundraising year during which more than \$110 million was raised. The campaign has brought in a total of nearly \$220 million to date and funded various initiatives including 292 new scholarship endowments.

“Your support matters,” Crawford says. “It will change the lives of so many of our nearly 28,000 students on multiple campuses throughout the state today and well into the future.”



From the Archives: Aggies Reflect on the COVID-19 Pandemic

“People had a lot to say about the pandemic, from the inspirational to the introspective. Still, in all those stories it is clear that everyone was just doing the most they could with what they had.”

Tameron Williams, a graduate fellow of USU Library’s Special Collections & Archives, conducted 104 oral history interviews with Aggie administrators, staff, faculty, and students about how they were affected by the COVID-19 pandemic. The project will preserve valuable firsthand accounts about the institutional effects of COVID that are in short supply following the 1918 pandemic. The collection is now available to the public at: digitalcommons.usu.edu/covid.





USU Student Wins Silver in International Welding Competition

Photo by
Bronson
Teichert.

Jordan Packer, a welding major at USU Eastern, placed third place at the WorldSkills Special Edition welding competition in Cleveland, Ohio — the technical skills equivalent of the Olympics. He also won the “Best of Nation Award,” and was just seven points out of first place. Each participating nation is allowed to enter a single contestant, and Packer’s bronze marks the first time an American has podiumed since 2013. He is in the process of launching his own welding business and credits the staff at USU Eastern for shaping his trajectory.

“Your inner circle determines your success, and these three (Austin Welch, Jake Clement, and Jeremiah Garcia) have been my inner circle since day one,” says Packer. “They have stuck with me through all the hurdles, and I attribute much of my success to the incredible welding instructors and program at USU Eastern. USU Eastern is what higher education is about and I am extremely proud to call it my school.”

Speeding Up Supercomputing

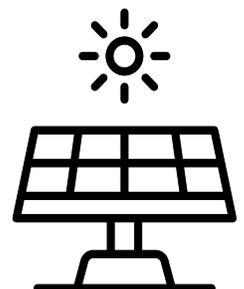
Exascale computing systems — supercomputers capable of crunching quintillion calculations per second — will propel innovations in energy, cosmology, earth science, medicine, and national security, says Utah State University computer scientist **Steve Petruzza**. But challenges persist. Among those is a widening gap between computing power — the number of operations performed per unit of time — and processing, storing, and analyzing data. Petruzza, with a colleague at the University of Alabama at Birmingham, was awarded a three-year, \$600,000 National Science Foundation grant to develop tools and techniques to relieve the bottleneck with more efficient data layouts and enable interactive exploration of very large datasets on web browsers.

Advancing Next-Generation Battery Technology

Haoran Wang, assistant professor of mechanical and aerospace engineering, was awarded nearly \$250,000 by the National Science Foundation to study new mechanics to stabilize the electrochemical process in lithium batteries such as those used in electric vehicles and achieve a long cycling life. The collaborative project unites researchers at Utah State University and the University of Utah and was awarded more than \$550,000 in total funding. All-solid-state lithium batteries could provide higher capacity and better safety than traditional lithium batteries. However, fracturing can occur during charging when non-uniform lithium plating takes place. Cracking and dendrite growth can further cause short-circuiting. This research investigates what mechanics can be used to achieve uniform and stable plating and stripping in lithium anodes.

\$4.6 Million Grant to Advance Solar Energy

Utah State University researchers, led by **Nadia Kouraytem,** assistant professor of mechanical and aerospace engineering, and a multi-institutional team were awarded \$4.6 million from the U.S. Department of Energy to produce metallic materials better equipped to withstand elevated temperatures and pressure in concentrated solar power plants. These plants typically use mirrors or lenses to condense a large area of sunlight onto a receiver. Kouraytem and her team will study creep — the tendency of materials to deform over time from exposure to stress and heat — and fatigue behaviors of 3D printed metals used for components at these plants using a 3D printing process in which a laser selectively melts together metal powders in a layer-by-layer fashion to form a part. This is considered a more cost-effective way to fabricate complex metallic structures used at solar plants.



DREAM CAREERS

found here.



MEREDITH RICHARDS, *Marketing '20*
Business Management Associate, General Mills

“To bridge college experiences with full-time employment opportunities, the Huntsman School offers many resources. These resources, paired with the clubs and committees at the Huntsman School, ensure that students leave not only with a diploma, but a packed resume as well.”



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Jon M. Huntsman
School of Business
UtahStateUniversity

USU's 2023 Hall of Fame Class Honors Title IX

The passage of Title IX unlocked access to educational and athletic opportunities for women. In conjunction with the historic civil rights law's 50th anniversary, USU Athletics named seven Aggie women student-athletes and administrators to its 2023 Hall of Fame Class, including: **Tana Call Davis '99**, who held 16 school records in gymnastics at one time; **Shantel Flanary '13**, a two-time Western Athletic Conference Offensive Player of the Year in soccer; **Krista Larson Du Plessis '09**, an All-American track & field athlete; **Jerrie McGahan '78**, the first 1,000-point scorer in school basketball history; **Denae Mohlman Pruden '01**, a three-time first-team all-conference volleyball player; **Christine Thomsen '13**, one of just seven USU softball All-Americans; and **Marilyn Weiss**, who served as Utah State's Director of Women's Athletics from 1975–1981, as the Aggies won three national championships under her leadership.

"We are excited to celebrate and memorialize the successes of this group of inductees," says **Jerry Bovee**, USU's interim director of athletics. "These women are pioneers and role models, and they have helped pave the way for the opportunities afforded our current student-athletes."

The induction ceremony will be at 7 p.m. Saturday, April 15, 2023, at the Russell/Wanlass Performance Hall.



Utah State Retires Carroll's Number

Photo by
USU Athletics.

Aggie men's basketball legend **Jaycee Carroll's No. 20 jersey** was retired in a halftime ceremony on Feb. 18, 2023, joining three other Aggie greats that have their jerseys hanging from the rafters of the Dee Glen Smith Spectrum: **Greg Grant '88** (5), **Cornell Green** (24), and **Marvin Roberts** (31). USU also has two retired numbers in **Bert Cook '52** (6) and **Wayne Estes** (33). Carroll '08 (2005–08) is the all-time career leader at Utah State in several categories including points (2,522), field goals made (880), 3-point field goals made (369), games started (132) and total minutes played (4,596). Carroll helped USU to four trips to the postseason with two NCAA and two National Invitation Tournament appearances. He finished his career ranked No. 2 in NCAA history with a career 3-point shooting percentage of 46.5%.



Photo by Jeff
Hunter '96.



Photo by USU Athletics.

Volleyball Team's Historic Season Ends in NCAA Tourney



The USU volleyball team earned an automatic bid to the NCAA Tournament after winning its first-ever Mountain West Tournament title in November. The appearance was only the fifth time USU's volleyball team has qualified for the NCAA competition, but lost in the first round to sixth-seeded Arkansas. Four Aggies were named to the all-MW Tournament team, including senior outside hitter **Shelby Capllonch** (MVP), senior middle blocker **Kennedi Boyd**, junior outside **Tatum Stall**, and sophomore opposite side hitter **Adna Mehmedovic**.

TRUE BLUE AGGIE FRIDAY



Julie Bovee
Alumni

Jerry Bovee
Alumni
Interim - Athletics Director

Show your pride. Wear your Aggie gear on Fridays.

Be You, Be True Blue



UtahStateUniversity

USU to House State's New Food Security Council



One in 10 Utah households experience food insecurity. The Utah Food Security Council, based out of Utah State University, was formed during the 2022 Utah legislative session to help relieve the state's hunger problem and will focus on increasing economic security for all Utahns, optimizing participation in federal nutrition programs, and increasing access to affordable, nutritious, and culturally appropriate food within the community where an individual lives. In addition to **USU Extension**, the council includes Utah Farm Bureau, the Utah Department of Agriculture and Food, the Utah Department of Health, Utahns Against Hunger and other agencies working on food security efforts.

"Food insecurity is one of the most pressing issues facing Utahns, and I am eager for the meaningful policy recommendations and initiatives that will come from the Food Security Council," says Utah Sen. Luz Escamilla, who sponsored the bill. "The council's membership intentionally incorporates a range of professions and stakeholders to attentively work on statewide goals and strategize comprehensive solutions to address food insecurity, including increasing support for our local growers and producers."



Photo by Levi Sim.

Key Findings from the 2022 Utah Wellbeing Project

The Utah Wellbeing Project

was created to gauge the wellbeing of individuals in communities across the state. Results from the 2022 survey, which polled nearly 10,000 people from 33 Utah towns, found that much of the state has rebounded from the COVID-19 pandemic. They uncovered factors associated with feeling connected to one's community, and revealed the primary concern of most Utahns: water.

- **At the peak of the COVID-19 shutdown** satisfaction slumped across survey categories, reflecting fallout from the pandemic to mental health, social connections, and cultural opportunities. However, of the 23 cities participating in the project in multiple years, 17 report pre-COVID levels or higher across most wellbeing categories. Notably, many communities reported lower satisfaction with local environmental quality.

- **How connected one feels to their community** is strongly related to one's personal and community wellbeing, including higher ratings for physical and mental health, living standards, safety and security, and education. Community connection tended to be highest in small towns and by categories of people: older adults, those with higher levels of education or income, those belonging to The Church of Jesus Christ of Latter-day Saints, and those living in their city longer than five years.

- **For 21 of 33 cities, water supply was the No. 1 issue,** with 83% or more of respondents indicating it is a moderate or major concern and ranked in the top three for all other cities included in the project, reflecting a significant rise over the last two years. Eight of the top 10 concerns listed by residents



were related to Utah's land, water, or air. Outdoor recreation and nature-based activity participation was strongly correlated with higher wellbeing scores.

Could Storytelling Skills Help Students Back on the Path to Academic Success?

School closures and online learning during the COVID-19 pandemic resulted in significant learning setbacks for many children, especially those who were already at-risk for academic difficulties even before the pandemic. Researchers at Utah State University and the University of Texas at Austin, funded by a \$3 million grant from the National Center for Education Research, examined a promising solution to the decline — **Supporting Knowledge of Language and Literacy (SKILL)**, an intervention program is designed to improve oral and written language skills in at-risk children in grades 1–4.

Researchers conducted a multi-year, randomized control trial in 138 classrooms in 14 schools in Northern Utah and Central Texas, to rigorously evaluate the efficacy of the SKILL program, which aims to improve children’s ability to comprehend and tell stories. The researchers found that students who received SKILL lessons significantly improved when compared with students who did not receive the lessons. These children remained



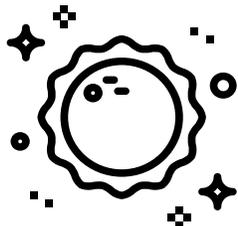
significantly more advanced five months after the lessons ended and were able to apply their learning in writing and reading significantly better than the children in the control group. The results indicate that SKILL leads to significant improvements in oral language, reading comprehension, and writing for the children who were at-risk for language and literacy difficulties that participated in the study. It may be one solution for closing the gap between the students who suffered most from school closures and their higher-performing peers.

Risk Management: Preparing for Solar Storms

Communications systems, from telegraph networks in 1859 to Starlink satellites in 2022, are among critical equipment affected by solar storms. They can interfere with satellites needed for mobile phone service as well as our energy and defense systems and produce radiation exposure hazards for aircraft travelers and astronauts aboard the International Space Station.

“Solar activity can cause disruptions, ranging from minor inconveniences to dangerous out-ages on Earth,” explains Utah State University computer scientist **Soukaina Filali Boubrahimi**. “We need the ability to better predict solar activity and prepare for these potentially harmful conditions.”

Filali Boubrahimi was awarded a five-year, \$691,972 National Science Foundation Faculty Early Career Development “CAREER” grant to build novel machine learning models to better predict solar flares. She and her students will develop “a comprehensive solar flare catalog combing images and data,” spanning two solar cycles. The goal is to have models ready by July 2025 when the sun’s solar activity cycle is predicted to spike.



“
Despite hurdles, women are establishing businesses that not only generate revenue and employ other Utahns but also contribute to their quality of life and the prosperity of local and statewide economies. Potential for success will continue to increase as more women receive adequate funding, resources, and support from strong professional networks.”

— **April Townsend**, Utah Women & Leadership Project research fellow and coauthor of a report that found a 77% increase of woman-owned businesses since 1997. There is still work to do. Utah ranks 45th with just 16% of businesses owned by women.

TAKING ADVANTAGE OF THE QUIET.

The ceramics studio at Utah State

University is rarely empty. There is always a bowl to throw, a pot to trim, or someone glazing a piece for the kiln. But just before winter break, senior Amanda Brown '22 snuck in a quiet moment to glaze a Mad-Hatter mug — one of three she created during the fall semester along with a triple-spouted teapot.

“I don’t drink tea and haven’t enjoyed making teapots in the past mostly because they have no use for me,” Brown admits. “But I realized that I could just think of it as a teapot sculpture. It would still be functional, but have a very decorative and sculptural feel to it. This helped me be able to create something that I had not enjoyed creating previously, but now I had a way to make it exciting and interesting.”

Brown, an art major, says she found community and support from her professors who encouraged creative freedom — an ideal scenario for a person who loves to make unique pieces. And the ceramics studio is full of possibilities. Students have access to a wide variety of tools, glazes of all colors, and a space to create whatever they come up with. **A**

— Abigail Swaner





Photo by Abigail Swaner.



Middle blocker Annette Cottle delivers a serve at the Spectrum in 1978 during USU's national championship season. Photo courtesy of USU Special Collections and Archives.

On the Move

50 Years OF TITLE IX

By Jeff Hunter '96



It was the late '70s. So, it certainly wasn't the first time someone in Utah had hooked up a camping trailer to a pickup, thrown some food, sleeping bags, and young people in the back and headed south for California. But Marilyn Weiss wasn't exactly Clark Griswold. And the Trip from Cache Valley to Los Angeles wasn't a vacation.

At the time, Weiss was the women's athletic director at Utah State University, and her traveling companions were the coaches and players on the Aggie volleyball team. And in order to compete against some of the top teams in the country like UCLA and USC at spring volleyball tournaments, it meant getting to the West Coast by any means possible. And as cheaply as possible.

"All the competition was in Southern California, so we would load up in a fifth-wheel trailer, and we would drive down and stop in Vegas for the \$1.99 breakfast, all-you-can-eat breakfast buffet," former Utah State middle blocker Gayle Adamowicz recalled in an interview last year with Megan Carter and Derek Van Weerd, students in History 3005 — *Sport: A Global History*, a class taught in the spring of 2022 by history professor Tammy Proctor.

"Then we would go compete and play and train in our offseason in Southern California. We all slept in the fifth-wheel trailer. I don't know how we did it. Some

people had the bed, two people slept on either side of the bed Pulled up the table, two more people slept there. It was (crazy). I mean, it was fun, because you were young, but that's how we traveled, and that's how we got more court time in against better competition."

"That's probably not even legal now," Weiss noted in another interview with Proctor.

But ultimately, Weiss' considerable efforts on a shoestring budget paid off, with the USU volleyball team winning the Association for Intercollegiate Athletics for Women (AIAW) national championship in 1978 and second place in '79. Weiss also helped build the Aggie women's softball program, which won the AIAW national title in both 1980 and '81.

Those three women's championships mark the only national titles — in both men's and women's team sports — in Utah State history. But despite that success, Weiss, who was hired in 1975 to be the women's

basketball, volleyball, and track coaches, as well as the women's AD, was gone by 1981. She took the same position at Florida, which was blessed with a budget \$1 million more than that of USU women's athletics.

But a few years before she left Logan, Weiss filed a Title IX complaint against the university, which was investigated by the Office of Civil Rights. Enacted in 1972, Title IX of the Education Amendments Act created a federal law decreeing that "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance." As far as collegiate athletics, that meant that women's programs should be on par with that of men's programs in areas like facilities, equipment, practice time, and the number of scholarships and team opportunities available.

