



**ANNUAL REPORT 2012**

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The Utah Science Technology and Research initiative (USTAR) aims to strengthen Utah’s “knowledge economy,” generate high-paying jobs and expand the tax base for the state. In its first six years of operation, the initiative has bolstered the innovation infrastructure of Utah, increased the human capital devoted to research, and demonstrated success in technology commercialization. By encouraging collaboration, USTAR has enabled Utah-based researchers to tackle bigger and more complex projects and funding opportunities. Brookings Institution has called USTAR “a national best practice.”

The initiative focuses on:

- Recruiting industry leading researchers to our two research universities, the University of Utah (U of U) and Utah State University (USU).
- Supporting world-class interdisciplinary research and development facilities.
- Deploying Technology Outreach teams statewide to spur collaboration between higher education and business.

## Results in Brief

“USTAR has rapidly emerged as not just the state’s primary innovation driver, but as a national best practice... Utah’s USTAR program offers a nice model for developing a regional network of technology outreach and innovation centers.”

– Brookings Mountain West, November 14, 2011

To date, USTAR has met or exceeded its initial prospectus by constructing two state-of-the-art research facilities and recruiting 49 entrepreneurial minded researchers. Based on data for fiscal years 2007 to 2012, USTAR research teams have directly attracted \$131 million in federal and industry-sponsored grant funding to the State with an additional \$100 million in grant awards for programs such as EPSCoR, MRSEC and STORM. This performance exceeds the goals of USTAR’s 2005 Economic Prospectus by more than 70 percent.

Through state bonding and private donations, USTAR has completed construction of two research facilities totaling 326,000 square feet. In addition to the new research space available, USTAR’s outreach teams and the partnership with regional business resource centers and accelerators have helped to propel technology businesses regionally. Since 2007, the outreach program has helped start-up companies attract tens of millions in follow-on capital.

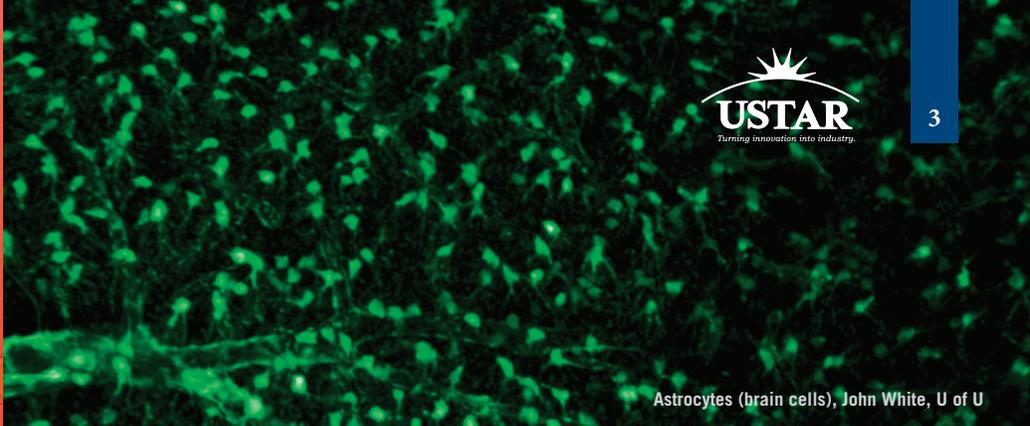
### Researchers

In terms of human capital, USTAR has been very successful in recruiting researchers to Utah. Since its inception, USTAR has attracted researchers from MIT, Harvard University, UCLA, Case Western, University of Arizona, Oak Ridge National Laboratory, and other top research universities.

These researchers have produced more than 330 invention disclosures and 202 patents and provisional patents, and have secured \$131 million in grants, leveraging Utah’s investment of \$81.3 million by 161 percent. USTAR researchers have started or relocated 10 companies and have more commercialization projects under development.



Sorenson NanoFabrication lab, U of U



Astrocytes (brain cells), John White, U of U

A study by the Bureau of Economic and Business Research (BEBR), studying the five year impact of USTAR, found that the cumulative economic effects of USTAR (primarily the research program) on the Utah economy included:

- \$112 million in labor earnings for Utah workers
- \$219.3 million in gross state product
- \$9.9 million in state tax revenue
- Supported more than 1,100 jobs (research and technology outreach)

### Technology Outreach

USTAR’s Technology Outreach Innovation Program (TOIP) is the engine to drive regional commercialization activities. The program is led by industry-experienced directors deployed across Utah. Each director heads an Outreach Center located at one of the state’s higher educational institutions. The directors assist in expanding the transfer of new or improved technologies from state universities to existing companies. In FY2012, USTAR Technology Outreach staff conducted more than 212 projects that supported companies, entrepreneurs and researchers in 20 of 29 counties in the state. The Outreach team also facilitated the Technology Commercialization Grant Program in 2011, which linked regional higher-ed institutions with local innovators to bring unique ideas to commercialization.

In the past three years alone, the \$3.4 million deployed through the Technology Commercialization Grant program has resulted in 89 projects that have in turn attracted \$20.3 million of private financing. Other results include 98 new product prototypes, 176 new jobs and the launch of 30 new companies.

“The [National Governors Association] report cited several success stories across the country in boosting entrepreneurship. One was the Utah Science Technology and Research initiative, which hires ‘commercially minded’ professors at Utah universities to conduct research that can quickly translate into new businesses.”

