

Innovations

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The U's BioDesign Program helps turn fledgling ideas into tangible inventions.

In the process of developing medical device innovations, who better to implement budding ideas than doctors themselves? This is exactly what the University Biomedical Device Innovation Program (the BioDesign Program) facilitates. It pairs teams of bioengineering undergraduates in their last year of study,

with physicians from the University Health Care system. This unique interface between the College of Engineering and the University Medical Center pushes ideas to development and commercialization.

This year, students in the BioDesign Program are working on seven projects.

"All of these ideas are like unplanted seeds that physicians are just carrying around in their pockets," says Bob Hitchcock, assistant professor of bioengineering, "our job is to help get the seeds planted in the ground. It is our hope that this program will add substantially to the biomedical portfolio at the

Technology Commercialization Office, helping make the University a leader in biomedical device innovation."

Projects at the Program range from cardiology, to rehabilitation, neonatology and orthopedics. Dr. Hitchcock works with clinicians to compose invention disclosures and presents these class early semester. Then elects they to spend development.

This program out of to give bioengineering students the opportunity to get real-world experience and create high quality design portfolios. During the development of ideas from concept to commercialization, teams are required to adhere to and integrate best practice development processes common to true biomedical product

innovation cycles. They are also required to follow FDA guidelines. Needless to say, participation in the program opens up opportunities for many graduating seniors.

The BioDesign Program seeks to create new educational and research programs that leverage expertise and experience of the medicine-engineering synthesis to enhance product development both within the University and the medical device industry.

Throughout the year, clinical and industrial partners help guide and mentor students through the product development process. The unique partnership not only facilitates interaction, but it also builds upon Utah's prominence in biomedical device design and production. For more information regarding the BioDesign Program, please contact Bob Hitchcock at r.hitchcock@utah.edu. *



A Message from Jack Brittain

As the national economy teeters on the apparent brink of recession, it may seem like a terrible time to launch a technology business. Think again. Most technology businesses take months to establish reliable production systems, build distribution relationships, and prepare to support a sold product.

During tough economic times competitive markets are causing weak businesses to fail, leveling the competitive field. Technologies that solve problems and provide unique results are warmly greeted as business saviors. Companies are willing to make investments they per-

ceive as necessary at a time when they are cutting other expenses.

Preparing for success when the competition is taking a beating is smart business. It is easier to win new sales when the market turns around after a rough period than it is to take sales away from competitors in a booming economy. From the standpoint of what we do at Tech Ventures, now is an outstanding time to launch a new company. We are prepared to help faculty entrepreneurs succeed by providing resources, advisors and our Venture Bench which offers a suite of start-up services so the faculty can focus on technology development. *

What you'll find in

Innovations

- The U's BioDesign Institute helps turn fledgling ideas into tangible inventions.
- Survey Ranks the U Second Only to M.I.T. in Starting Companies
- Featured Technology: Providing Communication to Trapped Miners

Featured Funding

Technology Commercialization Projects

The Technology Commercialization Program, sponsored by the University of Utah Research Foundation, supports research in all areas of technology including medical devices, biomaterials, immunodiagnostics, drug design and development, etc. The emphasis is on developing novel, near-commercialization technologies.

The Foundation will support research projects that have strong potential for generating invention disclosures, patents, licensing and product commercialization in the short term. The Foundation will fund high-risk, fast-track research in order to generate private investment for further development within a two year period.

Funding is to be used for development activities such as building a working prototype; preparing samples suitable for commercial evaluation; and collecting additional data to demonstrate commercial potential. New areas of research will be considered only if there is strong evidence that commercial feasibility can be demonstrated within the two year period. The applicant must clearly describe and support the technical basis and the economic potential for the innovation to be developed. Applicants must clearly indicate the economic potential of the expected research results and identify a potential partner for subsequent commercialization.

Proposals for new and renewing TCP grants are due to the Office of Sponsored Projects at the close of business (5:00pm) on April 15th of each year. To find out more information about TCPs, please visit OSP online at www.research.utah.edu/funding/tcp.html. *

2007-2008 Opportunity Quest Winners Announced

The Utah Entrepreneur Challenge (UEC) has instituted a new statewide outreach program for the 2007-2008 academic year. The program expanded the existing Opportunity Quest business innovation competition to include eight Utah colleges and universities.