In Weiss' eyes, "not much had been done at USU" between 1972 and her arrival in '75, but she made do with the limited options she had, like 10 in-state and one out-of-state scholarship for all the women's programs combined. But after successfully bringing in well-known former Olympians Mary Jo Pepler and Marilyn McReavy (Nolen) to kickstart the Aggie volleyball program, Weiss wanted to keep the program at a national level, something that would take additional scholarships and more money.

"I just felt like in '78 that, yeah we had accomplished a lot, but we still were not getting the support that I felt like we should have," Weiss stated. "I knew it was going to take something to jolt them. And I don't think they ever thought that, you know, I would file a Title IX complaint.

A photo from the 1978 *Buzzer* shows athletes from six women's sports, including volleyball setter Sandy Lynn (2). Photo courtesy of USU Special Collections and Archives.



And in so doing it, I thought well, you know, it's not going to help me, but it'll help the student-athletes down the road."

It was that kind of resolve that sparked Proctor's interest in developing a class based around Weiss' efforts and considerable success of the USU volleyball team in 1978 and '79. The nine students in the class chose to research the Aggie volleyball teams of 1978 and '79 using the backdrop of the 50th anniversary of Title IX.

"After I finished as department head in 2021, it gave me an opportunity to teach a little more and offer some new things," Proctor explains. "And I decided I wanted to do a sports history class that deals with some of the global issues, but that also had a component that got the students to do some more community engagement. It's hands-on kind of stuff to help build the history of the sport here at USU."

Working in conjunction with Kelly Rovegno, university archivist in USU's Special Collections & Archives, the pair set out to not only start

a new class, but also create a USU women's athletics archives and "tell some of the stories that haven't really been featured much in the past." The students, who also produced a YouTube video entitled "Playing with Title IX: USU Women's Volleyball 1978–80," interviewed Weiss and several players from that period, while collecting photographs, game programs, and official university correspondence.

"The work we did with Dr. Proctor's class allowed students to engage with our existing collections material and gave them the unique opportunity to collect and preserve materials themselves," Rovegno says. "One of the goals of University Archives is to capture the broad spectrum of experiences at USU. The oral histories conducted by the students are a great way to share the voices of the women athletes and coaches and make sure their stories are preserved for the future."

A digital exhibit featuring the material curated by the class went live in January, just about the same time it was announced that Weiss would be inducted into Utah State Athletics Hall of Fame as part



Co-coaches Mary Jo Pepler and Marilyn McReavy led the Aggies to a 42-4-2 record and the national title in 1978. Photo courtesy of USU Special Collections and Archives.

of an all-female class composed in honor of the 50th anniversary of Title IX.

Clearly, Weiss' tenure at USU is viewed differently today than it was in the 1970s and early '80s. When she was hired to replace Fern Gardner, another USU hall of famer, Weiss was working at the K-12 laboratory school at the University of Northern Colorado. And yet she was able to convince Pepler and McReavy, who were playing professional volleyball in Houston at the time, to come to Logan, Utah.

The hiring of that renowned duo helped recruiting immensely. Annette Cottle '81, M.S. '86, a Salt Lake City native who played her freshman and sophomore seasons for a very good BYU program, played some club volleyball for Pepler and McReavy during the summer and soon decided to transfer to Utah State.

"It was pretty controversial, I have to be honest," admits Cottle, who went on to coach the USU program herself from 1982-84. "But I had a good feeling, and my goal was to be the best player I could be. And the team was a great group of gals. We just all clicked."

Before the AIAW gave way to the NCAA in the early '80s, female athletes could transfer schools without having to sit out a year. However, they were unable to hold a scholarship that first year after transferring, which meant that the best player on the best volleyball team in 1978 played without the benefit of a scholarship. To get by, Cottle took a job buying food

IMPROVING EQUITY IN WOMEN'S SPORTS



Amy Crosbie '03 has been in the middle of things as far as women's collegiate athletics for the past quarter of a century.

Born a few years after Title IX legislation was passed in 1972, the California native came to Utah State in 1997 and has been involved in athletics for the last 25-plus years as an outside hitter for USU volleyball, an assistant coach, academic advisor and executive associate athletics director at both Weber State and USU.

"I don't have the same stories that pre-Title IX women have," admits Crosbie, who returned to her alma mater in July 2019 to serve as USU's executive associate athletics director and senior woman administrator. "Honestly, when I first came here it didn't cross my mind that women didn't have the same opportunities in sports."



The former Amy Goulding dated and married former USU quarterback Jeff Crosbie while still playing on the volleyball team, and she notes that they both used "the same weight room, the same training room, and the same academic facilities." However, there were definitely differences, such as members of the volleyball team set up their own equipment for practices, and in order to help raise funds for the program, volleyball players — as well as members of other athletics programs — often cleaned the Spectrum after men's basketball games or even valet parked cars at basketball games.

But Crosbie also came to USU just after women's soccer was added in 1996 and was here when women's basketball was reinstated as a varsity program in 2003. Athletics facilities at USU have also increased substantially since her playing days with the addition of the Jim & Carol Laub Athletics-Academics Complex, iFit Sports Performance Center (weight room), West Stadium Center (athletes' training table) and the Wayne Estes Center (coaches' offices, volleyball court).

"There are areas where we have definitely grown a ton, and I wish I could have experienced that," Crosbie says.

Title IX is now a huge part of Crosbie's job, and in March 2022, she put together what is currently called the Title IX Review Team. Comprised of faculty members and other on-campus personnel, as well as members of the athletics department, the team has been tasked with evaluating USU's efforts as far as participation numbers, scholarship evaluation, and a "laundry list" of items such as facilities, equipment, and access to tutors. Over four years, the team will conduct an evaluation of scholarships and participation numbers every year while rotating through things found on the list.

"I think every institution has work to do to dissolve inequities that come up," Crosbie notes. "But I do know that as a staff we are operating in a way that we are trying to make sure that the experiences for our student-athletes are as equitable as possible."

A standout Aggie volleyball player from 1997-2000, Amy Crosbie now serves as executive associate athletics director and senior woman administrator. Photo by Levi Sim.



“ I think we were pioneers, but we didn’t realize it at the time. But I’m so excited for the future of women’s sports and seeing just how good the athletes are.”

— **Annette Cottle**

The Aggie volleyball team celebrates its win over UCLA in the championship match of the 1978 NCAA tournament. Photo courtesy of USU Special Collections and Archives.

each week for residents of the large house inhabited by female athletes of all sports who, unlike the male athletes at the time, did not have the benefit of access to a training table — meals provided to athletes by an institution.

Female athletes also had to do things like wash their own uniforms, and the Aggie volleyball team never had a trainer travel with them. One player was even referred to a chiropractor for a torn anterior cruciate ligament in her knee before her parents stepped in and paid for her surgery.

“I think the women had like 11 scholarships, while the men had 125,” Cottle notes. “But Marilyn Weiss wasn’t afraid to push some things and maybe get enough money to fly us somewhere or put two of us in a hotel room instead of five. I know it was a real struggle for her, but she was determined to give us that opportunity.”

The ultimate opportunity came on Dec. 9, 1978, in Tuscaloosa, Alabama, when the Aggies downed mighty UCLA, 3–1, to secure a 48–4–2 record and the first team

national championship in school history. In addition, Cottle was later recognized as the winner of the Broderick Award as the top volleyball player in the nation.

“It’s basically a big silver bowl, so I thought, How fun would it be to put cereal in it and eat out of it?” Cottle says with a laugh. “So, I did. But then my mom said, ‘You don’t do that,’ and quickly cleaned it up and put it back on its little stand.”

While that might have been a training table experience that even the male athletes didn’t get, the “fight” certainly wasn’t over for Cottle and female athletes like her as far as equity under Title IX.

“I see the fight still going on,” says Cottle, who now lives in Hawaii and Nevada after a long career with the Ogden Parks Department. “I think we were pioneers, but we didn’t realize it at the time. But I’m so excited for the future of women’s sports and seeing just how good the athletes are is exciting to me.”

Amy (Goulding) Crosbie, who played volleyball for the Aggies

from 1997–2001, now sits in a similar seat to Weiss’ as the executive associate athletics director at Utah State. Things have certainly changed in the past 40–45 years as far as women’s athletics, primarily positive changes that she’s witnessed both as an athlete and an administrator (see sidebar). Also involved with Proctor’s class project, Crosbie says she’s had her eyes opened even further despite being involved with Title IX issues on a daily basis.

“I’m certainly grateful for the people that noticed the inequities and fought and kind of broke through that initial ceiling,” she declares. “So, there’s been a lot to celebrate with the 50th anniversary of Title IX. But I also think it’s been a good time to reflect and think about what we want the next 50 years to look like.

“How do we want to be a part of that transformational change? I think athletes today are more invested in what that should look like, and I think that’s awesome that they’re noticing big or small inequities and tackling them head on.” **A**

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Daniella Hirschfeld helps communities plan for adapting to future changes like sea-level rise. Photo by Levi Sim.

Planning for the Rising Seas

By Lynnette Harris '88

When Daniella Hirschfeld led workshops last year that brought together community planners, engineers, and policymakers to focus on adapting to rising sea levels, the conversations did not begin with questions about whether or not the water is rising and why. The focus is, “What do we do now?”

“We jump right to ‘The sea is rising and we are on the frontlines,’” says Hirschfeld, an assistant professor of landscape architecture and environmental planning at Utah State University. “If the sea is six inches higher next year, if the sea is threatening homes and structures, we need to plan and make decisions about how we will adapt.”

Those decisions are complicated by many uncertainties: How quickly and how much will the seas rise? Where does it make sense to invest in infrastructure to mitigate its impact? Can we fortify wetlands and barrier islands? Is there equity in decisions about which structures and people must move and which are protected by new seawalls? Should you encourage people to gradually relocate and not allow others to move into areas? If so, does it create communities with only aging residents of a single generation? Planners and policymakers don't like uncertainty. Taxpayers tend to like it even less.

People like thinking that Earth systems change slowly. But human activities have revved up the system, driving hotter and longer heatwaves and more storms that cause flooding. Significant sea-level rise is projected in just the next 30 years and beyond, but factors such as water tem-

While there is a sense of urgency, many communities still have time to make

STRATEGIC PLANS.

perature, melting glaciers, and currents influence how much, meaning increases and impacts will not be evenly distributed. In the U.S., the Gulf Coast and Southeast will see the most dramatic rise, with marshes and groundwater already feeling the effects there. And, Hirschfeld notes, it's difficult for people who are dealing with more severe and frequent storms, flooding, and power outages to thoughtfully focus on evaluating long-term threats and possible solutions.

The impacts of seawater rise won't just be felt in island and coastal communities. Ocean food webs — and, consequently human food webs — will change. Wetlands will become more saline, which changes the kinds of plants that can grow there, altering biodiversity and the services wetlands provide to surrounding ecosystems. That, in turn, influences weather patterns and climate. People in coastal areas will migrate inland, putting additional pressure on communities that may experience rapid growth.

“The chain reaction of all these things is profound,” Hirschfeld says. “A majority

of the goods that come to us in Utah come through ports in California. ... If sea-level rise disrupts work at the ports, we can't get goods to Utah.”

While there is a sense of urgency, many communities still have time to make strategic plans, though Hirschfeld and her colleagues have found that planners almost universally say they need better localized data. There are so many variables that a solution for one community often will not work in another. Deciding how to adapt to sea-level rise is one situation in which it's better to be proactive, which is why Hirschfeld supports planning efforts that devise benchmarks for what actions will be triggered by specific environmental changes. It is important and daunting work.

“This is a really big challenge and can feel bleak,” she admits. “But one of the reasons I made the choice in grad school to work on adaptation is because it's a more hopeful perspective and more about ‘Let's create visions of our future.’ ... We want to look at some wonderful opportunities to make things better.” **A**



BUILDING A

Better Blue

Officer Mandy Blauer
on the Quad during
USU's 2022 Day on the
Quad celebration in the
fall. Photo by Levi Sim.

By Kristen Munson



recent years, advocates have called to “defund the police” or to “back the blue.” The topic of police reform often comes politically charged or laden with preconceived ideas. But embedded within both slogans is agreement — the status quo is not working.

And we see that first in polling.

In 2020, public support for police dipped to its lowest level in the United States — a finding tied to the killing of George Floyd, an unarmed Black man who died after a White officer pinned his neck for nine minutes while other officers looked on. Floyd’s death triggered protests nationwide demanding accountability for police misconduct. However, overall support of the police remains strong.

One has to look no further than another high-profile incident involving law enforcement to understand why. On Jan. 6, 2021, a vastly outnumbered police force defended the U.S. Capitol and the lawmakers inside, saving lives and the peaceful transfer of power following the 2020 Presidential election.

Public opinion of police also rebounded as concerns of violent crime rose. A 2021 survey by the Pew Research Center found that nearly 75% of respondents felt confident that police act in the best interest of the public, as well as widespread support for police reforms such as requiring officers to learn nonviolent alternatives to deadly force and giving civilian oversight boards power to investigate wrongdoing. So, it appears common for people to both support the police and ask them to do better.

A second indicator that improvements are needed are health outcomes of law enforcement. About 80% of police suffer from chronic stress, and more officers die by suicide each year than in the line of duty. They are also more likely to get divorced and struggle with alcohol abuse — and that serves no one.

Lastly, many police departments spend a significant amount of time responding to social service-related calls rather than trying to prevent or solve serious crimes.

However, improving modern policing is no easy fix. Each department has its own culture and training requirements. And many problems facing police and the communities they serve have only magnified as mental health issues have surged in recent years. Police are increasingly called to take on problems they are not adequately equipped to handle.

“We are expecting way too much from police,” says **Jen Evers**, a clinical associate professor of social work at Utah State University Moab. “They are expected to wear so many different hats and are expected to be specialists in so many different things. We need [police] services, but we need them to do what they do. And we are starting to ask them to do other things and I think that’s why we run into problems.”

MAKING THE CONNECTION

 **One path forward** may be using community-based alternative crisis response systems. A growing number of cities are experimenting with programs like CAHOOTS (Crisis Assistance Helping Out On The Streets) in Oregon that divert calls related to homelessness, public intoxication, or non-emergency medical care to teams of crisis workers and medics.

A recent study assessing Denver’s Support Team Assisted Response program found that deploying mental health specialists for certain types of nonviolent calls lowered reported crimes by 34%. It also saved money. Community-based crisis alternatives may help save lives, too. In 2015, the *Washington Post* began tracking police shootings and found more than 25% involve individuals with mental illness.

Last year Evers worked with the Moab Police Department to start a community-based program with USU social work students. She sees it as a needed bridge

IMPROVING MODERN POLICING IS NO EASY FIX.

between two professions that would benefit from increased cooperation.

“I am excited about it because I feel like this is where things need to go,” she says. “We have an oversimplified system for a very complex society.”

Evers argues that when police take on more of the load it gives the false impression that more can be done with resources already stretched thin. Integrating a community-based response program could help if it’s tailored to the specific needs of a town. Because not every call needs to be answered with a gun and handcuffs.

Evers is not alone in thinking that social workers and law enforcement should be more closely aligned.

Law enforcement may be first on scene, but social workers can more effectively connect people to services they may need and intervene with best practices, says **Derrik Tollefson**, professor of social work and director of USU’s I-System Institute for Transdisciplinary Studies..

In 2021, the Utah Legislature awarded USU \$550,000 to launch a cross-training program for criminal justice and social work majors. The funding enabled USU to place social work interns in two police departments and provide “I-System Training for Law Enforcement and First



Sergeant Denny Bird of the Cache Valley Sheriff's Office and Jonah Swenson '21 worked to integrate USU social work students into local policing. Photo by Levi Sim.

Responders” developed through the university’s I-System Institute for Transdisciplinary Studies.

Jonah Swenson '21 was the inaugural social work intern at the Cache County Sheriff's Office and was eager to step into the role. He started in the wake of George Floyd's death as advocates called for increased integration of social work into public safety. But there is no one model to follow, and Swenson and sheriff's office leadership needed an approach that fit the needs of the county and the department.