– Omaha World-Herald, July 2012



Dinesh Patel



Spencer P. Eccles

## Organization

The USTAR Governing Authority board is an experienced and committed team of ten leaders with diverse experience in inventorship, entrepreneurship, financial capital, university research, and running and growing companies.

The board holds public meetings monthly. See the “News & Events” tab at [www.innovationutah.com](http://www.innovationutah.com) for details.

- Dinesh Patel, Ph.D., Managing Director, Signal Peak Ventures (Chairman), *Top Left*
- Spencer P. Eccles, Executive Director, Governor’s Office of Economic Development (Vice Chairman), *Bottom Left*
- Scott Anderson, CEO, Zions Bank
- Cynthia Burrows, Ph.D., University of Utah
- Jim Dreyfous, Managing Director, Pelion Venture Partners
- Richard Ellis, Utah State Treasurer’s Office
- Hunter Jackson, Ph.D., CEO of Navigen Pharmaceuticals
- Richard Linder, CEO, CoNextions Medical
- Charles J. Precourt, Vice President and General Manager, ATK Aerospace Systems, Space Launch Systems
- Open Position, to be appointed by Senate President

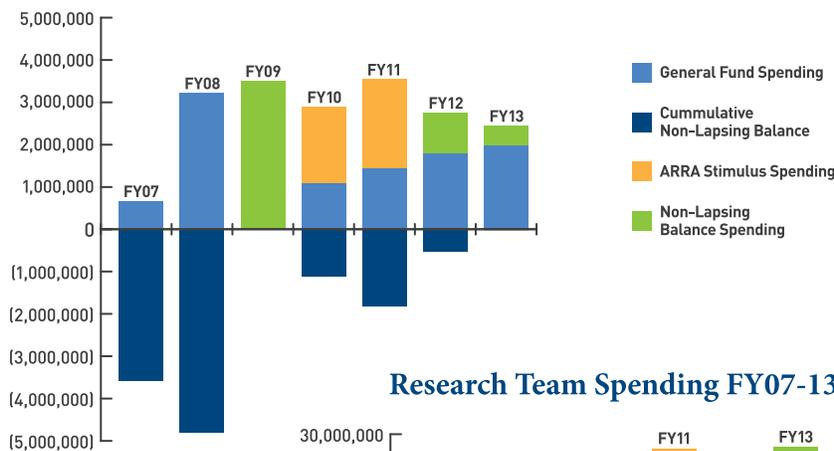
USTAR staffing is comprised of regional technology outreach staff (directors, analysts, and interns) and headquarters personnel. Strategic efforts include support for the BioInnovations Gateway and SBIR-STTR Assistance Center, Utah Cluster Acceleration Partnerships, research team commercialization, regional commercialization projects, and other initiatives such as the Governor’s 10-year Energy Plan.

USTAR has entered into joint staff appointments with key economic development partners. These cost-sharing arrangements not only ensure efficient and effective use of state funds, they also promote closer collaboration and coordination with our partner organizations. Agreements are currently in place with Weber State University, U of U Energy & Geoscience Institute, Office of Energy Development, Utah Valley University, Dixie State College, Utah State University, and the Governor’s Office of Economic Development (GOED).

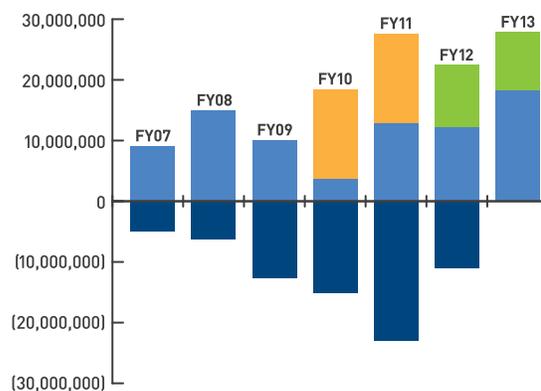
## Ongoing Funding

When the USTAR initiative was created in 2006, state funding was initiated at \$15 million per year for research and \$4 million per year for technology outreach/commercialization. Budget cuts have reduced actual General Fund spending by about 28 percent. Senate Bill 240 in the 2009 Session provided federal American Recovery and Reinvestment Act (ARRA) funding of \$33,000,000. With these funds, and with nonlapsing carryover, USTAR’s actual and projected spending over the same time period can be seen in the chart below. Federal funds have been used aggressively to augment state General Funds. As of Sept. 2011, all ARRA funds were spent.

**Outreach & Admin Spending FY07-13**



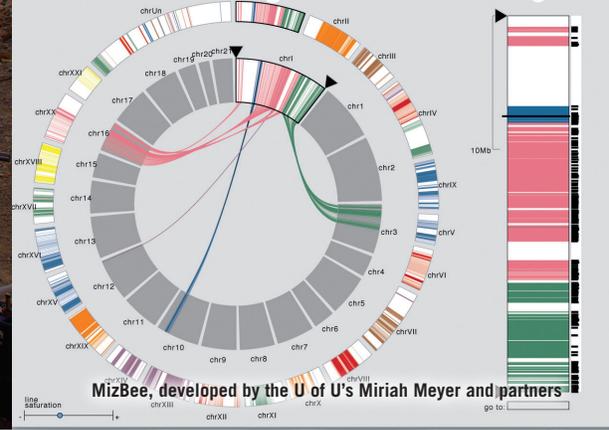
**Research Team Spending FY07-13**



Historical note: When the idea for USTAR was first developed by state and business leaders, funding was projected at \$25 million per year. These numbers were reflected in the initial economic prospectus.

