UNH Research 2014
A digest of the year’s research news from the University of New Hampshire

Agriculture & Biological Sciences
Business & Technology
Engineering & Physical Sciences
Health, Behavioral & Social Sciences
Humanities & the Arts
Marine & Ocean Sciences
Space Science
Sustainability & the Environment

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Find it on the Web at http://www.unh.edu/research/UNH-Research-Digest.

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Business & Technology

Be Part of Our Newest Consortium – G.fast
The UNH InterOperability Laboratory (UNH-IOL) was selected to serve as the official test site for the international Broadband Forum’s G.fast certification program. UNH-IOL is in the process of accepting companies as founding members of this new consortium. G.fast is a new communications technology that drastically increases speed over copper wire by using wider frequency profiles than earlier versions of DSL used. The selection of UNH-IOL as the world’s first and only test site for the G.fast certification program reflects the UNH-IOL’s reputation for running neutral tests of networking technologies in partnership with the business community.

http://us8.campaign-archive2.com/?u=2dda639777f7c7a1a13630863&id=e56a294724

Carsey Institute: 39 Percent of Unemployed Americans Seeking Work for More Than Six Months
Andrew Schaefer, doctoral candidate in sociology and research assistant at the Carsey Institute at UNH, has found that 39 percent of unemployed Americans have been seeking work for six months or longer. The new research is detailed in the Carsey Institute brief, *The Long-Term Unemployed in the Wake of the Great Recession*. Schaefer explains that insight into these demographics is important so that researchers can “better target strategies for alleviating the negative effects of long-term unemployment.”

http://www.unh.edu/news/releases/2014/01/lw22carsey.cfm
http://www.unh.edu/campusjournal/2014/01/carsey-institute-39-percent-unemployed-americans-are-seeking-work-six-plus-months
http://cola.unh.edu/article/2014/01/carsey-institute-39-percent-unemployed-americans-are-seeking-work-six-plus-months

Comcast and UNH Manchester Partner in STEM Ambassadors Program for High School Students
Comcast’s Internet Essentials Program is partnering with UNH Manchester to offer the STEM Ambassadors program, a year-long program taking place on-site at Manchester’s Memorial and Central High Schools to support English Language Learner (ELL) students in grades 9-11 who currently are struggling with math. The program curriculum is integrated across disciplines and is comprehensive to include, but not limited to, technology, engineering, writing and the arts. Students also will have a chance to visit high tech companies in the Manchester area to see both job possibilities and the practical application of what a STEM education can mean to them.

http://manchester.unh.edu/blog/unh-stem-discovery-lab/comcast-and-unh-manchester-partner-stem-ambassadors-program-high-school

Students in the STEM Ambassadors program gathered on October 28, 2014 at UNH Manchester with Lauren Provost, UNH research assistant professor and Director of the STEM Ambassadors program (kneeling), and U.S. Senator Jeanne Shaheen (wearing pink jacket) for an event that brought together New Hampshire teachers and State and local officials to increase awareness of the STEM Ambassadors program and its goal to close the digital divide.

Credit: UNH Manchester
Devkamal Dutta, Associate Professor of Strategic Management and Entrepreneurship, Paul College – India & Hong Kong

Devkamal Dutta, associate professor of strategic management and entrepreneurship in the Peter T. Paul College of Business and Economics, traveled to India and Hong Kong in the summer of 2014, funded in part by an International Grant for Development and Engagement from UNH’s Center for International Education. Dutta examined growth challenges in social ventures and entrepreneurial firms that adopt a business-oriented approach to tackle some of the biggest social challenges facing a region or country, in this case, India. Dutta also visited Hong Kong Polytechnic University as an invited participant in a conference on Renewing Business Education in Asia, a subject closely related to his research.