“We were kind of trailblazing this internship,” Swenson explains.

In the sheriff's office Swenson conducted assessments, followed up with individuals after calls for service, and coordinated care with regional support organizations.

The goal was to dialogue as a team, he says, “to see where in the pipeline can we help these individuals get care? Can we put in better safety nets? We don't like seeing these repeat offenders coming to jail and not getting the services they need.”

Establishing the internship program required buy-in from leadership in the sheriff's office who could envision how social workers might integrate into the

department. This was not exactly an easy sell.

“We have historically frowned on interns because they provide no value to us — no offense,” explains **Mikelshan Bartschi**, a lieutenant in the Cache County Sheriff's Office. “It was additional work for us.”

But he saw promise in resilience training and could see that social workers might relieve the problem of “mission creep” he sees in law enforcement today.

“My job is to hunt predators,” says Bartschi, “Eighty percent of the people we are dealing with aren't real criminals.”

He wants to spend more time focusing on the 20% who are. But that means collaborating with community partners more equipped to handle the social services side.

“We were owning way too much of this problem,” Bartschi says. “Our job is to be impartial fact finders. Our job is to assess risk and danger. And our job when others can't gain control is to gain control. ... The ongoing management of people should not be our domain.”

He brings up the movement to Defund the Police and its slogan, which became a rallying cry in protests in 2020.

“The catch phrase ‘defund the police’

is a silly idea,” he says flatly. “That catch phrase is terrible.” But, he continues, “some of the ideas weren't wrong.” The movement required “a re-examination of what we are doing. What was taking place. What was working, what wasn't working.”

Bartschi hired the department's first social work intern. Swenson began coordinating with groups like Bear River Health Department and implementing evidence-based de-escalation training for officers. The experience required Swenson to embed himself in the department and learn the culture and language of law enforcement. That enabled him to build a rapport with officers and open the door to constructive conversations.

“We are a great generation [of social work students] — very passionate about advocacy and human rights,” Swenson says. “But I think it takes sometimes coming to an understanding of both sides a little bit more ... to bring about real change.”

He hopes to see the partnership with the sheriff's office continue and more public safety agencies welcome social workers onto their teams.

“There are so many students at USU that have these interests,” he says.

BUILDING RESILIENCE

In psychology, resilience is the ability to respond to difficult or traumatic events and return to baseline. Being resilient is important for one's health and something that can be nurtured. This is where USU's I-System training could prove valuable to first responders who often work night shifts with disrupted sleep cycles and frequently witness people in their darker moments.

Because it's typically not during the crisis that we break, Tollefson explains, but in the quieter moments afterward. "We all have innate reserves of resilience that can get depleted over time and degrade our judgement."

And when that occurs, relationships at home, with one's community, or with oneself can suffer.

"Members of law enforcement die by suicide at a rate three to four times more often than they do at the hands of the bad guys," Tollefson says. "This is not okay."

And it's no secret. Increasingly, police departments are prioritizing officer health. Several law enforcement agencies throughout Utah have participated in I-System training. As of January 2023, the institute has trained around 400 officers statewide. "The days of 'suck it up and deal with it' — those days are fading," he says. "It's time to try something new."

Denny Bird, a sergeant in the Cache County Sheriff's Office and father of three, welcomes the change. He has served in law enforcement for 22 years and believes resilience training is vital for the profession, but it's something that will likely take time to gain acceptance.

For generations of police officers, he says, going to therapy was simply not discussed.

Bird spent most of his career working as a school resource officer or investigating cases of rape and child abuse. That is when he first saw how social workers

help survivors get the services they need to thrive in the aftermath. Last fall, he enrolled in USU's master of social work program to provide crisis therapy for survivors, first responders, and their families.

"Let's face it, when you deal with people in crisis every day for years and years, you do need to talk to somebody," Bird says. "It's really difficult for first responders to go in to talk to somebody, and have them truly understand where they are coming from, and then trust what they are talking about will stay confidential."

The I-System training is not therapy. And it's not a check-the-box-and-leave-it-behind activity. It's an everyday practice that requires being vulnerable about the things that make us uncomfortable. When one maps their individual I-System, they identify their requirements — these are simply mental rules we have about how we think we and the world should be. And when a requirement such as 'I should feel safe' is violated, it can leave people feeling unmoored or in a dysregulated state.

Through simple mapping exercises, one comes to see how their I-System interferes with their ability to self-regulate. And through simple practices, they can function more optimally.

I-SYSTEM TRAINING IS NOT THERAPY. AND IT'S NOT A CHECK-THE-BOX-AND-LEAVE-IT-BEHIND ACTIVITY. IT'S AN EVERYDAY PRACTICE THAT REQUIRES BEING VULNERABLE ABOUT THE THINGS THAT MAKE US UNCOMFORTABLE.



Officer Jarred Glover socializes with students at the End of Year Bash last spring. Photo by Levi Sim.

London McBride has served on the UCLA Police Department for more than 16 years as a detective and in crime prevention. Photo courtesy of UCLA.

“It’s really about empowering [officers] to self-assess better and be aware of what may be driving some of their decision making, and then how they can, we use the words of the Identity system, ‘meet the moments,’” Bartschi explains. “Because this job is all about being in the moment, maintaining an external focus so you can problem solve and effectively think.”

Some of the I-System practices can help with de-escalation when applied by officers in the field or on themselves. Bird has witnessed the benefits firsthand.

For instance, if an officer is heading to a domestic violence call, they may start recalling similar instances where they were involved in a fight and fall into the reactive part of the brain, he explains. “Something needs to help us ground, something needs to bring us back. ... Using I-Systems training can help get officers out of that so they can be thinking more clearly when they get on scene.”

He recently used it to connect with a person throwing rocks at a house who appeared to be on some type of substance. Initially the man was not responsive to voice commands, but Bird guided him through a series of sensory exercises and the man began to engage. Bird is still amazed when the process works.

“It’s like a switch,” he says.

And when it doesn’t work, it teaches you something too, Bird explains. Perhaps this person is not in a condition to respond. Maybe they are a danger to themselves or others. This helps officers determine their next steps, knowing they tried other tactics first.

“Most of us don’t like contention,” he says. “But that is required of us sometimes.”

Trainings like this may make physical altercations less likely.



SHAPING THE CULTURE

 **London McBride '99** is a people person. Quick to smile. A youth pastor still known as “coach” to athletes he mentored decades ago who became a police officer more by chance than calling.

“My job wasn’t to go out there to make people have a bad day,” he says. “I got out of the car.”

It’s a mentality he’s passed down to trainees of the UCLA Police Department.

“I taught my trainees you need to be part of a community, not against it,” McBride says.

Students know him only as London.

“No one calls me Officer McBride,” he says laughing. “And that’s important because they know they can trust London. And when they need help, they call London because London has the resources to help. There is a level of trust and there is no fear.”

McBride learned the importance of that from a civilian staff member in his department named Nancy Greenstein.

“She pointed out that the officers that went to the birthday parties, who were out in the public eye more, they were the ones who, when bad things happened, solved more of the crimes,” he says.

The reason?

“[People] didn’t look at them as cops,” he says “They looked at them as ... the person in the community who had the resources to make the problems go away.”

The first hint that McBride was destined for a career in public service emerged while playing football for Utah State from 1995 to '98. He points to mentors — academic and athletic — who shaped his views of leadership. People like retired history professor Ross Peterson '65, former sociology professor Andy Dick Ph.D. '02, and former football coach Todd Littlejohn.

“Seeing how they led and how they treated people, I think it gave me a heart for people,” McBride says.

At Utah State, he and other players would read at local schools. Sometimes



McBride hung out with kids having a bad day who needed someone to sit with at lunch. The experience “allowed me to really take a step out of this whole ‘I’m a football player’ mentality and realize my true heart was in helping people,” he says. “But I still didn’t know what that looked like.”

After graduating, McBride worked out with the Seahawks but they did not sign him. He played a year for the Los Angeles Dragons, a former Spring Football League team, but realized football was no longer the focus of his life. He taught high school physical education before landing a job at UCLA’s physical therapy unit working with patients recovering from heart attacks and lung transplants and terminally ill children. Those experiences gutted him — but in a good way, he says.

McBride pivoted to policing after meeting some UCLA officers who encouraged him to join the force. He’s served as a patrol officer, detective, and most recently in crime prevention where he works to build a community of trust.

And trust is something McBride feels

has eroded on the national level with the death of George Floyd. As a Black officer and the father of five boys, the incident shook him. For McBride, the spotlight on policing identified issues that some departments haven’t yet reckoned with such as racism in the ranks. He points to the history of American policing, particularly in the South, which involved searching for runaway slaves. McBride recently revamped his department’s racial bias and implicit bias training to reflect the profession’s early history.

Usually, in the training it’s a blurb about civil rights, he explains. “Just a blurb and then it’s over. And so, I went in with

racial profiling curriculum used statewide in California. However, his work is not always well received by colleagues.

“But I keep pushing,” McBride says. Because the potential impact will be felt long after he is gone.

“When you get into law enforcement, what you deal with is the culture, but you don’t have to accept that culture, he says. “When recruits come into the interview phase they are a little naive. They are all ‘I just want to change the world.’ What they don’t realize is you’re stepping into a culture that can eat that up.”

Most people get into the profession because they want to make a difference,

BUILDING TRUST, OR REBUILDING TRUST, REQUIRES DOING THINGS DIFFERENTLY.

the history — the real history of policing — and then the trauma that it causes these different communities. And I was like, ‘has anyone heard this?’”

No one had.

“This is what you should know,” he told them. “People don’t know the history, and if you don’t tell them, then they will never know what to change.”

But building trust, or rebuilding trust, requires doing things differently. McBride co-founded the organization Police Against Racism in 2020 to facilitate the process. The group includes retired and active duty officers who participate in community workshops to listen how police can serve them better. McBride, along with the Museum of Tolerance and other subject matter experts, is currently rewriting the

McBride says. He believes that means not falling into the warrior mentality of us versus them.

“Really trying to go in and changing the culture, it is a challenge,” he says. “I think it’s doable. But it is really stripping away the identity of policing and who they are wrapped up in this profession. It involves not buying into the culture, but truly changing it by being different.”

This is where he sees leadership playing a vital role. They can change the incentives and set the flags down the field. But chiefs need to be OK if people walk away from the job, McBride says. “For every one that you lose because you are saying ‘I’m changing the culture,’ there are 5 or 10 more that would love to jump in and be the superhero in somebody’s life.” **A**

MAP OF SAHUL

Ancient supercontinent that now comprises Australia, New Guinea, and Tasmania.

KEY

- ◆ modern cities
- migration super-highways
- - - secondary routes
- ⊕ oldest archaeological sites
- ▲ highly visible terrain



WITH THE AID of computational avatars, Stefani Crabtree and colleagues created a map of probable pedestrian routes that early humans might have used to cross Sahul, a supercontinent that existed 50,000 year ago. These virtual humans were programmed to use wayfinding methods that might feel familiar to hikers now – they sought out springs, used visual landmarks, looked for safe and comfortable places to shelter, and didn't climb a steep hill if they didn't have to. Illustrations by Emeline Humphries '18 and Meg Davidson.



MAPPING SUPERHIGHWAYS



By Lael Gilbert



STEFANI CRABTREE obviously wasn't there, 50 millennia ago, when the first early humans set out to cross the supercontinent of Sahul. She didn't directly track the progress of people up steep canyon trails, across stretches of barren desert, or alongside the green near cool springs. But she still knows a fair bit about how they traveled.

Crabtree and her colleagues model how ancient humans move. With a novel strategy that virtually simulates the decision-making of early wayfinders, the team mapped probable pedestrian "superhighways" across Sahul, the supercontinent that existed before splitting into Australia, New Guinea, and Tasmania. Early humans used methods that might feel familiar to many modern hikers, according to Crabtree, assistant professor of social-environmental modeling in Utah State University's Department of Environment and Society. They sought out springs, used visual landmarks, looked for safe and comfortable places to shelter, and didn't climb a steep hill if they didn't have to.

To decipher the ancient pathways, the team first virtually drained the oceans that now separate mainland Australia from New Guinea and Tasmania. Using hydrological and paleo-geographical data, they reconstructed inland lakes, major rivers, promontory rocks, and mountain ranges that would have attracted the gaze of a wandering human. They created avatar programming for early human travelers and gave them the realistic goal of staying alive. These modeled humans were drawn to water and other landmarks, while the

calorie outputs of their efforts were measured.

"In a new place, they would have to make decisions about efficiently moving throughout the space," says Crabtree, "where to find water, and where to camp — and they would orient themselves based on easily visible high points."

The algorithms simulated a staggering 125 billion possible pathways, and patterns emerged: the most-frequently traveled routes carved distinct "superhighways" across the continent, forming a notable ring-shaped road around the right portion of Australia; a western road; and roads that transect the continent. A subset of these superhighways map to archaeological sites where early rock art, charcoal, shell, and quartz tools have been found.

The project is the largest reconstruction of a network of human migration paths into a new landscape and the first to apply rigorous computational analysis at a continental scale. It won the Hyperion High Performance Computing Innovation Award — the first time an archeological-centered study has earned the prestigious honor.

The research could shed light on other major migrations in human history, such as the first waves of migration out of Africa at least 120,000 years ago. It also helps to narrow the search for undiscovered archaeological sites, forecast movements of current human migration (as a result of climate disruptions, for instance), and help researchers better understand how aboriginal groups connect to other human populations. **A**

The project is the largest reconstruction of a network of human migration paths into a new landscape, and the first to apply rigorous computational analysis at a continental scale.

The desk in Mike Williams' office in the Dale Mildenerger Sports Medicine Complex in the Jim & Carol Laub Athletics-Academics Complex is covered with wedding announcements from the numerous Aggie athletes that he's worked with over the last 30 years.

"The best moments for me have always been the off-the-court moments while on the bus or before practices when you get to see the kids joking around and having fun," says Williams, Utah State University's head athletics trainer since 2013. "And I enjoy being able to kind of mentor kids, especially as I've gotten older. I have a different perspective on life now, and sometimes you can help them get through problems because you've seen it so many times."

His career in sports medicine started one summer day in 1992 when Williams '96 asked Dale Mildenerger — USU's head athletics director for 39 years: "So, what is an athletic trainer?"



KEEPING ATHLETES

ON THE FIELD: A GLIMPSE
INTO THE USU
TRAINING TEAM

By Jeff Hunter '96 · Photos by Levi Sim



◀ **MIKE WILLIAMS,**
Utah State's head athletic
trainer, tapes up the ankles
of an Aggie football player
prior to practice last fall.

After explaining his duties to the young USU student on “a fact-finding mission,” Mildenerger noted that one of his student trainers had been let go two days earlier and asked Williams if he wanted a job.

“I didn’t really know what it was,” Williams admits. “But I started at football camp in August and never looked back. I walked in on the first day, they showed me how to tape that afternoon, and about an hour later, football players

walked in, and I had to start taping them. It was baptism by fire.”

Times were different back then. Student trainers could work unsupervised with basically nothing more than first-aid training. Now they are required to be supervised and certified by a national organization.

“I couldn’t do now what I did back then,” admits Williams.

After graduating with a bachelor’s in exercise science, Williams completed a

master’s in sports administration at the University of Idaho and then worked as a trainer for the Idaho Stampede basketball team and at Logan Regional Hospital before returning to Utah State. He served as the trainer for men’s basketball and gained notoriety throughout the state for saving the life of Danny Berger after the USU forward collapsed during practice on Dec. 4, 2012.

Williams’ quick use of CPR and an automated external defibrillator (AED) kept Berger alive until paramedics arrived at the Spectrum, and Berger not only survived but resumed his basketball career the following season.

“I get a lot of credit for that, but I was really only involved for like two minutes,” says Williams, who was honored with the Heartsaver Hero Award by the American Heart Association in 2013. “But it was a career-changing event for me, and a life-changing event for Danny. ... I’m so glad it worked out for him.”