“IGEM is a comprehensive strategy to accelerate tech transfer from Idaho’s world-class research facilities. The vision of the IGEM program is to improve Idaho’s knowledge based economy and stimulate growth by strengthening Idaho universities and creating new products, businesses, and next-generation global jobs. IGEM is modeled after successful programs in neighboring states, most notably Utah’s USTAR program.”

– Idaho Technology Council  
March 9, 2012



## Research Teams

The strategy is to attract catalyst-type research faculty from outside the state with a reputation for innovation and commercialization. In effect, USTAR seeks to bring “rainmakers” to the state’s two public research universities to work with our existing experts on bigger and more challenging efforts.

USTAR focus areas are:

- Based on existing University strengths
- Aligned with GOED’s economic clusters
- Addressing vast commercialization opportunities and large and strategic global markets
- Leveraging Utah industry strengths

### BioDevice and BioPharma

- Center for Human Nutritional Studies, USU
- Biomedical Device Innovation, U of U
- Synthetic Bio-manufacturing Institute, USU
- Veterinary Diagnostics and Infectious Disease, USU

### Nanotechnology

- Wireless Nanosystems, U of U
- Nanotechnology Biosensors, U of U
- Micro and Nano Systems Integration, U of U

### Energy

- Alternative and Renewable Energy, U of U
- Fossil Energy - Carbon Engineering, U of U
- USTAR Advanced Transportation Institute (UATI), USU

### Medical Imaging and Brain Medicine

- Circuits of the Brain, U of U
- Diagnostic Neuroimaging, U of U
- Imaging Technology, U of U
- Nanoscale and Biomedical Photonic Imaging, U of U

### Visualization Technology

- Digital Media, U of U

### Space Innovations

- Space Weather, USU
- STORM, USU

## Buildings and Infrastructure: A Promise Fulfilled

The success of USTAR and public-private partnerships in other states show the importance of such programs, said Darik Volpa, CEO of Reno-based Understand.com. “You almost have to do these kinds of programs, out of necessity, if you want to remain competitive with states such as Utah,” Volpa said.

- USA Today Money/Reno Gazette-Journal Article by Jason Hidalgo July 29, 2012

At the heart of USTAR's efforts to transform the state's economy are the James L. Sorenson Molecular Biotechnology Building—a USTAR Innovation Center at the U of U and its sister facility—the USTAR BioInnovations Center at USU. These centers mark the beginning of a new era of interdisciplinary translational research, scientific discovery and technology commercialization.

The 118,000-square-foot USU USTAR BioInnovations building opened in January 2011, and houses a Biosafety Level 3+ laboratory to perform advanced research in veterinary diseases, applied nutrition and synthetic biomanufacturing. No other building in the State has that level of biosafety capability, and few in the Intermountain West match it. The building was awarded LEED Gold certification for sustainable design in October 2011.

The building became the anchor of the USTAR BioInnovations Center which also includes an additional 36,000-square-foot building donated to USTAR as part of the matching funds required from the university to build the new USTAR building. The center is home to the Synthetic Biomanufacturing Institute (SBI). The SBI is using the chemical makeup in organisms to transform raw materials into low cost bio-plastics, biodiesel, bio-materials, light energy and pharmaceuticals.

The 208,000-square-foot Sorenson building is the home of the Nano Institute and the Brain Institute which fosters neuroscience research in three areas: next generation neural interfaces, diagnostic neuroimaging and circuits of the brain. The centerpiece of the building are the core facilities including the nanofabrication facility with 18,000 square feet of cleanroom space, biobay, and a 5,300-square-foot microscopy and materials characterization suite, all of which put the U of U on even footing with the top nanotechnology research institutes worldwide.



The building is a crossroads, located almost halfway between the School of Medicine and a cluster of School of Engineering facilities.

“The building site both physically and academically unites the health sciences with main campus. Through the USTAR initiative we are crossing traditional boundaries to accelerate research at the interfaces of medicine, pharmacy, engineering, computer science and life sciences,” said Dinesh Patel, Ph.D., chairman of the USTAR Governing Authority.

In addition to the two main research facilities at the U of U and USU, USTAR has served a supporting role in the creation of additional resources that build Utah’s research and commercialization capacity statewide:

- **USU BioEnergy Center** USTAR helped launch a 27,000-square-foot facility that provides office space, wet labs, a greenhouse and six 1,200-square-foot growth ponds to develop algae bioproducts and high-lipid feedstock.
- **USU Bingham Entrepreneurship and Energy Research Center** A 70,000-square-foot center in rural eastern Utah with resources to explore conventional and alternative energy technologies. From October 2011 to April 2012, the center conducted a joint USTAR, EPA and NOAA study of wintertime ozone levels to determine precursor and migration properties of ozone and its potential impact.
- **BioInnovations Gateway (BiG) Life Science Incubator** With USTAR contributing equipment

and staffing resources, BiG provides 25,000-square-foot of wet and dry labs and office space for up to seven start-up companies. A recent graduating company, BloXR, has developed an easy-to-use protection against harmful ionizing radiation found in the medical industry. BloXR has raised more than \$11 million in private funding while a resident of the incubator.