Modeled after the four-year-old program at The University of Utah, Opportunity Quest provides students the chance to submit business ideas and compete against their colleagues for cash prizes at the local campus level. Teams are judged on topics integral to the success of their business ideas including opportunity, competition, potential customers, company financials, and sales strategy. Students

are also assigned mentors and receive feedback from judges to help improve their plans. The winning team from each school is automatically entered in the semi-finalist round of the statewide UEC competition.

This year Opportunity Quest competitions were held at Utah State University, Weber State University, The University of Utah, Salt Lake Community College, Westminster, Utah Valley University, Southern Utah University, and Dixie State. Statewide approximately 350 students participated on 117 teams.

The University of Utah competition experienced record participation this year with 126 students on 38 registered

teams representing 15 majors. Finalist ideas include topics of real estate development, drug clinical research, orthopedics, custom toilet fixtures, an indoor skate park, and waste heat energy reclamation.

Energy Tap won first place in this year's competition followed by AmWell and Yourspace Private Warehouses.

The creation of the UEC Opportunity Quest Outreach Program was made possible through a generous sponsorship by Zions Bank. More information about these student business competitions can be found at www.lassonde.utah.edu. *



1st Place

EnergyTap

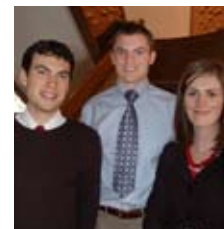
Jeremy Goeckeritz
Chuck Roberts



2nd Place

AmWell

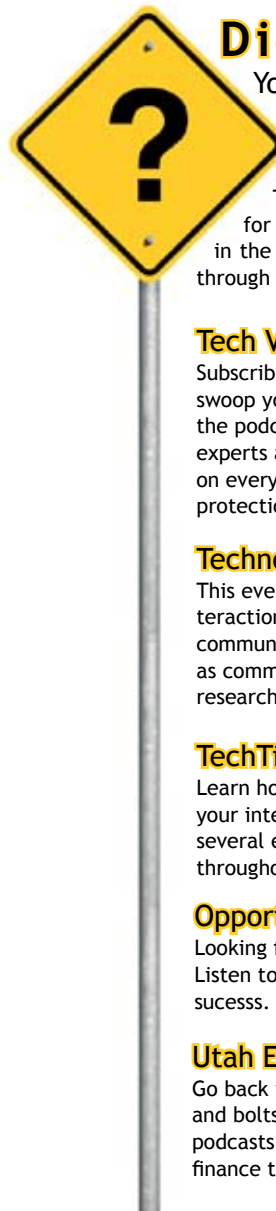
Julie Jay
Sean Bunker



3rd Place

Yourspace Private Warehouses

Spencer Walker
Brittany Walker
Brennan Brown
Michael Brown
Jenn Oblad
Tom Stewart



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You can now subscribe to one of our five podcasts!

There are two ways to access the Tech Ventures podcasts. Either search for "Technology Venture Development" in the iTunes store, or link to the podcasts through our website techventures.utah.edu.

Tech Ventures Archives

Subscribe to this podcast and in one fell swoop you will automatically receive all of the podcasts we offer. Listen to industry experts and seasoned entrepreneurs speak on everything from Intellectual Property protection to funding opportunities.

Technology Tuesdays

This event was created to stimulate the interaction between the research and business communities. Discussions include topics such as commercialization, entrepreneurship and research collaboration.

TechTitans Educational Forums

Learn how to implement your ideas and protect your intellectual property. TechTitans offers several educational forums for inventors throughout the year.

Opportunity Quest Forums

Looking for entrepreneurial inspiration? Listen to industry experts inspire you to success.