Completed in 2008, the 11,000-square-foot Mildenerger Complex accommodates USU’s sports medicine staff, which is currently comprised of eight full-time and five part-time athletic trainers who oversee about 375 student-athletes competing for 15 NCAA Division I programs.

Williams primarily handles the football team, where he carefully studies every play as the mandated “medical observer” in charge of watching for potential concussions, as well as dealing with other injuries.

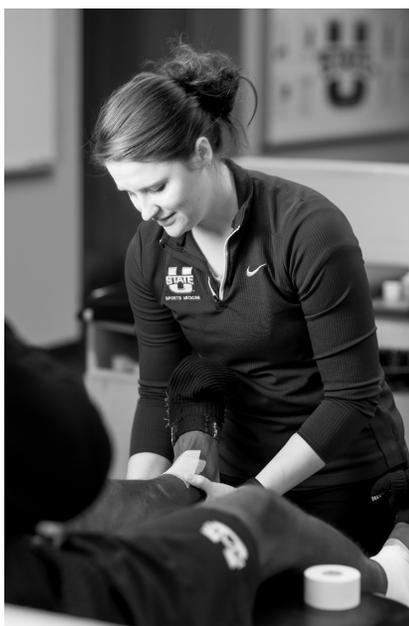
“I’m always watching to see if everybody stands up and walks off,” Williams says. “If somebody’s laying on the ground, how are they laying and are they grabbing something? And you know your team. Some of them are a little dramatic, so is it a dramatic kid? Or is a kid that’s not?”

While facilities and staffing have improved since that first day he walked into Mildenberger’s office, “expectations have also changed,” Williams says.

“Resources have skyrocketed, but expectations have also skyrocketed,” he says. “The demands on student-athletes have gone up due to the year-round nature of athletics now, which means trainers are expected to be at more things.”

Now someone who hires trainers himself, Williams says he looks for individuals who “have some energy and want to buy into what we’re trying to accomplish.”

“Being older, I realize it’s just a game in the whole scheme of life. But to those athletes, that is the biggest thing in their life right now,” Williams explains. “I want people who understand that and have personalities that allow them to communicate and work with the coaches and the student-athletes. I want people who understand that and ... [want] to help them in life. That’s way bigger than any sport — and what they are going to accomplish after college.” **A**



◀ **IZZY DENOWSKI**, resident trainer, tapes up the ankles of a USU student-athlete on a table at the Mildenberger Sports Medicine Complex.

▲ **RYLIE MCMURRY**, assistant athletic trainer, provides cupping treatment for an Aggie soccer player.

“TO HELP THEM IN LIFE — THAT’S WAY BIGGER THAN ANY SPORT.”

— Mike Williams



▲ **LEAH DUNAGAN**, associate athletic trainer, helps get USU guard RJ Eytel-Rock ready for a basketball game at the Spectrum.

▲ **DUNAGAN** tends to Rylan Jones after the Aggie point guard was hit in the face during a game against Utah Tech in December.



▲ **BRADY MOLLNER**, assistant athletic trainer, steps in to help an Aggie football player during a fall practice.



▲ **JEN BERG**, assistant athletic trainer, treats the knee of a women's basketball player.



▲ **MCMURRY** works with an Aggie soccer player at the Dale Mildenerger Sports Medicine Complex.

▲ **KENDRA GILMORE**, assistant athletic trainer, tapes the ankle of a USU football player prior to practice last fall.



September 22 –
October 1, 2023

AGGIE *Fall Foliage* TOUR

Guided by USU Professor Ross Peterson

Explore the history, see the sights and taste the food of fall in New England with fellow Aggies and friends. Plus attend the tailgate and USU vs UConn game. Details and booking coming soon!



ALUMNI

Whether you live in Utah or you're just visiting, there are Aggie Outings and Aggie Days happening year-round. Moved away? Check out ways to engage through USU Alumni Chapters and traveling tailgates in your area.

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“For over 30 years

Miller has been driven to photograph the United States’ space program in an artistic and scientific approach to storytelling. He has traveled throughout the USA to photograph launches, landings, and related structures to introduce his personal exploration of NASA’s history and to transform science into art. Roland Miller’s energy, experience and decisive vision has provided a unique insight for the public’s understanding of the space program.”

Forward of **Orbital Planes: A Personal Vision of the Space Shuttle Program**

Alumni

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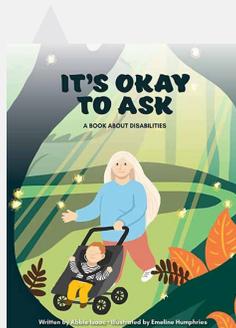
Damiani Editore
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Lioncrest Publishing
June 2022

Toxic Dust: A Growing Problem

By Kristen Munson

The desiccation of Great Salt Lake is obvious, particularly from the air. The shoreline of the western world's largest saline lake appears to stretch for miles beyond where it should be. What is less apparent is the potential harm carried in the wind from the dusty lakebed.

Molly Blakowski, a doctoral student in watershed sciences at Utah State University, wants to determine which heavy metals and contaminants hitch a ride on dust particles blown from Great Salt Lake and how they may affect the people and ecosystems downwind.

"The fact all of these pollutants have been accumulating in the lakebed sediments over the past century and beyond was not a big threat to us when the sediments were all covered by water," she explains. "It's now a more imminent threat because of the potential to blow back in our faces."

As water from Great Salt Lake disappears, it leaves behind a crust vulnerable to erosion by wind, and the particles once trapped underneath can be lofted into the atmosphere. Blakowski aims to understand the consequences when heavy

metals and pollutants bind to dust particles and coat the plants and soils where we grow our food.

"In a lot of ecosystems, nutrients that are essential to the plant life are actually coming from dust from a faraway place," she explains. "But it can go both ways. Dust can deliver helpful nutrients, but it can also deliver harmful contaminants." Blakowski and Jeffrey Perala-Dewey, a Ph.D. student in chemistry at USU, spent the last three years monitoring dust from five sites along Farmington Bay. They have detected arsenic, lead, copper, zinc, and cadmium, as well as polychlorinated biphenyls (PCBs), pesticides, and cyanotoxins. Alarming, they also found dust emissions have increased every year since 2019.

"We have seen with our own eyes that the protective mineral crust covering the lakebed sediment is breaking down, in some areas really significantly," Blakowski says. "Pretty big changes can happen in a pretty short amount of time."

As more lakebed is exposed, more dust can be expected — and with severe effects. Dust accelerates the melting of snow and ice, which threatens mountain snowpack and Utah's drinking water sup-

ply. But what if it also affects our food? Blakowski recently simulated the frequency of dust storms from Great Salt Lake during a typical growing season, applying dust to the roots of some greenhouse cabbages and to the leaves of others. Afterwards she processed the cabbage to mimic human digestion and will soon analyze their chemical compositions to test the proportion of heavy metals that could be consumed from contaminated garden vegetables.





Dust accelerates the melting of snow and ice, which threatens mountain snowpack and Utah’s drinking water supply.

But what if it also affects our food?

“I do expect that the plants exposed to dust will have higher concentrations of heavy metals,” she admits. But how much is not yet clear.

The experiment is personal for Blakowski, who, like many Utahns, gardens. And she worries that an activity considered healthy and productive may not hold as many benefits as once thought.

She likens the state of Great Salt Lake to putting “water on a hot frying pan on a burner.”

“We’ve got inversions, we’ve got ozone pollution, we’ve got the wildfire smoke,” says Molly Blakowski, a doctoral student in watershed sciences. But she studies another way contaminated dust from the Great Salt Lake could affect people’s health — through the food we eat. Photo by Levi Sim.

Nevertheless, Blakowski remains optimistic about the lake’s future because of work by the state legislature and because the primary reason the lake is threatened is due to human demands on it, she says. “We have some of the highest water use in the country. ... Because the problem is so human caused I think it can be also more likely to be human solved.” **A**



Learn more about toxic Great Salt Lake dust from Molly and fellow doctoral student Jeffrey Perala-Dewey.

Identifying Stress in Dementia Caregivers

By Allyson Myers '19

In China, it's common for multiple generations of a family to share a household.

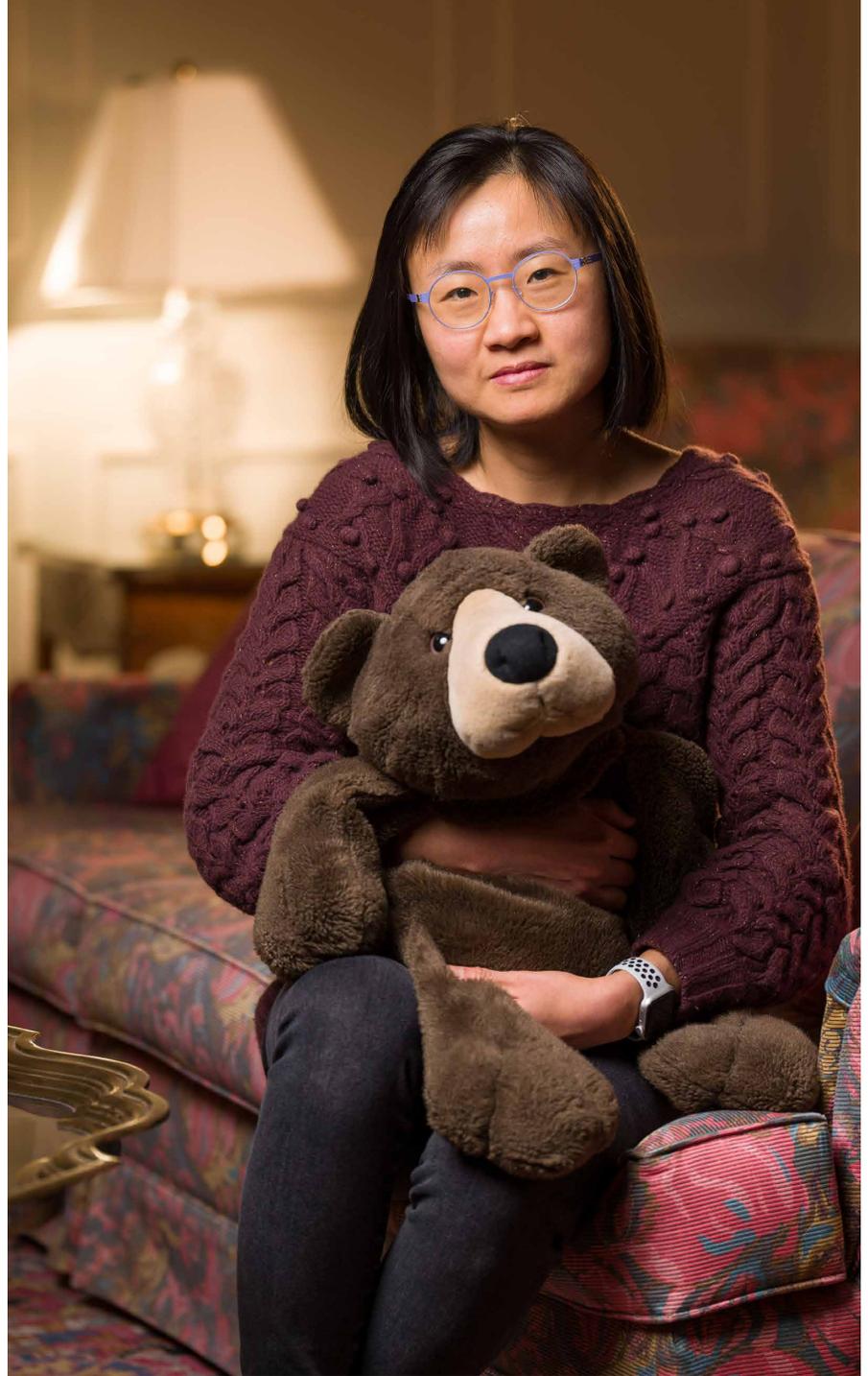
So, when Yin Liu, assistant professor of human development and family studies, talks about living with her grandfather for the first part of her life, this is not immediately a profound detail. It takes on new meaning when Liu shares that her grandfather had Alzheimer's disease, and after Liu's mother could no longer provide care for him, Liu stepped up.

"I had already graduated and had a job teaching at a college," she says, "and so I became a caregiver for my family."

This intimate experience with dementia gives Liu unique insight as a researcher in gerontology and a faculty affiliate of the new Alzheimer's Disease and Dementia Research Center housed on the USU Logan campus. Liu studies caregiver stress through biomarkers — measurable, biological indications of stress that the body produces as it moves day by day through challenges and difficulties.

During grad school, Liu worked on a research project that examined saliva samples from individuals who were caregivers for loved ones with dementia. Research suggests that family caregivers tend to exhibit high levels of cortisol, a hormone linked to stress. By measuring cortisol levels in these samples, researchers can gather objective physiological data to connect to caregivers' own reports of stress.

This use of biomarkers can help



Yin Liu was a caretaker for her grandfather when he had Alzheimer's disease. Now, she studies caregiver stress. Photo by Levi Sim.

provide valuable data on factors like quality of sleep and daily exercise in the reduction and management of the chronic stress shouldered by many caregivers. As she continues her research, Liu hopes to study hair samples, which can show weeks and months of stress rather than just the data of one day.

While Liu recognizes that her research might not seem valuable to someone who

doesn't have experience with Alzheimer's disease or dementia, she hopes her work can be used to help all people live better lives, no matter what awaits them in the future.

"We don't know whether we might have this disease, or another disease, or no disease at all," she says. "But my research is meaningful for everybody because we all cherish our life." **A**

The Unforgiving Work of **Surprise**

By Kristen Munson

Jordan Snow BFA '22 doesn't think before chiseling. And he doesn't dwell on the results.

"Not to be like a Bob Ross-kind of a guy — 'that's a beautiful mistake' — but really, it's kind of in that vein," he says. "That surprise is what I am looking for. ... If I do knock something off, or if I do get frustrated with the stone and take my hammer to the head of a dude and it turns into something

else, my work, it kind of lends itself to that."

Snow direct carves marble and his pieces can have a rough, even unfinished effect.

"Catching the movement is almost more important to me than having a so-called academic finished project," Snow explains. "I do reject the idea that something has to be polished to be finished."

For his senior project he regrets not leaving a note inviting people to touch the sculptures — not exactly a mindset found in fine art museums. But Snow is not exactly formal. He chats wearing Carhartts, hair powdered with alabaster dust.

"It's that tactile aspect of my work that the viewer almost needs to grab a hold of to really appreciate," Snow says.

He hauls marble dynamited from the mountains of southern Utah to his cabin near Oak City, Utah where he keeps rock too big for Utah State University to warehouse.

"Where I am from you can still see the stars at night," he says. "It's the rock hunter's paradise. ... We've got topaz, red beryl, about every stone gem you can find. Most importantly, we have marble."

Snow grew up ranching. He drew and painted in between mending fences, and shifted to sculpting stone in 2013 after carving his first piece on the tailgate of his truck.

"Stone is unforgiving to where it is less manipulative that way," he says. "I have to reach deeper, I think, in the creative process to really find whatever inside me."

He often carves figures, but considers them archetypal. He doesn't work from photos. Sometimes an image, like a serpent, will grab him and he races to finish a piece before it leaves.

Snow began attending USU in 2016 to learn traditional carving methods but burnt out after few semesters. He went to Japan to learn bronzing techniques and pilgrimaged to Italy to view works like Michelangelo's Moses. He wanted to see what he couldn't study from pictures. He recently returned to USU and set a personal record — finishing four sculptures in three and a half months.

"The learning and the growth came because I have been hungry," Snow says. "Creating something is wrestling with a horse. It brings out that child in me. I can keep going. I don't need as much sleep or food or whatever. I just need to stay with the stone." **A**

For inquiries contact Snow at jordansnowart@gmail.com.

Jordan Snow first began carving stone in 2013 on the tailgate of his truck. Photo by Levi Sim.