- **U of U Accelerator Life Science Incubator** With an investment of \$500,000, USTAR worked with the U of U to create the incubator to provide new companies the support, space and equipment to develop their technologies.
- **SBIR/STTR Assistance Center** By providing ongoing staffing, USTAR works with GOED, Salt Lake Community College and others to operate an assistance center that helps small business state-wide secure federal research dollars. Utah companies have seen more than \$4.5 million in funding wins since the center opened three years ago.
- **Magnetic Resonance Imaging Devices** USTAR spent more than \$5 million on two 3Tesla MRI machines to further the research in Neuroscience at the U of U. These machines are being used by USTAR investigators and scientists from institutions across the state and anchor the University Neuropsychiatric Institute at Research Park.



Wellsville Mountains, Utah Office of Tourism



Synthetic spider silk, USU



USTAR BioInnovations Center, USU

## USU Feature Stories

### Powering the Future of Transportation with UATI

**WAVE, Inc.**, a USU spinout company, has received a \$2.7 million award to electrify a bus route at the U of U that will feature a 50kW system and a \$1.7 million contract with Monterey-Salinas Transit (MST) in Monterey, CA to electrify MST's Waterfront Trolleys.

- WAVE is developing systems to transfer power wirelessly between vehicles and roadways to reduce battery size by up to 80 percent and allow for continuous use of the electric vehicles. The technology is based on the work of USTAR researcher Hunter Wu.
- Wu's research has led to the development of a robust prototype, which has been fitted to the Aggie Bus, and delivers power over an air gap where no physical contact is required. The Aggie Bus prototype is a showcase for the following technological advancements in the area of WPT:
- The first WPT bus developed and designed by a North American company/institute.
- The world's first electric bus with WPT technology combining the three following performance metrics: a power level up to 25kW, greater than 90 percent efficiency from grid to battery, and a maximum misalignment of up to 6 inches.
- Innovative thermal management technology.
- Unique mechanical mounting system.

**USU Power Electronics Lab** led by USTAR researcher Regan Zane recently secured a \$3 million award from the Department of Energy (DOE) to develop technology that can dramatically improve the battery performance of electric vehicles.

"To be among just 12 lead organizations selected for an award is a high honor," said Zane, the principal investigator for the project. "Through this three-year program, we'll develop cell-level power control architecture that improves electric vehicle battery performance and, as a result, could decrease battery pack costs by some 25 percent."

USU is the lead research organization on the project, and has partnered with the National Renewable Energy Laboratory in Colorado, the University of Colorado – Colorado Springs and Boulder campuses, as well as the Ford Motor Company.

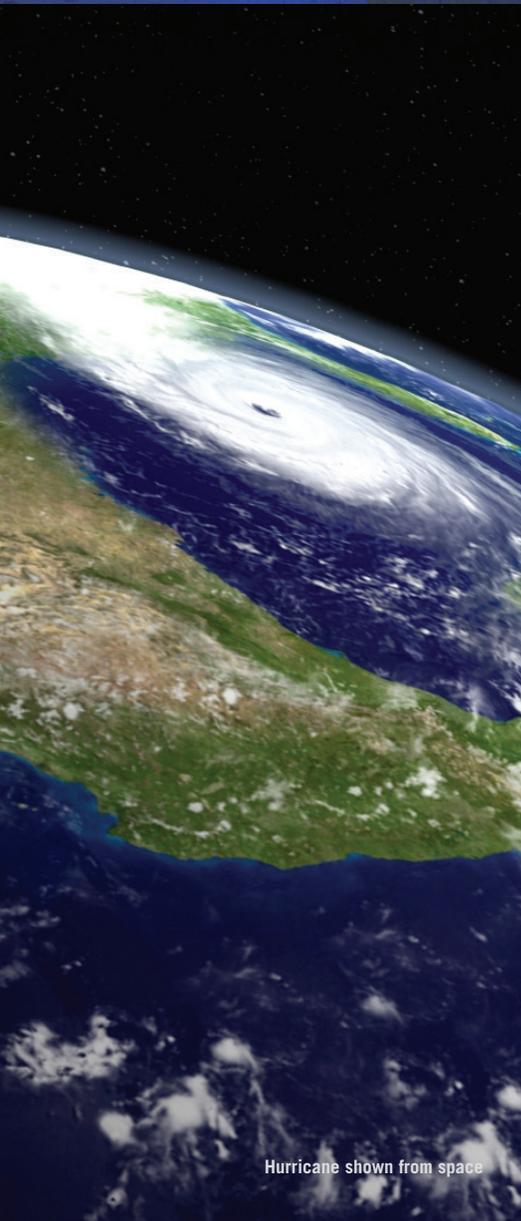
### STORM moving into Orbit

USU, the Space Dynamics Laboratory (SDL), and GeoMetWatch, a privately held company, have teamed up to improve the accuracy of severe weather forecasting by creating a satellite program called STORM. The advanced state-of-the-art instrument will be designed and manufactured by SDL.

The USU project is funded by a \$70 million NASA investment to build a prototype. GeoMetWatch, a USU spin-out together with several strategic partners are raising \$125 million to build the first of six sensors. The projected economic impact of this project includes



Wireless power charging plate in lab, USU



Hurricane shown from space

hiring 40 engineers per sensor with \$700 million in engineering contracts over the next decade. An additional 212 new jobs will be created in meteorological data processing and the construction of a new research center.

## Utah EPSCoR receives \$20 million to boost statewide research infrastructure

USTAR's state EPSCoR director, in partnership with USU and other USHE institutions coordinated the effort which led the NSF to award Utah EPSCoR a five-year, \$20 million grant.