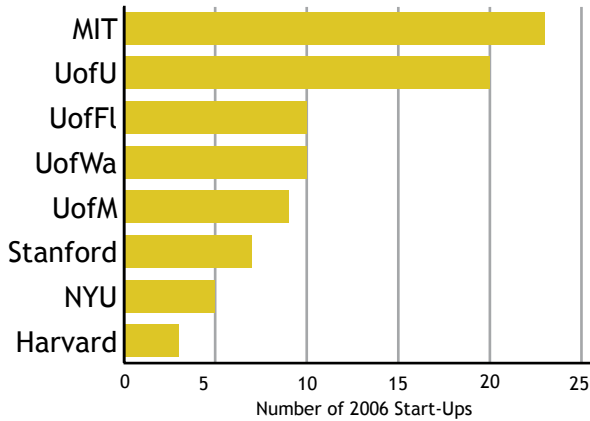
Utah Entrepreneur Challenge

Go back to the basics and learn the nuts and bolts of starting a new business. This podcast covers everything from pro forma finance to writing business plans.

Survey Ranks the U Second Only to M.I.T. in Starting Companies

The Association of University Technology Managers Released their national 2006 Survey Results.

Starts-ups in Top Universities



The University of Utah (the U) was recently ranked second best in the country at starting technology companies based on its research. This is according to the latest survey of the Association of University Technology Managers (AUTM) which ranks public and private research institutions throughout the country. The ranking is based on the university's accomplishment of starting 20 new companies in 2006 developed on technologies from its diverse and varied research.

The Massachusetts Institute of Technology (MIT), with 23 new companies, was the only university ranked as more productive than the University of Utah. The U's accomplishment is made more significant due to the fact MIT receives over three times as much research funding.

"Such a task requires the efforts of many individuals both internal and external to the University. We have all the ingredients to make the U a leader in business development and technology commercialization among American universities," said Brian Cummings, director of the University of Utah's Technology Commercialization Office.

The University's Technology Commercialization Office (TCO) has been focused on economic development since 2005 when the Office of Technology Venture Development was created under the leadership of Jack Brittain, vice president of Technology Venture Development. This was an innovative shift away from the traditional organizational structure which exists at most Universities. It has allowed the TCO to function at a higher level; responding to the needs of the University inventors and staff."

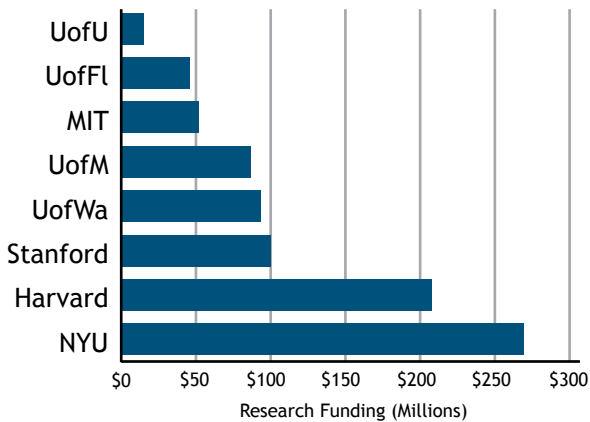
"The support from the state of Utah and the local business community is one reason why the University of Utah has been so successful in getting new companies started," said Cummings. "The state has established an extremely friendly climate for entrepreneurs. The results are reflected by these national rankings."

The annual AUTM survey tracks metrics on commercialization activities at all the major U.S. Universities and is designed to present the outcomes from federal research funding, which currently stands at about \$30 billion. Of the top twenty TCO's in the country the University of Utah is first at starting companies per dollar of federal research funding and second for the number of inventions it generates per dollar of federal funding.

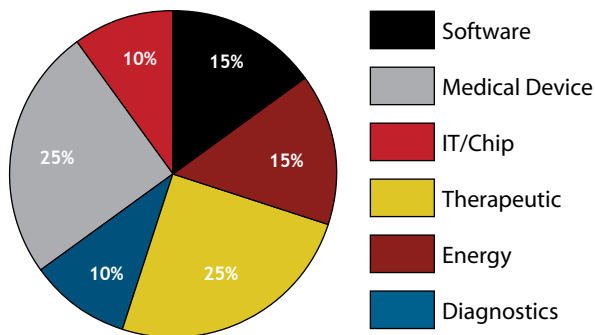
"TCO's effort has produced remarkable results in a very short time period," says Jack Brittain. "Brian Cummings' leadership deserves credit along with the efforts of all of the professionals in the commercialization office."