Disrupting for Good

By Jeff Hunter '96

Oscar Marquina's BS '05, MBA '10 successful business career pays dividends beyond just financial gain.

His family immigrated to New Jersey from Venezuela when Marquina was 14 years old, and relatives living in Utah put the Beehive State on his radar when it came time to choose a college. He studied mechanical engineering at Utah State University. Upon graduating, he washed dishes at a Cache Valley restaurant, but implementation of the Deferred Action for Childhood Arrivals (DACA) program in 2012 allowed Marquina to obtain a work permit and seek other career opportunities.

Since completing his MBA at the Jon M. Huntsman School of Business, Marquina has held positions with Goldman Sachs and McKinsey & Company, while also lending a hand to business startups as an angel investor. Marquina's influence in the Hispanic business community led to him being named to 2018's "Top 40 Under 40 Hispanic Leaders" list by Prospanica, the association of Hispanic MBAs and business professionals, as well as being recognized as a "40 Under 40 Business Leader" by *Utah Business Magazine* in 2022.

We visited with Marquina, now 40, in the Taggart Student Center, just a few weeks after being honored at Homecoming as USU's 2022 Young Alumnus of the Year. This conversation has been edited for clarity.

Why did you initially choose to study engineering?

I come from a family of professors, and I had a couple of uncles that were engineers. So, almost since I was little, it was kind of understood that I was going to be an engineer. I remember playing with Legos thinking I was going to work for NASA. Another reason is that it's a well-paying career. If we had stayed in Venezuela, it would have been even more certain that I would have gone into engineering for the economic security.

What prompted your shift to pursuing an MBA?

The world is better off because I'm not an engineer. You don't want me anywhere near a building, or a car, or a plane. There were a few things about engineering that I really enjoyed, but I started realizing that I probably didn't have the full skills to be really good at it. I think by my junior year I kind of already knew I might not have an engineer-type career — I wasn't going to be the person doing the designs and number crunching. So, I started trying to get more involved in leadership activities and working with the school government to get us some funding for things like the Mini Baja (engineering competition).

When did the desire to get into business emerge?

When I was a freshman in college I started a small business. It was driving an ice cream truck. I had lost my job and my mom had lost her job, so I had to figure out how I was going to pay for school. I bought the ice cream truck from a friend



and it worked out great. I even hired a couple of other people. That is really what got me into pursuing business more seriously. By the time I was a senior, I knew I was going to come back and get my MBA.

How long did that take?

I didn't have my work permit, so I couldn't get a full-time job. So, for two years I ran the ice cream truck, started another business down in Salt Lake — a handbag store — and I spent a lot of time skiing at Beaver Mountain Ski Area. I was just trying to prepare myself for the next stage, and both businesses were successful. Handbags & More had two locations before I sold it.



Oscar Marquina is an angel investor who fuses his background in engineering with his desire to support businesses on the leading edge. Photo by Levi Sim.

Will you share some details about the companies you've invested in?

A couple of the angel investments that I have made are in the space tech industry, companies that are working on satellite refueling and space debris mapping. I've also invested in a company that is creating smart contact lenses. The tie-in is that my engineering education helped give me an appreciation of how technology can improve society, and I see my skills in business and as an investor as a way to support these innovations.

You've been referred to as a business leader by several different publications and organizations. Do you feel like one?

I don't know if I'm a leader or not, but I feel like I've been fortunate and lucky enough to find myself in different situations where I've been able to make a positive impact with people and communities.

You have truly embraced the Huntsman School of Business's motto of "Dare mighty things." That seems appropriate for someone whose career is investing.

I think it's a good motto to have for anything, not just investing and business. It's a good attitude because it helps you push the limits of what you think is possible and really try for something bigger. I really feel that having that vision to be able to "Dare mighty things" is something that is worth embracing for students. **A**

What has the value of your MBA from Utah State been?

After I got my work permit I went to work for a commodity trading company out of Kansas City buying and selling wheat. Then I switched to a similar job in the commodities group for Goldman Sachs. What my MBA did was open up a lot of doors for me, and it was pivotal in me getting another job as a management consultant for McKinsey & Company. A professor I had at USU worked there, and he asked if I wanted to come over. At the time, I didn't know what McKinsey was, but after looking into it, I realized it was one of those unique, once-in-a-lifetime opportunities. While I was at

McKinsey, I co-founded a group called the Hispanic and Latino Economic Forum, which I feel has had a positive impact in the Hispanic community, at least in the business world.

What do you enjoy about angel investing?

For me, it is very rewarding for a couple of reasons. First, I really like working with startup founders. There's a lot of raw energy there, which is very contagious. And second, after being involved with the Hispanic and Latino Economic Forum, I thought, OK, it's time to put my money where my mouth is and try and help make things easier for other people than I had.

Pickleball for All!

By Kristen Munson

The origin story of Bison Paddles is hazy — even to the company’s founders Collin Peterson ’21 and Daniel Warren.

“I think one thing that was happening was you had played once or twice with your aunt,” Peterson suggests during a Zoom meeting.

But the idea to start a pickleball paddle company definitely emerged after the two met during a ping-pong class at Utah State University.

“It was a fun part of the day,” Peterson says. “Once that class was over it was just a way for us to do the same kind of stuff but just on a bigger scale.”

The two began playing pickleball at the Aggie Recreation Center and discovered a business opportunity.

“The paddles we were using were breaking down [and] the graphics just weren’t good,” Peterson explains. “We wanted to really push this idea of quality.”

They launched Bison Paddles in August of 2020 — perfect timing for supply chain issues — and have tried to keep the durable, fashion-forward paddles in stock ever since.

“We’ve never known not having issues,” Warren admits. “We sell out all of the time. We always have.”

Pickleball doesn’t require fancy equipment — just a net and a 44’ by 20’ patch of pavement or repurposed basketball court will get the job done. Initially the sport gained prominence among older adults because it was less likely to cause injuries since the ball is soft like a Wiffle Ball and slower moving. But pickleball is popular across age demographics.

“I’ve seen [news articles saying] pickleball was a remedy to COVID cause it’s non-contact. It’s this new and exciting thing that got people outside,” Peterson explains. “Pickleball is the fastest growing sport in America, probably the world, honestly. ... It can bring people of all ages together.”

Warren, a senior marketing major, and Peterson, a graduate of the Jon M. Huntsman School of Business, knew they wanted to start a company together and mulled over possibilities like opening a smash room.

“They were kind of a trendy business at the time,” Warren explains. “We almost opened one here in Logan, which we are quite glad we didn’t because of COVID.”

Ultimately, they settled on something they both loved — pickleball — and used resources from YouTube to USU professors to bring Bison Paddles to market. Warren often sees people using them in Utah County when visiting his parents.

“When we tell [people we started the brand], they are like, oh yeah, my dad has one of those,” he says.

From the outset, Bison Paddles has donated a portion of the profits to support the National Buffalo Foundation because many of the brands they admire most give back in some way.

“I think there is a shift with brands being expected to be more socially responsible,” Warren says. “A lot of the younger generation people are just coming to expect that, which I think is a good thing.” **A**

Learn more at bisonpickleball.com.



Senior Daniel Warren (left) and Collin Peterson '21 (right) met during a ping-pong class at USU and founded Bison Paddles shortly afterward. Photo by Levi Sim.





THE HUMAN IMPACTS AFFECTING WESTERN DROUGHT

By Kristen Munson

Grace Affram (left) and Wei Zhang (right) analyze pressure patterns across the Western United States to determine the major factors contributing to drought. Photo by Levi Sim.

Drought isn't something that Grace Affram worried about growing up. "In Ghana, there are just a few places that have droughts," she explains. "We have a lot of water — and we don't really use it wisely."

But she became fascinated with drought as an undergraduate and couldn't shake her interest in the subject as a master's student of earth system physics in Italy. A job posting by Wei Zhang, assistant professor in the plants, soils, and climate department at Utah State University, prompted her to email him for details. Soon after meet-

ing over Zoom, Affram was touching down in Utah to begin her doctorate investigating the causes of drought in the American West.

"It just interests me to help," she says. "I feel like I am trying to help people who don't have water."

Zhang moved to Utah from Iowa where he spent four and a half years analyzing hydrological models and exploring a seemingly different problem — historic flooding events. He realized he could apply a similar methodology to understand drying trends.

"One interesting thing that I noticed is that when you look at the historical trend in precipitation across the U.S., the patterns are very different," Zhang says.

Unlike the West, much of the Midwest and Eastern states are experiencing a shift toward more precipitation. Zhang focuses on teasing out what causes those trends from climate models.

"If we can understand them better, then we can have a better sense of the future changes," he explains.

Zhang's research in Iowa found that rising greenhouse gas emissions shaped



a phenomena known as the “Midwest water hose,” which carries moisture from the Gulf of Mexico northward. Over the last several decades, the Midwest water hose has increasingly unleashed heavy precipitation like the 2019 rains that flooded the Mississippi River and caused billions in damages to homes and businesses across state lines. At USU, Zhang’s team, including Affram, used a similar technique to parse the major factors contributing to the West’s ongoing megadrought.

Numerous studies have focused on changes in ridge patterns — high-pressure fields often associated with hotter, drier weather. But when the USU team dug into the data, they found something else may be at play. They examined drivers influencing decreasing trough patterns — areas of low pressure associated with colder, wetter weather.

“To look at the main cause of the western U.S. drought, the first thing was comparing precipitation, which was decreasing, to temperature, which was increasing,” Affram explains. “We wanted to see which one was actually causing the drought, and if — or how — human activities were increasing the severity.”

Zhang and Affram analyzed pressure patterns across western U.S. states collected by the National Oceanic and Atmospheric Administration (NOAA) between 1980 and 2018 and how they contribute to soil moisture deficits. They found that ridge patterns weren’t significantly changed but trough patterns were, meaning that ridging temperature played a secondary role to lower historical precipitation levels.

“We also found that human activities increased the severity of this drought by [a factor of 25],” Affram adds.

The team’s findings were published in

the journal *Geophysical Research Letters* in December 2021.

But how does one determine the human impact on drought, particularly when fluctuations in temperature and precipitation naturally occur? Simulations. Scientists test how forces like greenhouse gases alter the trajectory in climate models. And Zhang has plenty of experience in this realm.

As a research scientist, he modeled tropical storms and hurricanes at NOAA’s Geophysical Fluid Dynamics Laboratory, which produced the world’s first climate model in the late ’60s. And climate models have become more complex and more accurate ever since.

“When I talk about why climate models are so important it’s because when you look at the historical change of temperature you can see that increase in trend, but that change alone cannot tell us that that trend was caused by climate change,” says Zhang who teaches in USU’s climate adaption science program. “One thing we can do using climate modeling is we can prescribe the changes in the different forces, like natural forcing or anthropogenic forcing, including greenhouse gases. ... Based on the experiments, we can see that only when we add the greenhouse gas forcing do we see that really sharp increase in trend in global average temperature.”

During explanations, Zhang occasionally refers to patterns in data as signals. Patterns of declining snowpack. Patterns of worsening drought. Patterns of reduced precipitation. These are signals that something is afoot, and they deserve attention.

But climate models don’t just show that conditions have changed, they are tools that can project seasonal forecasts. Zhang and Affram are now exploring the mechanisms affecting soil moisture deficits and allow scientists to make better predictions for drought.

However, drought is not the end of the entire story of the West.

The uncomfortable reality is that parched soils don’t absorb water as easily as when they are damp. Instead of water seeping into the ground, it pools

on the surface and that much-prayed-for rain can lead to flash flooding. Drought and flooding are two sides of the same sad coin.

Zhang and Robert Gillies, a professor of climate science at USU and the state climatologist, recently published a study in *Geophysical Research Letters* examining the levels of hydroclimatic intensity (HYINT) in the West — a measure describing the contrast between the duration of dry spells and the concentration of precipi-

HOW DOES ONE DETERMINE THE HUMAN IMPACT ON DROUGHT, PARTICULARLY WHEN FLUCTUATIONS IN TEMPERATURE AND PRECIPITATION NATURALLY OCCUR? SIMULATIONS.

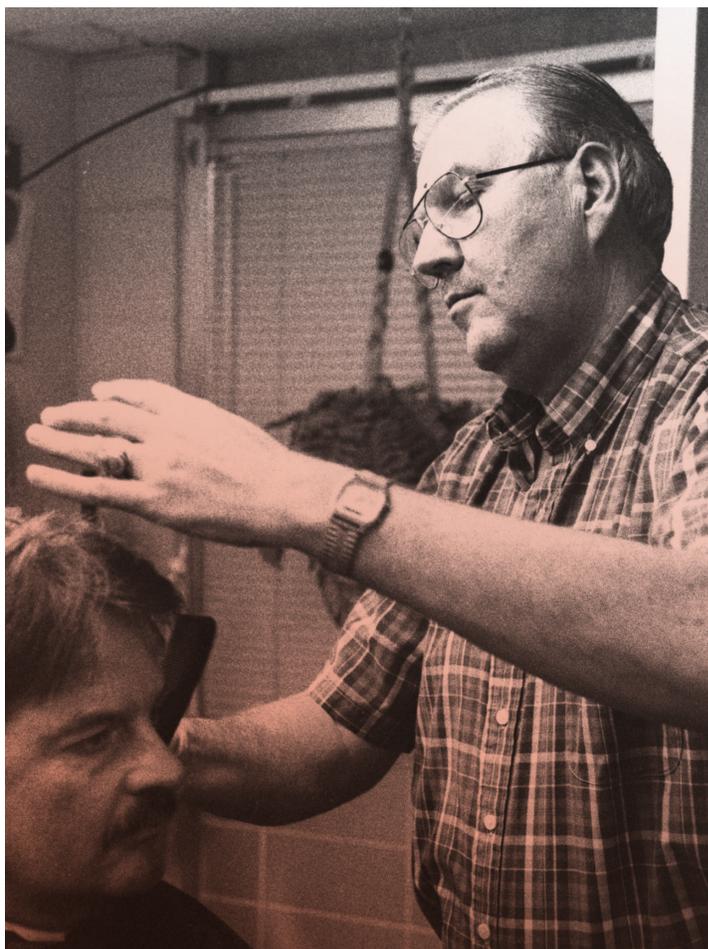
tation in between. For instance, an area that experiences severe drought and then is pummeled with historic rainfall would have a high HYINT index. This rollercoaster effect can give people the false impression that drought isn’t severe even when precipitation levels are lower overall. The researchers found an increasing HYINT index across much of the Southwest, including Utah, that has been growing for decades.

“We should not only talk about drought in the western U.S.,” Zhang says. “We are seeing flash flooding and very short-term extreme precipitation that is very detrimental to our infrastructure. We are seeing that flooding in California and Southern Utah every year.”

And that is a signal worth noting. **A**

ADIEU TO THE 'DO AND THE BARBERSHOP

By Jeff Hunter '96



Dick Swainston cut hair at the barbershop in the Taggart Student Center for 40 years. Photo from USU Special Collections and Archives.

THE UTAH STATE AGRICULTURAL COLLEGE BULLETIN PUBLISHED

IN SEPTEMBER 1954 focused its entire 20 pages on the notable amenities of the nearly new Student Union building, which combined services and shops previously found throughout the campus into one central facility. Now known as the Glen L. Taggart Student Center, the Student Union first opened its doors in December 1952.

Among the many conveniences located in the original 108,000-square-foot structure were a health center, bookstore, ballroom, soda fountain, camera shop, bowling alley, music listening room, and even a smoking lounge. There was also a three-chair barbershop, the addition of which was marketed in the USAC Bulletin as such:

Here you will find skilled tonsorial artists available to keep you looking neat and well-groomed in the classroom as well as for those out-of-class engagements. P.S. The gals are also welcome.