The grant funds a statewide effort to assist in building the human and research infrastructure needed to sustainably manage Utah's waters. The award, which went into effect July 1, creates iUTAH, which stands for innovative Urban Transitions and Aridregion Hydro-Sustainability.

iUTAH is an interdisciplinary effort among researchers from Utah State University, the University of Utah, Brigham Young University, and two dozen other Utah institutions of higher education, government agencies and industry and non-profit partners. It is not only an example of the collaboration USTAR fosters, but also the initiative's acceleration of Utah's research infrastructure.

## U of U Feature Stories

### Highlight

Miriah Meyer, a computer scientist at the University of Utah, has been selected as one of seven Microsoft Research Faculty Fellows for 2012. Meyer is Utah Science Technology and Research (USTAR) assistant professor in the U's School of Computing and Scientific Computing and Imaging Institute.

### The Genetics of Human Emotion

Patients with the genetic condition Williams syndrome (WS), exhibit striking behaviors including a gregarious personality, high anxiety and a strong attraction to music. A study led by University of Utah USTAR professor and physician Julie R. Korenberg reveals that extreme emotion in WS patients causes abnormal release of two hormones that control social behaviors: oxytocin and vasopressin. These results suggest that irregular hormone levels underlie some of the characteristic personality traits in WS. The work provides insights into novel approaches for treating disruptive social behaviors that are observed in a variety of mental illnesses, including autism spectrum disorder, post-traumatic stress disorder and depression.

Korenberg was awarded \$2.9 million from the National Institutes of Health to investigate connections between the genetics and brain circuitry of mental retardation.

### New Device Could Revolutionize Cochlear Implants

Cochlear implants have restored basic hearing to more than 220,000 people, yet a microphone and related

electronics must be worn outside the head, raising reliability issues, preventing patients from swimming and creating social stigma.

Now, USTAR researcher Darrin J. Young and colleagues in Ohio have developed a tiny prototype microphone that can be implanted in the middle ear. The National Institutes of Health funds the project.

Conventional cochlear implants use a microphone to pick up sound, plus a speech processor and radio transmitter coil, worn externally behind the ear. A stimulator and receiver, implanted under the skin, convert the information into a signal relayed through wires to the auditory nerve.

The system developed by Young implants all the external components. Sound moves through the ear canal to the eardrum, which vibrates as it does normally. The sensor also is attached to a chip, and together they serve as a microphone that picks up the sound vibrations and converts them into electrical signals sent to the electrodes in the cochlea.

### Radiation-resistant Circuits a Step Toward Robots in Space

University of Utah engineers designed microscopic mechanical devices that withstand intense radiation and heat, so they can be used in circuits for robots and computers exposed to radiation in space, damaged nuclear power plants or nuclear attack. The researchers showed the devices kept working despite intense ionizing radiation and heat by dipping them for two hours into the core of the University of Utah's research

**“Utah is an emerging technology hub as the fourth-fastest-growing state for STEM occupations in the nation. The state has expanded its tech economy by 14% over the past decade.”**

**[USTAR was cited as a major contributing factor] – US Chamber Enterprising States Report, June 2012**

reactor. They also built simple circuits with the devices. The team is led by Massood Tabib-Azar, a USTAR professor of electrical and computer engineering at the University of Utah.

Tabib-Azar received a \$693,000 DARPA award over three years for the development of the radiation-resistant circuits.

### **The Art and Engineering of Video Games**

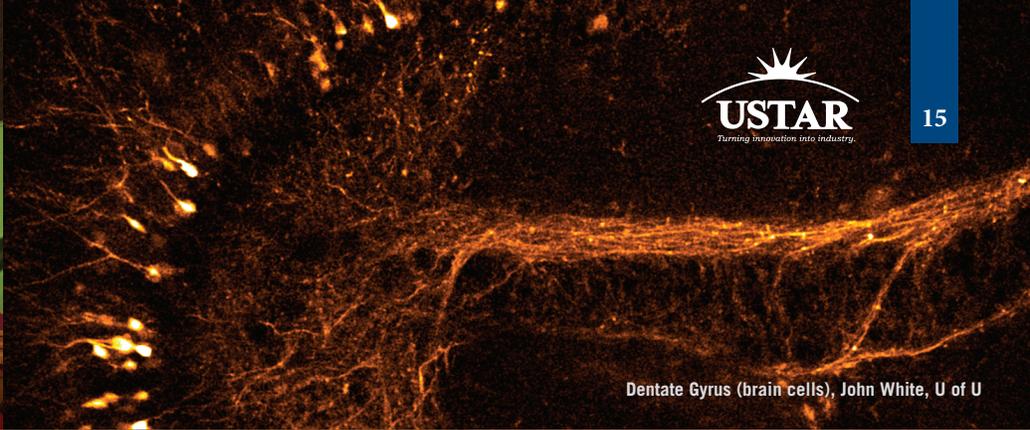
Every student that graduates in the University of Utah’s Entertainment Arts and Engineering Program does so with a published video game to his or her credit. That may be one of the reasons the master’s program boasts an impressive 94 percent employment rate.

Digital media—a USTAR focus—is an area of explosive demand and an innovative part of the new Utah economy. To take advantage, the U of U has married its legacy talent base in computer science and a growing presence in film arts and created a robust interdisciplinary program where artists and engineers combine their skills daily. The approach has gained national attention.