http://unh.edu/cie/devkamal-dutta-india-hk-2014

Device May Help Solve Weighty Problem of Snow Loads on Roofs

When the founder and president of engineering company 2KR Systms LLC wanted to improve one of his products, he turned to the New Hampshire Innovation Research Center at UNH (IRC). The IRC directed him to two UNH Manchester faculty, Christopher LeBlanc, assistant professor of engineering technology, and Mihaela Sabin, associate professor of computing science, who could work with him to advance the SnowScale technology. SnowScale was designed originally to measure water content and heaviness of snow on the ground. Working with teams of UNH students, LeBlanc and Sabin are designing a smaller, more “user-friendly” version of the SnowScale that can be deployed on rooftops with the goal of preventing devastating roof collapses that are common in New England.

http://manchester.unh.edu/blog/campus-news/device-may-help-solve-weighty-problem-snow-loads-roofs
http://manchester.unh.edu/blog/campus-news/students-and-alumnus-engineer-device-measure-snow-loads-roofs
http://unh.edu/unhtoday/veterans/2014/06/weight-watchers

Exploring Agritourism in Chile

Sarah Wiggins ’15, a business administration major with a minor in hospitality management, conducted research in Chile in the summer of 2014 as part of her nine-week Summer Undergraduate Research Fellowship offered through UNH’s Hamel Center for Undergraduate Research. Wiggins traveled around the rural Maule region, interviewing local farmers as she explored the benefits of agritourism, the blend of tourism with agricultural operations such as farms or ranches. Nelson Barber, associate professor of hospitality management in the Peter T. Paul College of Business and Economics, served as Wiggins’ mentor.

http://www.unh.edu/unhtoday/2014/10/exploring-agritourism-chile

Free Webinar! Remote Sensing of Lakes: They’re not all just "blue"

While most common land remote sensing approaches treat surface water as a single class (“blue” most of the time), a great deal of information about the dynamics and water quality of lakes can be obtained through remote sensing. This recorded webinar, originally presented on May 28, 2014 by Shane Bradt (Cooperative Extension associate...
professor and specialist, geospatial technologies) details important considerations when using remote sensing on inland water bodies, and summarizes some of the recent advances in the remote sensing of lakes.

http://nhepscor.org/events/free-webinar-remote-sensing-lakes-theyre-not-all-just-blue

Hackers Beware: Cyber Defense Competition Brings Region’s Brightest to UNH

UNH’s computer science department hosted the seventh annual Northeast Collegiate Cyber Defense Competition, in which some of the world’s most skilled hackers gathered to compete against student cyber defense teams from 10 universities. The three-day competition, organized by UNH computer science instructor Ken Graf, pits hackers from the U.S. military, government, and top security firms against the student teams in real-world situations in which cyber security is threatened. The students must resolve and prevent the hacker’s attacks while allowing people in their simulated company to continue working at the same time.

http://www.unh.edu/unhtoday/unhtoday/2014/06/hackers-beware

High School Students Explore Computing and Engineering at Girls Technology Day

Mihaela Sabin, associate professor and coordinator of the Computing Technology Program at UNH Manchester, organized a one-day event with her colleagues to introduce middle school and high school girls to the opportunities of careers in technology. Girls Technology Day activities, which were designed to dispel the idea that careers in computer science lack social interaction, included a series of workshop sessions that emphasized collaboration and hands-on activities. Sabin stressed the importance of having women work in technology fields: “Nobody disputes that the more diverse a high-tech team, the more successful and impactful the solution is.”

http://manchester.unh.edu/blog/campus-news/high-school-students-explore-computing-and-engineering-girls-technology-day

If You (Re)build It, Will They Come?

Christine Soutter, economic development manager for the city of Somersworth, was one of 26 community leaders to attend UNH’s Economic Development Academy, a recent series of intensive workshops created by the UNH Cooperative Extension and the Office of the Senior Vice Provost for Engagement and Academic Outreach. Soutter’s experiences in the Academy – exploring research, hearing from experts, and conversations with other Academy attendees – have inspired her as she spearheads an effort to rejuvenate downtown Somersworth.

http://extension.unh.edu/articles/If-You-Rebuild-It-Will-They-Come

IT’s Scott Valcourt Honored by Gov. Maggie Hassan

Scott Valcourt, UNH Information Technology’s director of strategic technology, received an award from New Hampshire Governor Maggie Hassan for his leadership of the Network New Hampshire Now program. The project brought 865 miles of fiber optic cable to the state, reaching areas with previously limited access to broadband service. UNH worked with the New Hampshire Department of Resources and Economic Development, with guidance from the Governor’s Telecommunications Advisory Board (TAB), and the 2008 New Hampshire Broadband Action Plan to implement the Network New Hampshire Now plan, creating one of the largest fiber networks in the country. The project was made possible by a grant from the National Telecommunications and Information Administration that was matched by private and in-kind funding.