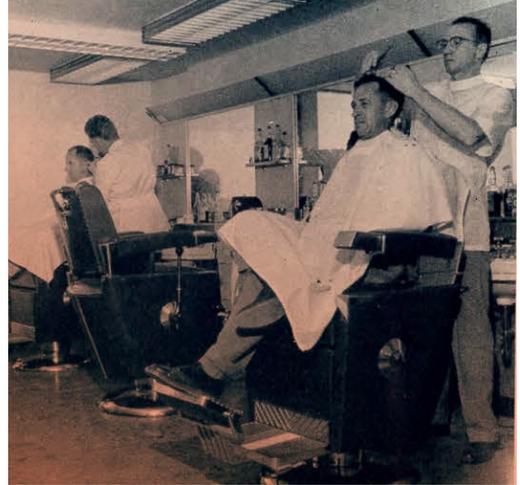
Seventy years later, “tonsorial artists” — a fancy word for barbers or hairdressers — are no longer found on the campus of Utah State University. The little barbershop famous for its map full of push pins marking the hometowns of its many customers closed its doors for good in December 2021.

Business inside the narrow space, located on the south side of the hallway in between the USU Campus Store and the Student Media/Utah Statesman office, had fallen off in recent years, and the COVID-19 pandemic only made things more difficult. Ownership of the shop changed hands several times in the last decade, and when the latest owner was unable to sell the business to another party, she informed the university that she wouldn't be renewing the barbershop's lease agreement for 2022.

Afterwards, Ray Cheatham, who has served as the director of operations at the TSC since 2018, says “the university decided that it might be an opportunity for us to look and see if there was something else that could be done with that space to support the students.”

“And we started to do, more or less, a survey, to try and identify what they would like,” Cheatham explains. “There were some that indicated they wanted to still have a barbershop, but the vast majority were requests for other things. Ultimately, President (Noelle) Cockett decided to assign the space to Student Affairs and USUSA.”

This photograph of the barbershop was featured in a 1954 edition of the *USAC Bulletin*.



Known officially as TSC 120, the space is being renovated into an office for USUSA Student Event Services, which had been located on the third floor of the TSC. According to Student Events adviser Spencer Bitner, construction is scheduled to be completed in February 2023 followed by a grand opening in March.

“The space they currently use will be designated for use by Fraternity & Sorority Life,” Bitner adds. “This student group has been looking for a permanent space for some time, and we are excited for them to have their own designated space on campus.”

Prior to a major renovation of the Taggart Student Center in the 1980s, the barbershop was located further west near the current entrance to the Financial Aid offices. This is where barber Dick Swainston first came to the USU campus in 1965 at the urging of fellow barber LaMonte Hyde. The two commuted together from Preston, Idaho, during most of Swainston’s three-year stint at another shop in downtown Logan. At the time, the USU barbershop boasted three chairs and employed five full-time barbers and a part-time student apprentice. Swainston cut hair in the TSC until 2005.

“Those were good years,” Swainston says of his 40 years at USU.

Now 82 years old, Swainston is retired and wintering in St. George, rather than

braving U.S. Hwy. 91 on a daily basis for a 51-mile, round-trip commute from Preston.

When he first started at USU, Swainston had the summers off because there weren’t enough classes to create foot traffic into the barbershop. But business picked up after a few years, especially after the Teton Dam disaster in Idaho in June 1976 led to an influx of “Sunbirds” to Cache Valley when Rexburg and Ricks College were unable to accommodate their annual visitation plans.

“That helped us keep going,” Swainston says of the Summer Citizen population. “That way we could have at least three, sometimes four of us in the summer. The summer got to be as good as the winter because of them.”

That’s a trend that continued right up until shop closed down, according to Cheatham.

“Last year, that’s probably who I got the most feedback and inquiries from was from Summer Citizens when they came up here for their classes,” he notes. “A number of people asked, ‘Where’s the barbershop? What happened to the barbershop?’”

During his tenure at USU, Swainston cut the hair of most of the university presidents, including Daryl Chase, Glen Taggart, and George Emert. Stanford

Cazier had a brother who was a barber, so he naturally went to him instead, Swainston says. USU coaches and athletes sat in Swainston’s chair throughout the years, and he tried his best to talk to his customers about Aggie athletics rather than religion or politics.

“But it was definitely easier to do when the Aggies were doing good, and you didn’t want to be critical when they were doing bad,” he says.

Needless to say, Swainston also saw a lot of hairstyles come and go before selling what became known as Dick’s Barbershop in 2005.

“When I first got up there, I had to know to do flat tops and Ivy Leagues; that’s real short, just comb it over,” Swainston says. “And then when the long hair came in, we had to take special classes and learn how to cut long hair and blow it with a blow dryer. We actually had to learn how to do it in the later ’60s and the first part of the ’70s because if you didn’t, you went out of business because the customers started going to beauty shops.”

Swainston continues: “Then they went to bowl cuts. That was a bad time. I can’t see a college kid wearing a bowl cut because they look terrible. Little kids were alright. But they went through it. That’s what they wanted, and the customer’s supposed to be right.” **A**



Angela Nielson, left, and Melissa Batelaan were photographed by Matthew Halton in 2017 for a *Utah Statesman* article.

1940s

Jean Bankhead (Mohr) '49, Dec. 26, GA
 Alan Francome '49, Dec. 22, UT
 Eva S. Guyette (Stucki) '44, Aug. 26, NV
 Anna Lou Hansen (Rees) '42, Aug. 2, UT
 Wanda N. Johnson '47, Sept. 14, UT
 Olive L. Jones '47, Dec. 30, UT
 Ilene Laney (Bickmore) '48, Oct. 3, UT
 Estrella Romero (Leishman) '49, Jan. 3, UT
 Ethel C. Stephenson (Valgardson) '49,
 Dec. 18, UT

1950s

Lt Col Lael J. Abbott '52, Nov. 23, TX
 Lamont D. Allan '51, Oct. 1, CA
 Gary G. Allen '58, Nov. 14, UT
 Renee Allen (Jones) '50, Oct. 26, UT
 Harold Edwin Anderson '57, Jul. 23, UT
 Lorán C. Anderson '58, '59MS, Dec. 24, FL
 Thomas L. Arnett '55, Jul. 24, CA
 Irene L. Bates (Lagos) '58, Nov. 13, UT
 E. Jay Berry '58, '61MS, Oct. 9, UT
 Ray W. Bills '59, '61MS, Oct. 27, UT
 Russell Charles Black '58, Nov. 7, UT
 LaThare N. Bodily '56, Sept. 5, ID
 Ralph Dean Briscoe '57, '71MS, '76MBA,
 Oct. 30, UT
 Jack A. Butters '57, Nov. 1, UT
 Val R. Christensen '59, '64MS, Oct. 31, UT
 Jean P. Cole '58, Oct. 20, NC
 Nina M. Coon (York) '51, Aug. 30, TX
 Joyce H. Cracas (Hall) '52, Oct. 29, UT
 Robert L. Crane '58, Nov. 29, UT
 Darwin R. Datwyler '54, Dec. 18, CA
 Dexter F. Davis '59, Oct. 12, UT
 Jim W. Elmsore '52, Sept. 4, UT
 Harlan M. Fulmer '59, '66MED, Nov. 3, UT
 Wendell H. Giles '51, Aug. 27, UT
 Ruth Nadine Grant (Wheeler) '58, Aug. 4, UT
 Joan M. Gunn (Munk) '53, Sept. 13, UT
 Lawrence L. Hamilton '59, Oct. 24, UT
 Belya Lou Hansen (Macarthur) '50, '76MED,
 Sept. 29, UT
 Eloise C. Hansen (Christensen) '56, Dec. 21, UT
 William J. Hart '52, Jul. 20, NC
 Larry O. Haslam '59, '62MS, Sept. 4, UT
 Hal Hatch '51, Aug. 8, ID
 Don L. Healey '52, Sept. 2, UT
 Robert E. Heiner '54, '58MS, Nov. 29, UT
 Harry J. Henrich '58, Dec. 16, PA
 John G. Hoffman '58, Dec. 14, UT
 Frank C. Jackson '50, Jul. 28, UT
 Dennis B. Jensen '58, Aug. 29, UT
 Joseph S. Johnson '50, Oct. 12, UT
 Merlene E. Johnson (Yonk) '59, Jul. 29, UT
 John P. Kennedy '58, Oct. 21, NC
 Leslie Abram Laird '58, '64MS, Dec. 12, NV
 Clifford N. Lee '56, Sept. 25, ID
 Max H. Lemon '53, '61MS, Sept. 10, CA
 Frank J. Librizzi '54, Nov. 30, FL
 Charlene Lind '55, Dec. 9, UT
 Thomas A. Lorenan '55, Oct. 12, CA
 Allen B. Martin '58, Nov. 3, ID
 Walter D. McComb, Jr. '51, Sept. 22, ID
 William R. McKinney '59, Jul. 20, UT
 Paul Mogensen '55, Sept. 17, MT
 Donna R. Moss '58, Sept. 6, UT
 Dwain Nebeker '54, Sept. 12, CA
 James L. Nelson '54, Dec. 2, ND
 Joseph H. Nelson '55, Oct. 9, UT
 Donald Neville '53, Sept. 27, UT
 Gene Palmer '55, Jul. 24, ID
 Richard A. Parker '53, Sept. 27, ID
 Sharon A. Peffer (Allen) '58, Oct. 5, UT
 Merrill R. Petty '59, Dec. 7, UT
 Norman J. Prince '57, '66MS, Oct. 24, CA
 Ted L. Ramsdell '56, Oct. 22, UT
 Martin G. Reeder '54, Oct. 20, UT
 Marilyn B. Reeves (Bronson) '54, Oct. 7, OR
 Lynn Richards '58, '76MIE, Dec. 14, UT
 Cleon W. Ross '59MS, '61PHD, Oct. 20, ID
 Del Satterthwaite '59, Jul. 25, NV
 Paul H. Schneider '59, Oct. 21, UT
 Robert K. Sears '59, Sept. 21, UT
 Keith A. Sewell '52, Aug. 6, TX
 Hyrum W. Smith '59, Aug. 8, UT
 Jesse O. Smith '56, Oct. 10, UT
 Orval C. Sorensen '51, '58MS, Dec. 16, UT
 Maurine Steele (Hanks) '51, Aug. 31, ID
 Ted G. Stock '52, Aug. 8, WA
 Donald G. Swain '58, '59MS, Nov. 20, UT

Theron L. Swainston '56, '59MS, Nov. 30, NV
 Georgia Larsen Teichert '58, Dec. 23, UT
 Carlos E. Thompson '59, Sept. 9, UT
 Gayla S. Tiresor (Stevens) '52, Sept. 17, UT
 John Carl Tuft '52, '67MS, '73PHD, Dec. 9, UT
 Robert S. Turley, Jr. '53, Aug. 21, UT
 Dan G. Turner '51, '53MS, Jul. 26, UT
 John W. Vanderford '55, Aug. 20, UT
 Don A. Waddoups '58, Dec. 22, ID
 Shirley J. Walton (Johnson) '51, Jul. 21, CA
 Rela Wardle '56, Oct. 11, UT
 Jack N. Webster '57, Jan. 3, UT
 Bernadean T. Wood '54, '59MS, Dec. 1, UT
 Moana K. Young '59, '62MS, Jul. 28, ID

1960s

Dauneen Abel (Vella) '62, Nov. 7, UT
 Lloyd D. Adams '68, Aug. 25, UT
 Demetrios Agathangelides '62, Sept. 24, AZ
 Joseph Bodell Allen '68, Dec. 9, UT
 Willard L. Allen '62, Dec. 22, UT
 Jay Andersen '60, Dec. 13, TX
 Alvin B. Anderson '68MBA, Dec. 1, UT
 James L. Anderson '63, Aug. 16, UT
 Janet Hendricks Anderson (Hendricks) '67,
 Aug. 26, UT
 Lamoyne Bailey '62, '71MS, Nov. 26, AZ
 John B. Baldwin '67, Nov. 12, NM
 Korthe E. Bingham '61, Oct. 14, WA
 Robert P. Blonquist, Sr. '65, Nov. 8, UT
 Arthur Bohman '64, Sept. 21, UT
 Ross L. Bradford '60, Dec. 21, CA
 Richard Carlyle Bradshaw '67MS, Dec. 8, AB
 John L. Brady '67, '68MS, Jul. 22, UT
 Carla Irene Brooks '62, '89MED, Oct. 26, UT
 Paul Walter Brooks '65, Dec. 26, UT
 John J. Brunner III '60, Aug. 17, AZ
 Joan Ream Bunderson '65MS, Sept. 29, ID
 Stephen J. Burrie '66, Sept. 10, ID
 Karen K. Burton '64, Oct. 13, UT
 C. Gordon Call '62, Sept. 21, UT
 Gary L. Callaway '67, Jul. 20, AZ
 George Major Carnie '67EDD, Dec. 22, AZ
 Roger M. Clark '60, Nov. 6, UT
 Ralph E. Cluff '62, Nov. 14, UT
 Colonel John H. Cooper '69, Sept. 13, UT
 Leland S. Dalley '64, Dec. 14, AZ
 Stephen Farrell Darley '64, Oct. 13, CT
 Robert C. Davis '67, Oct. 26, AZ
 James L. Dorigatti '62, '67MED, '75EDD,
 Nov. 23, UT
 Glenna D. Douglass '63, Sept. 20, NV
 Ronald K. Drake '67, Oct. 13, UT
 Susan Draper (Barnes) '67, Aug. 20, UT
 LaRae W. Duke (Wade) '69, Sept. 5, UT
 Verr Don Durfee '64, Sept. 29, UT
 Anne W. Ebert (Wadley) '66, Aug. 15, UT
 Gary L. Egan '64, '66MS, Oct. 22, AZ
 Del Wayne England '61, Oct. 17, ID
 Bryce J. Eriksen '60, Dec. 6, UT
 Claranita M. Ernstrom (McAllister) '63,
 Nov. 15, CA
 Linda H. Finchum (Hansen) '66, Sept. 1, UT
 Roger D. Fisher '61, Sept. 30, CA
 Alan L. Forsgren '62, Oct. 4, NV
 Patricia Fox (Stevens) '67, Oct. 3, UT
 Merrill J. Frydendall '67PHD, Jul. 31, MN
 Marilyn Blackham Garner (Blackham) '67,
 Dec. 7, UT
 Thomas Jeffrey Gibbons '65, Aug. 11, AE
 Robert Stanley Goodwin '68, Nov. 18, UT
 Colleen L. Graves (Dives) '66, Dec. 3, CO
 Louis D. Griffin '65, '71MS, Nov. 25, UT
 Lela Ann Hall (McKenzie) '61, Nov. 29, UT
 Alonzo H. Handy III '63, Aug. 3, NV
 Glade L. Handy '60, Oct. 15, UT
 Verden Karl Hannig '61, Oct. 23, UT
 Johnny Hawks '60, Dec. 6, ID
 Sherma P. Heaton '68, Nov. 24, NV
 Roy P. Hill '61, Oct. 28, ID
 Dianne L. Hislop '61, Oct. 2, UT
 John K. Hodson '66, Nov. 26, UT
 Paul F. Howard '62, Sept. 23, UT
 Merle Leon Hunsaker '67, '69MS, Dec. 18, UT
 Thomas Emil Isom '60, Dec. 30, UT
 Owen E. Jensen '62, Nov. 23, UT
 Keith M. Jeppesen '63, Dec. 13, ID
 Joseph Bennion Johnson '68MS, Dec. 4, TX
 Farrel L. Johns '64, Nov. 2, WY
 Dale D. Johnson '69, Dec. 3, UT