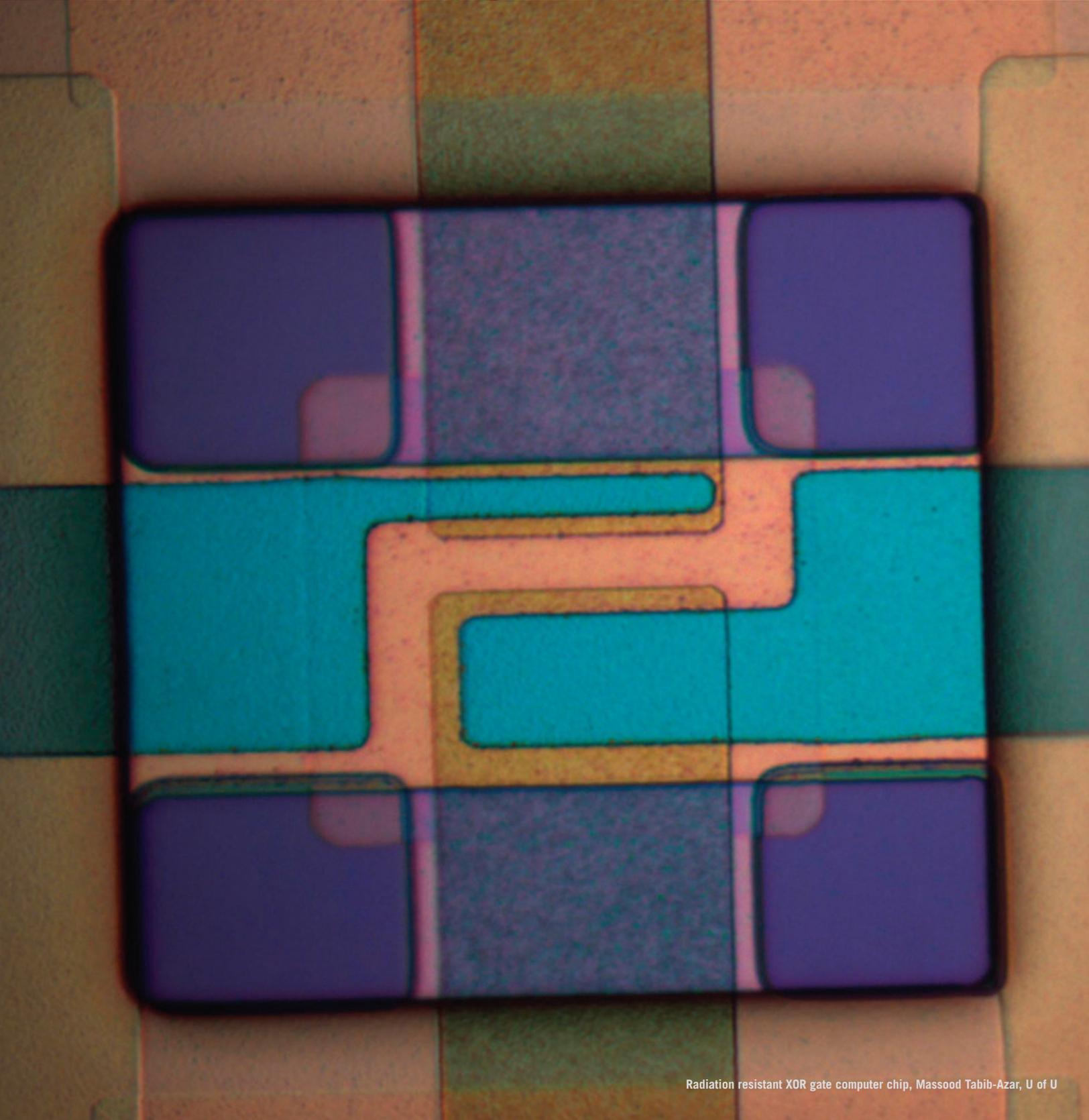
Notably, just in 2012, the 5-year old undergraduate program was ranked 3rd in the country, and the master’s program graduated its first class. Utah Game Forge, an independent publisher created by EAE and the U of U Technology Commercialization Office to streamline production for student developers was founded and has launched three games: “Heroes of Hats,” “Tactical Measure” and “Erie.” And games are more than play; a study published in Science Translational Medicine showed that patient empowerment video games—like the U of U’s PE game for kids with cancer—can be therapeutic and are already beginning to show health-related benefits.



Heroes of Hat video game, created by EAE students, U of U



Dentate Gyrus (brain cells), John White, U of U



Radiation resistant XOR gate computer chip, Massood Tabib-Azar, U of U



Enve Composites, Ogden



Kisstix, Orem

## Technology Outreach: Building Success

USTAR's Technology Outreach Innovation Program is the engine to drive commercialization activities. Technology Outreach teams work with entrepreneurs, emerging and established businesses, academic researchers and other stakeholders across the State. USTAR business leaders are based at Weber State University, Utah Valley University, USU – Uintah Basin, USU – Price, Dixie State College and Southern Utah University.

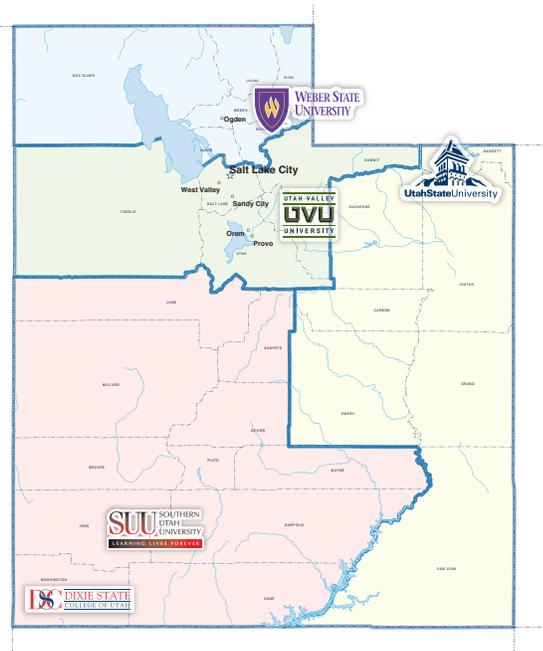
In FY2012, USTAR Outreach engaged in 212 projects across 20 of 29 counties. The projects represent an array of tech-based industries and consist of business teams comprising university researchers, entrepreneurs, and private investors.