The TCO at the University of Utah evaluates almost 200 new inventions every year, some of which are nurtured and become new companies. Since the inception of a specialized Technology Venture Development Office in 2005, over 53 new companies have started from the University, almost all of which still reside in Utah. These new companies represent advances in energy, medical devices, personalized medicine, graphic design, software, nanotechnology, disease diagnostics and more. *

Efficiency in Starting a New Company



U of U Start-Up Activity by Industry Sector



It's Spring again. The time for new growth, new ideas and time for Utah's most ingenious inventors to emerge from their laboratories to show off their most impressive new technologies.

Previously known as the Edison Showcase, the Sorenson Inventor Showcase is the premier networking event for inventors, entrepreneurs and the business community. It is a unique opportunity for universities throughout Utah to showcase their technologies. The spotlight will be on 40 of Utah's cutting edge technologies ranging from prototype concepts to well-established commercial entities. A "speedpitch" component will take place this year in conjunction with the Governor's Office of Economic Development, offering attendees an opportunity to hear from researchers and inventors who wish to further peak the interest of the business and investment community.

The event will take place in Salt Lake on Wednesday,

April 16, 2008. The speedpitch presentations begin at 9 AM, the Showcase at 10 AM, followed by an awards luncheon at noon where Dr. Pratap Khanwilkar will be presented with the Pathfinder Award. This achievement award recognizes University inventors who have successfully developed original ideas and technologies that affect our world. Registration is \$35. Seating is limited. Please register at www.mwcn.org by Friday, April 11, 2008. For more information call, visit www.business.utah.edu/sorenson. *

SORENSEN
INVENTOR SHOWCASE
Bringing inventors and entrepreneurs together.

Have you received multiple copies of *Innovations*? Pass any extras on to others interested in The University of Utah.

Featured University Technology: Providing Communication for Trapped Miners

Dr. Gerard Schuster's "Super Resolution Seismic Location and 2-Way Communication Technology"

In the wake of the Crandall Canyon Mine disaster, the dire need for an effective and robust method to communicate with trapped miners



has been highlighted. The challenge of communication without cables or any other direct surface connection, with thousands of feet of rock and dirt standing in the way, has proved to

be a daunting task. Answering this call is Dr. Gerard Schuster, Professor of Geophysics from the Department of Geology and Geophysics.

Dr. Schuster's "Super Resolution Seismic Location and 2-Way Communication" technology is an exciting innovation developed here at the University of Utah that is proving to be a light at the end of the tunnel in solving this challenge.

With Dr. Schuster's technology, geophones are placed along the earth's surface above a mine. Prior to the mine collapse, underground communication base stations are installed at regular intervals (i.e. 300 m) throughout the mine shaft and controlled seismic vibrations from each base station are recorded by the geophones on the surface as reference recordings. Each underground base station will have a unique seismic signature on the surface. In the event of a mine collapse, a trapped miner could pound on any base station and the emissions would be recorded on the surface. These recordings would be compared to the reference recordings to identify the location of the miner.

Even more impressive is the ability to achieve two-way communication offered by the technology. If each station was equipped with a computer, as well as a signal emitter and geophone, communication could be as

straight forward as typing an email. The typed message would be translated into Morse or binary code, and be transmitted. The signal would travel through the earth and, after being compared with the reference seismic signature, able to be decoded.

While the approach appears to be quite simple, the only reason it is possible is due to super resolution accuracy. Normal seismic recordings cannot identify the miner's emissions because the signal-to-noise ratio is too low. This problem is largely overcome by enhancing the ability to detect signals with extremely low signal-to-noise ratios, using technology recently developed in Dr. Schuster's seismic interferometry research, as well as naval undersea communication technology.

This technology will not prevent future mine collapses, but the hope is that it will provide a method whereby communication to and from trapped miners might be accomplished. Just as Thomas Jefferson wrote "The liberty of speaking and writing guards our other liberties." Perhaps some day this technology will provide the communication necessary to liberate those held captive by the mountain's grasp. ✨