Married Moms in U.S. Buck Trend Toward Shorter-Term Work

In a study published in the February 2014 issue of the *American Sociological Review*, Kristin Smith, research assistant professor of sociology and family demographer in the Carsey Institute at UNH, and a co-author from McGill University examined whether data collected through the Current Population Survey supports the popularly-held perception that workers are staying in their jobs for shorter periods of time. By looking at the data separately for men and women and by marital and parental status, Smith and her colleague found that men and never-married women have seen declines in job tenure (the number of years working for the same employer), but this overall trend was masked by increases in the job tenure of married mothers. The study indicated that the labor market as a whole is, as people perceive, experiencing a shift toward shorter-term work arrangements.

http://www.unh.edu/campusjournal/2014/02/married-moms-us-buck-trend-toward-shorter-term-work
http://cola.unh.edu/article/2014/02/married-moms-us-buck-trend-toward-shorter-term-work

Network New Hampshire Now

Network New Hampshire Now has brought next-generation communications and broadband access to the state of New Hampshire. The “fiber build,” which provides broadband availability to all of New Hampshire’s 10 counties, was made possible through a unique public-private collaboration throughout the state. The new resource will provide countless opportunities for New England-based businesses, local public safety teams, educational programs, and health care.

http://www.youtube.com/watch?v=yafDefBti-w&feature=youtu.be

Open Compute Project Comes to Durham

The University of New Hampshire InterOperability Lab (UNH-IOL) and Fidelity Investments hosted an Open Compute Project Foundation Engineering Workshop at UNH’s Durham campus in July of 2014. This engineering workshop focused on three of eight top-level projects: networking, storage, and high performance computing. The Open Compute Project Foundation is a community of engineers from around the world whose mission is to design efficient server, storage, and hardware designs for scalable computing.

https://gallery.mailchimp.com/2dda639777f7c7a1a13630863/files/c_edit_open_compute.html

Prof. Tom Laue Named Innovator of the Year at UNHInnovation Event

Tom Laue, professor of molecular, cellular and biomedical sciences, was awarded the University’s Innovator of the Year Award in October of 2014 for his work on innovative instruments and methods to analyze biomolecular interactions. The award was made in conjunction with the recent announcement by UNHInnovation (UNHI) of the establishment of a new center, mentoring network, and seed fund to expand entrepreneurship throughout the University and the state. UNHI strives to create partnerships between UNH and the business community that result in economic development, and is responsible for licensing UNH technologies and supporting start-up companies based on UNH’s innovations.

http://www.unh.edu/unhtoday/2014/10/prof-tom-laue-named-innovator-year-unhinnovation-event-0
SDN Proof of Concept Delivered at Light Reading's Big Telecom Event
The University of New Hampshire Interoperability Laboratory (UNH-IOL) demonstrated proof of a concept of the functionality in customer premises equipment (CPE) routers using open Software-Defined Networking (SDN) during a live demonstration at the first Light Reading Big Telecom Event in Chicago, IL in June 2014. The UNH-IOL team, led by Marion Dillon, home networking operations manager, showcased virtualization of the home networking environment via cloud technology that will improve network performance, enhance service delivery, and simplify home equipment installation and maintenance for service providers.

https://gallery.mailchimp.com/2dda639777f7c7a1a13630863/files/c_edit_sdn_proof_of_concept.html

Solar-Powered Success – Five Seniors Take Home Top Prize at a National Environmental Engineering Competition