Mary L. Jones (Raybould) '60, Nov. 19, AZ
 Lamar J. Jorgensen '61, Nov. 7, UT
 DeeAnn Judd (Sanders) '69, Nov. 13, UT
 Clint S. Judkins '69, Aug. 3, UT
 Barbara P. Kane (Phillips) '61, Nov. 28, CA
 Rodonna Katscanes (Cammack) '67, Dec. 26, ID
 Terry Kidd '68, Sept. 1, UT
 Michael Norman King '66, Nov. 24, UT
 Charlene G. Knapp '68, Dec. 7, ID
 Lloyd N. Kohler '64, Nov. 23, UT
 Richard E. Kotter '63, '67MS, Sept. 18, UT
 Melvin H. Larsen '66, '69MED, Dec. 9, UT
 Allen W. Leigh '61, '63MS, Aug. 9, UT
 Robert O. Lindsay '66, Oct. 10, NV
 Robert A. Luke '62, '66MS, '68PHD, Dec. 29, UT
 Roger Leo Matkin '64, Nov. 28, UT
 Eric L. Maughan '68, Oct. 13, UT
 Stephen A. Meek '65, Dec. 27, ID
 David W. Monson '67, Sept. 30, UT
 Byron K. Montgomery '62, '65MS, Dec. 28, UT
 Deanna S. Morgan '64, Sept. 7, TX
 George D. Morgan '61, Dec. 28, UT
 Vaughn Mortensen '69, Oct. 30, ID
 Lewis Austin Munson '62, Sept. 19, UT
 Wanda Mae Myers (Butler) '63, Aug. 22, WA
 Eldred V. Nelson '65, Oct. 16, UT
 Walter M. Neville '66MS, Oct. 31, UT
 Reed M. Nielsen, Jr. '67, '73MS, Oct. 14, UT
 Brent Nyman '63, Dec. 7, UT
 Gary R. L. Oliverson '62, Nov. 27, WA
 Rosemary G. Palmer (Gudmundson) '68,
 '73MS, Sept. 29, IL
 Vannene A. Partington (Andersen) '63,
 Oct. 23, UT
 Elwyn C. Peterson '68, Nov. 22, MN
 Margery A. Peterson (Jennings) '60, Sept. 11, UT
 Helen K. Reese (Hanson) '60, Oct. 27, UT
 Voir B. Richens '61MS, '67PHD, Nov. 30, NY
 Marilyn E. Robbins (Jones) '66, Jul. 27, CA
 Clair L. Robinson '69, Sept. 13, UT
 Otis J. Romriell '66, '74MS, Nov. 7, UT
 Patty L. Ryan '66, Nov. 14, UT
 Robert C. Saunders '66, '69MS, Dec. 20, ID
 Orrin R. Sessions '65, Dec. 18, IN
 Chen Chain Shih '66, Dec. 2, VA
 Gaynol June Spillner '65, Aug. 1, UT
 Lennis J. Stephensen '65, Sept. 16, AK
 Merry Gay Suchey (Ogden) '61, Dec. 8, UT
 Linda Ann Sumsion (Lee) '62, Aug. 30, UT
 Barbara Taylor (Jackson) '61, Sept. 30, CO
 Graig Taylor '69, Dec. 12, UT
 Elsa Vernice Terry (Watkins) '67, Dec. 13, UT
 Burke H. Theurer '68, Nov. 29, FL
 Ron J. Thorkildsen '67, '72MBA, Nov. 7, UT
 Arthur R. Unger '62, Oct. 6, CA
 Margaret A. Walz (HOFFMAN) '67, Sept. 7, ID
 Kent Wangsgard '62, Sept. 11, UT
 Brent L. Watkins '69, Oct. 14, UT
 Robert K. Wilson '69, Nov. 27, UT
 David M. Zaugg '63, '72MBA, Sept. 19, UT

1970s

Lamont Arnold '72PHD, Oct. 11, UT
 Charles R. Averett '73MED, Dec. 18, UT
 Russel B. Backus '71, '73MS, Sept. 23, VA
 Bradley T. Bateman '79, Nov. 17, ID
 Fred C. Bosone '70, Jul. 25, UT
 Dan E. Burke '70, Sept. 15, UT
 Dan Wood Burton '79, Aug. 7, TX
 Norman Alden Caldwell '75, Aug. 29, UT
 Allen C. Christensen '79PHD, Sept. 8, UT
 Delose Stephen Conner '77, '84, Nov. 25, UT
 Gene Earl Crisfield '72, Sept. 21, AZ
 Kevin Doyle Denney '79, Jul. 28, UT
 Kerry E. DeVries '75, Oct. 14, ID
 Eldon W. Dixon '72MS, Sept. 14, ID
 Gregg Peterson Durham '78, Oct. 27, WA
 Ed H. Feeley '75, Oct. 31, WY
 David Paul Fletcher '74ME, Nov. 21, UT
 Randall L. Gardner '77, Sept. 30, UT
 Brent Roland Green '73, Nov. 10, UT
 Virginia Anne Haldeman '75MS, '80EDD,
 Oct. 11, WA
 Allan H. Hanson '70, Aug. 26, NY
 Mark R. Hargreaves '78, '84MBA, Dec. 8, UT
 Ralph Haycock '73PHD, Oct. 11, UT
 Tanjalyn Hortin (Haggen) '78, Dec. 1, UT
 David Lee Hoth '73, '91, Oct. 23, UT
 Paul C. Hulet '72, Dec. 20, UT
 Willa Critchfield Hurd '75MED, Dec. 14, UT

Clifford Thomas Hyatt '75, Sept. 29, AK
 Michael J. Jenkins '78MS, '82PHD,
 Dec. 5, UT
 Glen Ford Jones '74, Oct. 11, UT
 Alan F. Kukla '71, Oct. 21, SC
 John Hughes LeCavallier '75, Nov. 23, OR
 Paul Harold Lefevor '70EDD, Aug. 30, UT
 Earl P. Leonhardt '72, Sept. 1, UT
 Donald R. Lowe '71, Oct. 19, ID
 Alan R. Lucas '74, Oct. 24, UT
 Kjartan T. Magnusson '78, Aug. 3, UT
 Van Jay Martin '72, Sept. 3, UT
 Brenda Mecham (Madsen) '73, '86MED,
 Dec. 2, UT
 Roy P. Monson '71, Oct. 1, UT
 Sharmeen B. Moore (Bell) '74, Nov. 19, UT
 Stephen E. Morris '73, Oct. 31, UT
 Sharon H. Nelson '79MED, Aug. 29, UT
 Craig Allen Poppleton '71, Oct. 2, UT
 Cathy J. Reid (Hofer) '73MS, Oct. 16, MA
 Joseph Henry Richards '74MS, Dec. 30, MT
 Bryce Sorensen '71MED, Nov. 5, ID
 Martin K. Sorge '77, '85MS, Dec. 16, AA
 Steven Soulier '70MED, Dec. 14, UT
 Merle R. Stallings '72, Nov. 27, ID
 Susan E. Turner (Brasher) '76, Nov. 5, PA
 Samuel H. Vernon '78, Oct. 25, CO
 Ann Louise Wassermann '74, '75MA,
 Aug. 14, UT
 Georgia Elaine Womack (Johnson) '72,
 Aug. 15, ID

1980s

Jack D. Barton '87MED, Dec. 3, UT
 Norvil R. Dallin '80, Nov. 27, NV
 Laurie F. Decker '86, Dec. 23, UT
 Robert K. Draayer '84MBA, Oct. 14, UT
 Steven Lynn Earl '81, '84MED, Dec. 24, UT
 Rodie England '82MED, Nov. 16, UT
 Ryan A. Evans '83, '91MSS, Oct. 4, UT
 William S. Fisher '88, Oct. 17, UT
 Mark E. Grant '88, Aug. 19, UT
 Nancy H. Hall '87, Nov. 16, UT
 Evelyn Jackson '81MS, Oct. 17, UT
 James Harold Johnson '82, Jul. 28, UT
 Robert B. Johnson '80, Nov. 8, UT
 Darin Kerr '84, Sept. 1, ID
 Emma L. Larsen '88, Dec. 22, UT
 Steve G. Larsen '85, Dec. 10, CO
 Merlynn Larson '85, Aug. 26, UT
 David H. Morrill '87, '89MSS, Nov. 15, UT
 Mark D. Morrison '89, Oct. 20, CA
 Tracy D. Muegge '82MBA, Dec. 23, AZ
 Catherine W. Olds (Winkler) '85MED,
 Sept. 3, UT
 Bonita R. Robertson '89MS, Sept. 10, UT
 Sherry Samples '89, Aug. 24, UT
 Rick Schuler '80, Aug. 1, WY
 Peter Bender Shetler '80, Sept. 26, IN
 R. Scott Silcox '89, Aug. 2, UT
 Lamonte Twitchell '82, Nov. 29, UT
 Gary Curtis Walker '85, Sept. 2, ID
 Janis Anne Warr '88, '97MED, Dec. 22, ID
 Max H. Weiss '81, Jul. 26, UT
 Wesley Williams '83MS, Dec. 5, UT
 Conway D. Worsley '88MBA, Aug. 23, UT
 May E. Young '88, Jul. 20, UT

1990s

Jose Javier Alzrecca '96, '99MS, Oct. 14, UT
 William L. Anderson, Jr. '90, Jan. 3, UT
 Deanna Duffin Avis '93MED, Dec. 27, UT
 Dan J. Bates '92, '93MAI, Nov. 28, UT
 Bruce F. Bitner '95MED, Aug. 12, UT
 Derrick R. Brooks '92, Sept. 8, FL
 Jim H. Brughelli '95MS, Aug. 31, UT
 Christine Lynn Christensen '97, Aug. 19, UT
 James B. Dalebout '94, Aug. 18, UT
 Dean H. Davis '90, Oct. 5, UT
 David D. Dominick '99MA, Nov. 3, WY
 Cynthia L. Dye (Kitchen) '90, Aug. 11, UT
 Jeffrey Louis Hutchison '90, Oct. 6, UT
 Richard C. Johnston '97, Nov. 30, MN
 Lisa Jorgensen '92, Dec. 19, NV
 David Takashi Kano '92MBA, Dec. 9, UT
 Kevin G. Kerr '90, '91MAC, Oct. 19, UT
 Delmar Lansing '98, Aug. 19, UT
 Danni E. Lofland '91, Aug. 7, UT
 Maribeth S. Merton '98, Oct. 26, UT

Conrad Naegle '96MS, Dec. 11, UT
Bob D. Obray '93MAC, Aug. 9, UT
Christopher Allen Payne '94MS, Nov. 15, OR
Shirley R. Peters '95, Oct. 9, UT
Susan S. Postma '90, Oct. 16, UT
Mark Daniel Rutherford '06, Nov. 4, UT
Susan Weston Saunders '96, Dec. 12, UT
Phillip T. Solomon '99MBA, Aug. 14, UT
Mark P. Starks '94, Sept. 9, ID
Susan Stevenson '99MED, Oct. 11, UT
Jeanette Russell Webb '97, Dec. 11, UT
David E. Winger '95, Aug. 22, UT

2000s

David D. Allred '04, Sept. 18, UT
Michael D. Barney '05, Oct. 12, UT
Janet N. Dudley '05, Sept. 2, UT
Lavaun G. Faulk '08EDD, Oct. 9, UT
Michele Gowan '00, Sept. 15, UT
Sanna L. Hennefer (Edrington) '05, Jul. 26, UT
Scott M. Hodgson '08, Nov. 9, UT
Marla J. Johnson '04PHD, Aug. 7, UT
Joan Cornia Lythgoe '07, Nov. 8, UT
Anita W. O'Neil (Williams) '00, Oct. 2, UT
Connie E. Shannon '01, Dec. 22, ID
Nicholas P. Smith '00, Aug. 31, UT
Sharon Joyce Stocks '07, Aug. 4, UT
Ann D. Williams '04MLA, Dec. 21, NM

2010s

Rebecca Anne Adams '18, Aug. 26, UT
Tyler Paul Cox '11, Dec. 18, ID
Laura Lee Jensen '13, Nov. 6, UT

2020s

Tyler Yeager '20, Jul. 28, CO

ATTENDERS

Andrew Blain Aagard Oct. 27, UT
David Z. Alvarado Jul. 31, DE
Javier Arzen Oct. 14, UT
Mark Ira Ames Aug. 2, UT
Jeanette K. Amman Oct. 20, UT
John Richard Amundsen III Aug. 8, UT
Russell Anderson Nov. 5, UT
Ty Chyleen Anderson Nov. 30, NC
LaMar James Ashby Dec. 17, UT
Steven Mark Ashby Oct. 8, UT
Elaine Ormond Auger Jul. 30, UT
Wally Axelgard Nov. 21, UT
Dan R. Baker Aug. 15, UT
Patrick K. Baker Oct. 22, UT
Chad Elkins Ball Jul. 26, UT
Judith Barben Oct. 26
Eugene William Baron Nov. 12, UT
Earl Raymond Bartholomew Oct. 25
Bruce L. Baum Sept. 15, UT
Stuart D. Beins Dec. 15, UT
Marlene Bennett Dec. 17, UT
William G. Bickmore Nov. 28, UT
Barbara F. Bindrup (Fackrell) Oct. 14, UT
Douglas R. Bird Dec. 20, UT
Bruce A. Black Sept. 23, UT
Nancee Blockinger Oct. 19, UT
Jordan D. Bloomquist Aug. 5, UT
Robert A. Bohman Dec. 12, CO
Glade S. Booth Nov. 27, UT
Kristie Bowcutt Sept. 16, ID
Lee G. Bradley Oct. 2, UT
Lauren V. Bradshaw Oct. 22, UT
Dennis William Bramble Oct. 28, UT
Trevan D. Brazier Jan. 2, UT
Kevin Lynn Briggs Oct. 28, AZ
Robert Allen Broberg Dec. 12, ID
Andrew Brown Dec. 21, UT
Jane Brown Sept. 27, WY
Gene E. Buhler Aug. 8, UT
Paul W. Butler Sept. 16, UT
Stewart Melvin Butters Sept. 4, UT
Annette Capener (Beattie) Oct. 5, UT
Lois Catherine Carlson Dec. 23, UT
Kevin D. Carter Dec. 13, ID
Valdemar Castillo, Jr. Nov. 26, ID
Michael P. Cetraro Nov. 23, MT
Lynn Cheal Oct. 23, UT
Julie Barbara Cheney Sept. 21, ID
Larry Cheney Nov. 21, ID
LuAnn Chesley Oct. 18, UT
Mark Chidester Dec. 23, UT
Kenneth Christean Sept. 29, NV
Gary M. Christman Nov. 11, UT
Darrell LaVal Clegg Oct. 25, UT
Charlene Clem Sept. 20, NV
Cory G. Collard Jul. 30, UT
Jane M. Conley Aug. 18, UT
Eddie Conover Dec. 16, UT
Mark Wayne Cornett Sept. 20, UT
Sharon W. Cottle Jul. 20, UT
David N. Cox Sept. 22, UT
William Cox Dec. 17
Clara Lavina Crockett Jul. 26, ID
Dale Crockett Oct. 11, UT
William Crowder Oct. 13, IN
William Paul Curtis Oct. 18, UT
Stephen Cutler Dec. 5, UT
Estella Kathleen Dahl Sept. 28
Robert Norman Dahle Aug. 1, UT
Cloyd Davis Oct. 10, UT
Connie Brighton Davis Jul. 25, UT
Roger Davis Nov. 8, UT
Wayne L. DeLeeuw Nov. 10, UT
Alan Demille Oct. 3, UT
Barbara Ann Burns Despain Aug. 31, UT
Richard L. Dixon Nov. 1, WA
Loy E. Dobson Jul. 25, UT
Jerry Downard Oct. 1, UT
Anna Dransfield Dec. 24, ID
John Duersch Dec. 2, UT
Jon D. Duncan Dec. 26, UT
Beverly S. Dunn Nov. 15, UT
Arlene P. Eden Aug. 30, UT
Brian Spangler Eichbauer Nov. 12, UT
Fannie M. Elmore Sept. 2, WV
Annie Paul Erekson Sept. 26, UT
Carolyn M. Estes (Morton) Nov. 10, AZ
Reese A. Evans Dec. 9, UT
Darla Fairbanks Dec. 19, UT
Irene R. Fordham (Rosella) Oct. 31, UT
Trudy L. Fry Oct. 20, UT
Trudy Hawkins Fullmer Aug. 7, ID
Karl J. Furr Aug. 13, UT
Grace M. Gabrielsen (Millard) Aug. 29, UT
Janet L. Garst (Parkinson) Nov. 21, OH
Ronald Germer Sept. 11, UT
Charles Jerome Glover Aug. 27, UT
Daniel A. Golding Dec. 4, UT
Mavis Green (Tingey) Aug. 17, UT
Samuel Larry Grover Sept. 14, UT
Geno R. Hadley Nov. 12, UT
Arlene Hale (WOOLF) Sept. 6, UT
Carma May Wheeler Hamp Sept. 26, ID
Sheila W. Hanson (Westover) Jul. 20, UT
Anna Muir Harper Nov. 17, UT
Constance M. Harper Aug. 31, UT
David E. Hatch Nov. 18, UT
Fredrick Jones Hawkes Jan. 3, UT
Alice D. Haycock Dec. 24, UT
Emmalynn Herbstritt Nov. 12, UT
Glade C. Hilton Aug. 30, UT
Marilyn Allred Hilton Sept. 14, UT
Carol P. Hirschi Oct. 9, UT
LouAnn Hlavaty (Checketts) Sept. 19, UT
Gordon N. Hodgson Aug. 2, UT
Renone L. Hodson (Littlefield) Oct. 30, UT
Louise Sandin Holman Dec. 28, UT
Case Ardell Holmes Dec. 16, UT
Frank R. Hoover Jul. 27, AL
Amy Kathleen Houser Sept. 15, UT
Hayden M. Hunter Sept. 12, UT
LaMar Hussey Sept. 2, UT
Charles Michael Hutchins Dec. 11, TX
David R. Jacobsen Dec. 28, UT
Dick L. James Aug. 17, UT
Bartley Rex Jensen Sept. 26, UT
Kerwin Jensen Nov. 3, UT
Michael L. Jensen Dec. 26, UT
Merle Jeppesen Dec. 13
Laverne Leo Jim Oct. 12, ID
Martha E. Johnson Oct. 22, MI
Don R. Johnston Dec. 23, UT
Von Johnston Sept. 18, UT
Jody Thomas Jolley Dec. 12, UT
Norman Dwight Jones Sept. 11, UT
Carolyn Jorgensen Aug. 29, UT
Keith Jorgensen Jul. 23, UT
Gordon Garth Josephson Jul. 31, UT
Denny Judd Sept. 12, UT
Nick Kalatzes Nov. 8, UT