In the past three years alone, the \$3.4 million deployed through the commercialization grant program has resulted in the following results:

- 89 projects funded
- more than \$20.3 million of private financing
- 98 new product prototypes
- 176 new jobs
- 30 new companies

**Northern Utah:** The Northern Utah region collaborates closely with Weber State University and the Kaysville eStation. The regional office is at Weber State.

**ENVE Composites** is an advanced composites company specializing in bicycle wheels, which are made in Ogden. A \$30,000 USTAR grant enabled ENVE



to create a test device in conjunction with UCAID. As a result, 25 jobs were saved or added, and net profits increased.

**Central Utah:** The Central Utah region collaborates closely with Utah Valley University and has a regional office in Orem at the UVU Business Resource Center.

**Kisstixx** is a growing lip-balm company started by two UVU business students. After securing a \$200,000 investment from media mogul and Dallas Mavericks owner Mark Cuban on the popular TV show “Shark Tank” in March, 2012, the company has been concentrating on developing major mass retail channels in the US, as well as international markets for its innovative lip balm, which includes two sticks of complementary flavors that mix and react when two people kiss. The company is currently housed at the UVU BRC.

**Eastern Utah:** The Eastern Utah region collaborates closely with Utah State University’s Vernal Campus and has a regional office in Vernal.

**Native Asphalt Solutions:** Working with Utah State University, the University of Utah, Uintah County, UDOT and industry, USTAR facilitated the creation of a new specification for asphalt pavement using native Uintah Basin oil sands. This new specification is undergoing field testing and could save Utah counties as much as \$45,000 per paved mile on future secondary road paving projects. It can also reduce the state’s dependency on the importation of expensive out-of-state asphalt.

**Southern Utah:** The Southern Utah region collaborates closely with Dixie State College and Southern Utah University, with satellite offices in both St. George and Cedar City.

Cedar City-based **TouchMD** provides an interactive solution that allows patients to view medical procedures and processes using portable software with unique touch screen technology. In early 2012, TouchMD announced the formation of two new strategic partnerships PatientNOW and Canfield Imaging systems offering medical practices a seamless way to integrate patient consults, photos and consents directly with their patient tracking.



Native asphalt pavement, U of U

**TouchMD**  
Educate. Illustrate. Communicate.



TouchMD, Cedar City

## SBIR/STTR Assistance Center

“The Utah SBIR-STTR Assistance Center personnel provided Thermimage, Inc. both high level direction and low level tactical support ensuring multiple SBIR grant applications were completed and filed on a timely basis. We could not have successfully navigated this process without their help and support.”

– Doug Turnquist, CEO of Thermimage, Inc.

The federal Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) programs offer more than \$2.6 billion dollars annually to support the development of technology by small businesses across the nation. SBIR/STTR funding is an excellent source of early stage capital that doesn't require equity participation.

With critical support from Salt Lake Community College, GOED and others, USTAR Technology Outreach spearheaded the creation of the SBIR/STTR Assistance Center (SSAC) to help small business statewide capture a larger share of federal research dollars. SSAC is based at the Miller Campus of Salt Lake Community College, and USTAR staff members run the center.

Over the past four years, USTAR's SBIR/STTR Assistance Center has assisted more than 85 new companies. **SBIR has assisted 13 of those in winning more than \$4.7 million in federal commercialization grants.**

“The Utah SBIR/STTR Assistance Office has been invaluable to JSK Therapeutics in obtaining and managing a Fast Track Grant from the NIH. SBIR grants are a critical source of funding for start-up pharmaceutical companies, but the process of applying for a grant and managing it once approved is daunting for a small company. The Assistance Office provided excellent advice in writing and filing the grant application. Following approval of the grant and during a difficult Federal budgeting period, the Assistance Office continued to support JSK including providing senior level contacts in the SBIR office. I strongly recommend that Utah companies seeking Federal funding contact the Assistance Office for support.” – Greg Johnson, Chief Operating Officer, JSK Therapeutics

## BiG: The BioInnovations Gateway

BioInnovations Gateway (BiG) is an incubator specializing in Utah's life science industry. BiG provides 25,000 square feet of wet and dry labs and office space for up to seven start-up companies to develop products.

BiG combines business incubation resources with workforce development. Students from six local high schools, Salt Lake Community College, and UVU work as interns for BiG clients. The companies have an opportunity to "try before they buy," training new workers for potential hire. Funding for the facility comes from a Department of Labor Workforce Innovation and Regional Economic Development (WIRED) grant, Granite School District, and USTAR.

The BioInnovation Gateway incubator has hosted six client companies who have secured more than \$12.8 million in private funding.

### Radiation block: BloXR finds lightweight solutions

Diagnostic radiographic imaging procedures such as x-rays and CT scans have become a fixture in modern medicine, with the number of procedures increasing by 100 percent in the past twenty years. BloXR developed products that use ceramic material to block the harmful radiation without the weight of lead. BiG provided BloXR with a lab and office space, equipment, technical resources and personnel. BloXR recently entered into the manufacturing and distribution phase of their products and moved into a new facility. The company plans to hire approximately 12 employees by next year.