An interdisciplinary team of UNH seniors was awarded the INTEL Innovation award for first place at the national Environmental Design Contest at New Mexico State University in April 2014. The team, composed of three business entrepreneurship majors and two mechanical engineering majors, created Tiltone, a swiveling solar panel system for commercial buildings that can harness 22 percent more energy than current models by tilting in the direction of the sun. Peter T. Paul College of Business and Economics professor and director of the Center for Venture Research Jeffrey Sohl led the team.

http://www.unh.edu/unhtoday/solar-powered-success
http://www.unh.edu/news/releases/2014/04/bp29intel.cfm
http://www.unh.edu/campusjournal/2014/04/unh-team-wins-national-engineering-contest

Summer Geospatial Workshops for Teachers

NH EPSCoR is collaborating with the NH Educational GIS Partnership to offer three teacher-focused GIS/GPS institutes in July and August 2014. At these institutes, K-12 teachers will learn the basics of GIS and GPS technologies and will be shown how these tools can be used to provide engaging experiences for their students. Research data and products produced through the NH EPSCoR Climate and Society project will be featured throughout the workshops, providing real-world examples of how mapping can be used to explore scientific questions.

http://nhepscor.org/news/summer-geospatial-workshops-teachers

Teens Investigate New Ways to Use Smartphones at Camp

Mihaela Sabin, associate professor of computer science at UNH Manchester, led the 2014 Ecosystem Computing Challenge (ECC) summer program for high school students. The educational camp, made possible with funding from New Hampshire’s EPSCoR program, engaged teens in the creation and development of sustainability-themed mobile apps for Android devices. Shane Bradt, associate extension specialist in geospatial technologies in UNH Cooperative Extension, spoke to the students about how technology can be used by experts and citizen scientists alike to monitor water resources. The ECC also offered an 8-day ECC Professional Development Institute to engage area educators in the latest approaches for teaching computing skills in the classroom.

http://manchester.unh.edu/blog/campus-news/teens-investigate-new-ways-use-smartphones-camp
Texas Instrument Grant Boosts UNH Manchester’s Engineering Technology Program
UNH Manchester has received a grant and engineering equipment from Texas Instruments Incorporated. The award will enable UNH Manchester’s Engineering Technology program to be admitted to the Cadence World Wide University Software Program, which provides students with access to the microelectronic industry’s world-class design software. All juniors and seniors in the Engineering Technology program will engage in hands-on projects using these new Engineering Lab resources.

The Innovators: Entrepreneurs Earn Top Honors, Seed Dollars in N.H. Social Venture Innovation Challenge
The N.H. Social Venture Innovation Challenge is designed to be an “innovation accelerator” as participants develop original proposals for sustainable, market-based solutions to societal challenges. Organized and hosted at UNH by the Peter T. Paul College of Business and Economics, the Carsey School of Public Policy, the Sustainability Institute at UNH, NH EPSCoR, and Net Impact UNH, the 2014 Challenge had 158 individuals representing 71 teams of college students and community members who competed to design entrepreneurial concepts to tackle major local and global challenges such as climate change, access to clean water, food access and food waste, and community economic development.

UNH Broadband Center of Excellence Completes Trial of White Space Technology
The UNH Broadband Center of Excellence (BCoE) has completed a trial of the new wireless broadband technology known as TV White Space (TVWS). TVWS uses unlicensed, high-performance frequencies reserved for television transmissions to wirelessly conduct Internet traffic. The study was part of the Gigabit Libraries Network’s White Space Project. BCoE Executive Director Rouzbeh Yassini, who is recognized as the father of the cable modem, explained that the greater mission of this project and the Center is “to empower every citizen of the world to have access to basic broadband.”