Nancy Kartchner Dec. 9, ID
Lloyd O. Kessler Jul. 29, UT
Clark J. Killian Dec. 22, UT
Jay L. King Sept. 18, NV
Lynette Kinsman Nov. 24, UT
Judith Kinzel Dec. 21, ID
Daris Lambson Sept. 8, WY
Barbara E. Larsen Aug. 7, UT
Joyce P. Larsen (Parson) Aug. 13, WA
Lorraine Melba Larsen Sept. 13, UT
Alan E. Larson Nov. 28, UT
Darrell Leamaster Sept. 24, UT
Garth Noel Leavitt Oct. 12, UT
James B. Ledger Aug. 26, WY
Don L. Lind Aug. 30, UT
Ross Linnell Dec. 31, UT
Todd Jordan Loftland Oct. 3, UT
David James Logan Oct. 29, ID
David Lund Aug. 13, UT
Yepa Daines Lund Sept. 26, ID
Vernon P. Lyons Dec. 23, UT
Johnny Madrid Jul. 31, UT
Ronda L. Manzanara Aug. 5, UT
Raymond C. Marquez Oct. 21, UT
Virgil C. Marquez Aug. 31, UT
Esta Lee Mason (Berensen) Oct. 12, UT
Jack Hansen Matkin Aug. 10, NV
James Raymond Maughan Oct. 16, UT
Rulon B. Maughan Oct. 9, UT
Robert B. Maw Jul. 22, WY
Denise Joan Mehr Nov. 27, UT
Alysha D. Melo Sept. 27, UT
John Andrew Melo Aug. 25, UT
Mavis Tolman Merrill (Tolman) Nov. 18, UT
Arlean C. Miller (Watts) Dec. 26, UT
Ray L. Miller Oct. 10, UT
Stephen B. Miner Oct. 6, UT
Bonnie Jane Jeppson Mlaker Aug. 10, UT
Sara Joan Kneedy Moss Aug. 25, UT
Patrick David Murphy Nov. 6, PA
Joe B. Murray Oct. 26, UT
Annette M. Muth Sept. 20, UT
Lorraine O. Nash (O'Block) Dec. 2, CA
Clarice Cole Neeley Oct. 25, ID
Nanette Nelson (Gibbons) Aug. 3, UT
Spencer George Nichols Nov. 9, WY
Richard Hamilton Nielsen Aug. 28, UT
Leroy G. Noone Sept. 25, UT
Marlene Norcross Oct. 21, UT
Chloe Ann Nostrom Dec. 23, UT
Carren C. Ogden Jul. 22, UT
Carrol Pace Sept. 14, UT
Robert Palacios Oct. 10, UT
Leland W. Palmer, Jr. Aug. 14, UT
Vera S. Parmley (Scow) Aug. 12, UT
Jared Vern Passmore Nov. 8, UT
Dennis Scott Peake Aug. 24, UT
Alan Brent Pearson Sept. 25, ID
Clifford J. Petersen Nov. 15, WA
Ila RaNee Peterson Sept. 27, UT
Sandra Louise Peterson Sept. 17, ID
Walker J. Phelps Nov. 12, UT
George S. Phillips Nov. 21, UT
Martha Charlene Pierce Sept. 16, UT
Darwin Pitcher Dec. 17, UT
R. Scott Porath Dec. 11, UT
Carolyn Lambert Porter Nov. 4, UT
Jeneane Powell Sept. 1, UT
Pete Joseph Prazza Jul. 28, UT
Dona Price Oct. 16, ID
Suzanne L. Price Oct. 20, UT
Thomas Scott Price Jul. 21, UT
Alma Rae B. Procarione Nov. 3, UT
Wayne Ray Aug. 18, OR
Daniel Weston Reveley Sept. 30, UT
Rex Whitaker Reed Nov. 29, ID
Michael D. Reich Oct. 26, UT
Alfred N. Rettenmier Sept. 7, WA
Terry Rhodell Dec. 5, UT
Starla R. Rice Dec. 16, UT
Nathan Wanner Ricks Jan. 2, UT
Arthur Robinson Jan. 3, MA
Virginia Rodriguez-Valdez Nov. 20, UT
Dorothy Rooney Dec. 22, NY
Brent Rowland Dec. 19, UT
William B. Rowley Sept. 25, AZ
Julie R. Rudzinski Oct. 8, AZ
Enid S. Ruoff (Seaton) Sept. 7, NY
Louella M. Ryan (McCulloch) Nov. 20, UT
Terry L. Sanslow Nov. 28, UT
Joseph Patrick Sapp Oct. 1, UT

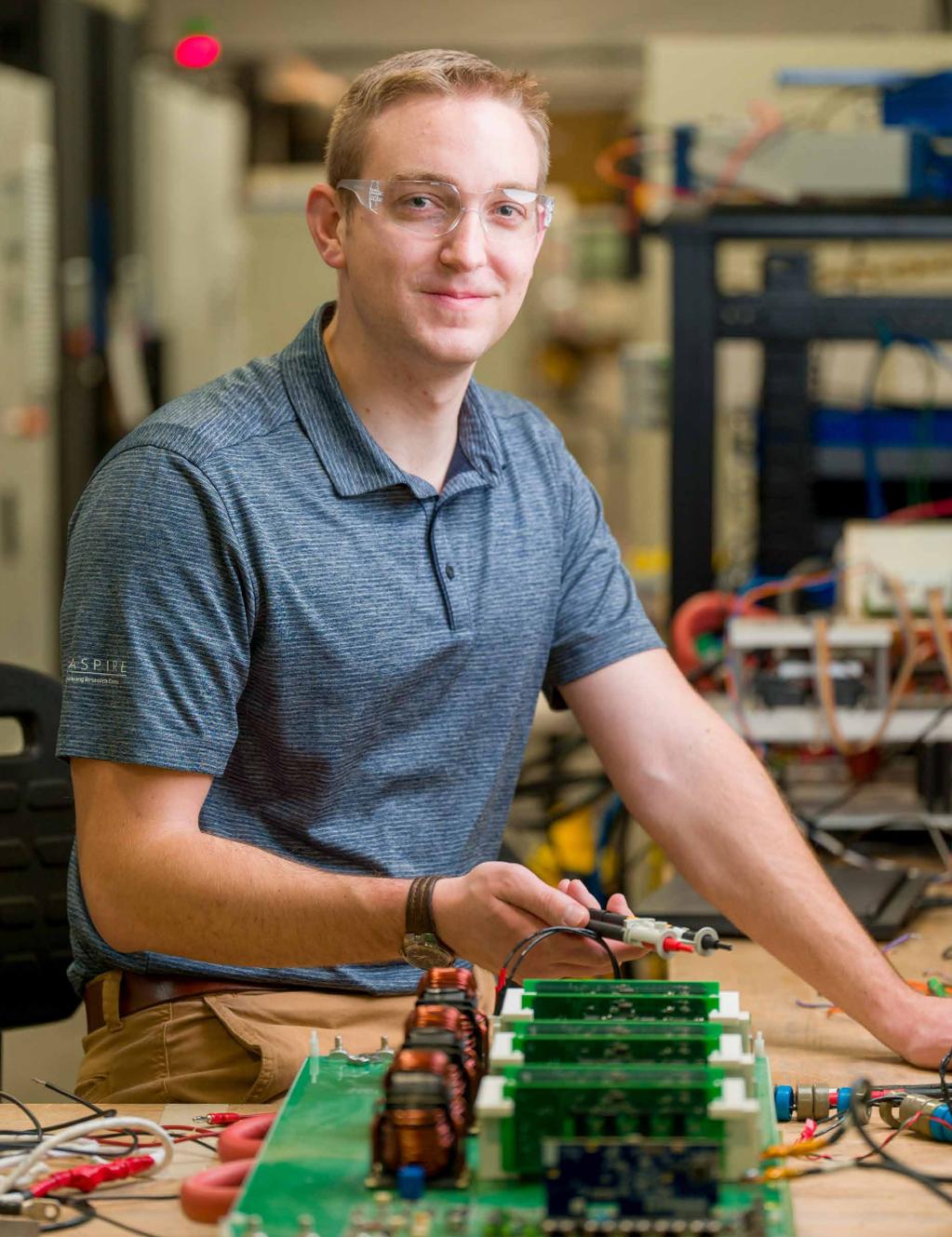
Mildred G. Sauer Jul. 20, ID
Janielle Ward Sax Dec. 11, NC
Paul Howard Schold Aug. 29, IL
Orlea Seely Nov. 12, OH
Kenneth L. Shumway Jan. 1, UT
Robert Scott Silcox Aug. 2, UT
Darrin Sims Dec. 5, ID
Anthony Slavensky Sept. 10, UT
Angel S. Smith Oct. 25, UT
George Ashton Smith Jul. 28, UT
John M. Smith Sept. 4, UT
Norman Smith Nov. 1, UT
Patricia M. Smith (Mendenhall)
Dec. 10, UT
Mack Alonzo Snow Aug. 26, UT
Chan Snyder Nov. 5, UT
Edward Benjamin Sommers Jan. 1, UT
Scott Leo Sorensen Aug. 8, UT
Lois Donna Sorenson Jul. 26, UT
Charles D. Spears Sept. 21, UT
Rawlin Dee Spencer Jan. 2, UT
Elizabeth Spottswood Sept. 7, VA
Timothy Kim Stoddard Nov. 22, WA
Christopher Daniel Stubbs Aug. 27, UT
Laurie Anne Telarole Jul. 22, UT
Rhodell T. Terry Dec. 5, ID
Jay D. Tharp Aug. 9, UT
Darrell Thornock Oct. 2, ID
Robert Donald Torp Aug. 18, AZ
Ralph Tryon Jul. 27, UT
Kenneth Marvin Turner Nov. 30, NE
Kathleen Twitchell Dec. 6, UT
Jerry VanDenakker Oct. 27, UT
Fern VanOrden (Egbert) Dec. 10, UT
Alan J. Vaterlaus Dec. 17, ID
David M. Vickers Dec. 27, VA
Terry Lee Wade Aug. 12, ID
Glenn Wehrkamp Nov. 25, IA
Ryan G. Welling Nov. 15, UT
John L. White, Jr. Jul. 29, UT
Elmo L. Wilkerson Aug. 22, UT
Tonya Michelle Wilkerson Sept. 7, UT
Donnet M. Williams Sept. 23, UT
Katherine Woodruff Williams Sept. 10, UT
Marlene Neilsen Wollaston Nov. 22, UT
Roland Shan Wright Jul. 25, UT
Judy C. Zaccaria (Costello) Aug. 26, WA

EDUCATORS

Deanna Duffin Avis Dec. 27, UT
Claire J. Baird Sept. 22, UT
Irene L. Bates Nov. 13, UT
John L. Brady Jul. 22, UT
Christine Lynn Christensen Aug. 19, WA
Clinton Lamoine Clegg Sept. 2, UT
Nelson T. Dinerstein Aug. 12, UT
Linda H. Finchum Sept. 1, UT
Louis D. Griffin Nov. 25, UT
Ralph Haycock Oct. 11, UT
Duane E. Hedin Aug. 31, UT
Teana P. Hillyard Dec. 11, UT
Michael J. Jenkins Dec. 5, UT
Marla J. Johnson Aug. 7, UT
Don L. Lind Aug. 30, UT
Nanette Nelson Aug. 3, UT
Reed M. Nielsen Oct. 14, UT
Kim B. Nielsen Dec. 20, UT
Carol A. O'Connor Nov. 10, OK
Frederick Quinn Nov. 27, IL
Raymond T. Sanders Nov. 24, UT
Steven Soulier Sept. 24, UT
John W. Vanderford Aug. 20, UT
Janis Anne Warr Dec. 22, ID
Vincent B. Wickwar Sept. 27, UT
Ann D. Williams Dec. 21, NM



Visit www.usu.edu/alumni/memoriama to find the complete listings or submit a name.



Matthew Hansen '20 co-invented a control algorithm to wirelessly charge electric vehicles while in motion. Photo by Levi Sim.

to synchronize power transfer coils in the road to in-motion electric vehicles, while also determining how roadway coils can detect an approaching vehicle.

“We need a way to synchronize and detect, and this is what this algorithm does,” Hansen explains. “It allows us to do that in a simple way without extra hardware.”

In 2017, Hansen originally planned to study mechanical engineering but switched to electrical at enrollment. Soon after, he began conducting research with USU’s Advancing Sustainability through Powered Infrastructure for Roadway Electrification (ASPIRE) center and solidified his love for electrical engineering.

“It’s magic,” he says. “You don’t see voltage or current; it just works.”

Earlier this year, the three researchers were granted a patent from the U.S. Patent Office for their contribution. Hansen has continued to work with Kamineni on the algorithm and will start full power testing in spring 2023 at the ASPIRE electrified vehicle and roadway test facility. The EVR track is a quarter mile of electrified track able to test and demonstrate stationary and in-motion wireless charging, grid integration, and real-time vehicle interaction.

Hansen’s doctoral studies continue to focus on electrification and wireless and optimal wired charging.

“Electrification is the future of cost stability and sustainability. As we improve electrification, we’ll see that electric vehicles become cheaper and easier to maintain than gas-powered vehicles,” Hansen says. “It’s exciting to be here at USU where we can test these things out. There is nowhere else where we can do this, and I’m really excited to be a part of that.” **A**

Engineering Improvements to **EV Charging**

By Sydney Dahle

Met Matthew Hansen. He’s changing the world – one electric vehicle at a time.

Hansen '20, a Ph.D. student studying electrical engineering, with the help of his mentors and professors Regan Zane and

Abhilash Kamineni, invented a control algorithm to wirelessly charge electric vehicles while in motion — an idea that was first formed as an undergraduate.

Hansen aimed to find an effective way

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