### EZ LIFT Rescue Systems/Zien Medical

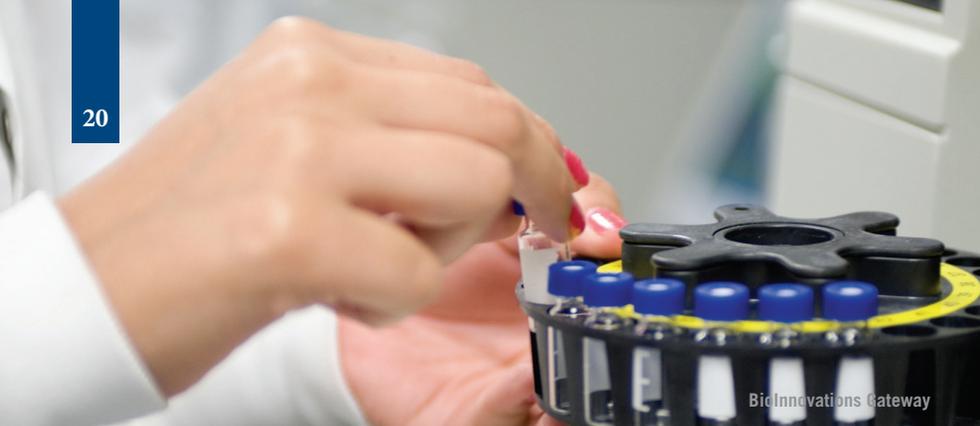
The EZ LIFT Rescue System is a reinvention of the traditional backboard used by Emergency Medical Services (EMS) rescuers. With traditional backboards, rescuers lift from the ground, putting them at serious risk for lower back injuries. The EZ LIFT Rescue System uses a patented, extendable, handle design that allows rescuers to lift from a safer lifting position near the knees, reducing lower back torque by more than 50. EZ Lift delivered the first round of rescue systems to the Sandy Fire Department in September, 2012. Additional clients include Ogden City, South Davis Metro Fire Agency, the City of San Francisco and major national ambulance companies. The Systems are being assembled at BiG by Zien Medical.



BloXR



EZ LIFT Rescue Systems



## A Year of Progress: July 2011 to June 2012

- July** New USTAR MRI machine added to U of U University Neuropsychiatric Institute  
 USTAR's Steven Roy named as UVU Associate Vice President for Economic Development  
 Legislators tour new U of U James L. Sorenson Molecular Biotechnology Building – A USTAR Innovation Center
- Aug** USTAR researcher Miriah Meyer named to Tech Review's list of 35 innovators under 35  
 USU researcher Randy Lewis joins USTAR and brings Spider Silk to Logan, featured on CNN Today
- Sept** U of U launches Center of Excellence in Materials Research and Innovation, received \$12 million from NSF
- Oct** USU USTAR BioInnovations Building named "Best Project of the Year" by Engineering News Record – Mountain States  
 U of U researcher Ling Zang is developing a faster, cheaper test for mercury pollution and has launched new company  
 USU USTAR BioInnovations Center achieves LEED Gold certification
- Nov** U of U researcher Julie R. Korenberg and team win \$2.9 million NIH grant for groundbreaking Down Syndrome research  
 USU spin-out WAVE wins \$2.7 million federal transportation grant to develop wirelessly powered shuttle  
 Forbes Magazine ranks Salt Lake City 5th for tech jobs  
 Brookings: "USTAR has rapidly emerged as not just the state's primary innovation driver but a national best practice"
- Jan** U of U's Orly Alter co-authors paper in PLoS One outlining a new framework for diagnosis, treatment and drug design  
 UVU opens new Business Resource Center and incubator, becomes home to Central Utah USTAR office  
 USU-licensed technology at the core of AnalySwift's composite modeling software
- Feb** U of U's Hanseup Kim wins \$400,000 NSF award for unique air pollution detection technology
- March** Taking a page from Utah and USTAR, Idaho legislature passes IGEM technology initiative
- April** GOED, World Trade Center - Utah, USTAR, and Office of Energy Development co-locating to bolster jobs, global presence  
 James L. Sorenson Biotechnology Building: A USTAR Innovation Center dedicated  
 Araknitek, a USU spin out company is formed  
 GeoMetWatch in coordination with USURF provides \$400,000 of \$125 million pledged for sensor build to USU SDL  
 U of U students win \$100,000 Cleantech regional contest with quantum dot technology supported by USTAR/GOED grants
- May** U of U researcher Darrin Young prototypes middle-ear microphone to improve cochlear implants  
 USU spin out company Occutel formed  
 U of U researcher Miriah Meyer selected as one of seven Microsoft Research Faculty Fellows
- June** Ogden, UT aims to become mobile app hotbed. EDA grant received to build BRC and incubator space  
 BiG client develops new radiation blocking product and launches new company  
 International Neural Interface Conference held at USTAR Sorenson building  
 U of U researcher develops radiation-resistant circuits, a step toward robots in space and other hard environments  
 USTAR is cited as contributing to Utah's "Enterprising States" status in U.S. Chamber report  
 USU's spinout company WAVE receives \$1.7 million in funding from Monterey Salinas for wireless power transfer system



WinPact Fermentor, Bioproducts Production Lab, U&U



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