UNH Center for Venture Research: U.S. Angel Investor Market Recovery Continues on an Upward Trend in 2013
According to the 2013 Angel Market Analysis conducted by the Center for Venture Research at UNH, the angel investor market has continued to grow since 2010. Angel investments are a source of new jobs, with roughly 4.1 jobs created from each investment. Jeffrey Sohl, Peter T. Paul College of Business and Economics professor and director of the Center for Venture Research, explained: “This increase in the seed/start-up stage is an encouraging sign since seed capital is the stage of need for our nation’s entrepreneurs.”
UNH Cooperative Extension Included in National Science Foundation Award
Mihaela Sabin, associate professor of computer science at UNH Manchester, is leading a technology-centered pilot project for high school students, titled “The Ecosystem Computing Challenge: Partnership Model to Build Access to Relevant Computing Education for Underrepresented High School Students.” The program will engage underrepresented students in science, technology, engineering, and mathematics (STEM) disciplines through hands-on activities addressing topics pertinent to local ecosystems. UNH Cooperative Extension’s role is to coordinate guest speaker presentations and provide training for teachers. The project is supported by the National Science Foundation-funded NH EPSCoR program.

http://www.unh.edu/unhtoday/2014/01/unh-cooperative-extension-included-750k-national-science-foundation-award

UNH Cooperative Extension Launches Economic Development Academy
UNH Cooperative Extension launched its first Economic Development Academy on August 25, 2014. The Economic Development Academy aims to build a collaborative community network of area professionals to foster economic development in local cities and towns throughout New Hampshire. The seven-session program will span four months and engage participants through both online and face-to-face workshops. UNH’s Office of the Senior Vice Provost for Engagement and Academic Outreach and UNH Manchester will assist with the new program.

http://extension.unh.edu/articles/Economic-Development-Academy-launches-August-25-0
http://extension.unh.edu/articles/UNH-Cooperative-Extension-Launches-Economic-Development-Academy

UNH Lodging Executives Sentiment Index (LESI)

January – LESI Increases Despite Flat Future Outlook
http://www.unh.edu/news/releases/2014/01/lw23lesi.cfm
http://www.unh.edu/campusjournal/2014/01/unhlesi-increases-despitflatfutureoutlook

February – LESI Slides on Less Than Positive Present Outlook
http://www.unh.edu/news/releases/2014/02/lw21lesi.cfm
http://www.unh.edu/campusjournal/2014/02/unhlesi-slides-lesspositivepresentoutlook

March – LESI Continues to Slide as Future Outlook, Reservations Drop
http://www.unh.edu/news/releases/2014/03/lw26lesi.cfm
http://www.unh.edu/campusjournal/2014/03/unhlesi-continues-slide-future-outlook-reservations-drop

April – LESI Continues to Slide as the Present and Future Outlook Remains Low
http://www.unh.edu/news/releases/2014/04/em23lesi.cfm

May – LESI Improves on Anticipated Strong Summer Travel Season
http://www.unh.edu/news/releases/2014/05/em30lesi.cfm

August – LESI Continues an Upward Move on Robust Present and Future Business Expectations
http://www.unh.edu/news/releases/2014/08/em04lesi.cfm

September – LESI Falls as Lodging Executives Present and Future Sentiment Wanes

October – LESI Remains Flat as Lodging Executives Sentiment Continues to Slip
http://www.unh.edu/news/releases/2014/10/em29lesi.cfm
UNH IOL Approved for OpenFlow Specification Conformance Testing
The UNH InterOperability Lab (UNH-IOL) was the third of six labs to have been ONF-accredited for testing conformance to the OpenFlow specification. According to Erica Johnson, Director of UNH-IOL, “Certification of SDN solutions speeds deployment by building market confidence and enables companies to remain at the forefront of SDN innovation and commercialization.” The Open Networking Foundation (ONF) is a non-profit organization dedicated to accelerating the adoption of open Software-Defined Networking (SDN).

http://us8.campaign-archive1.com/?u=2dda639777f7c7a1a13630863&id=f3eec5b3bc

UNH Manchester and Prominent Business Duo Launch Emerging Technology Start-up Rejjee
UNH Manchester has partnered with Rejjee founders, long-time New Hampshire advertising businessman Gary M. O’Neil, and Cambridge-based serial entrepreneur and MIT Enterprise Forum organizer/lecturer Ken Smith, to create what they call “an early-stage through completion, start-up internship program.” Twelve interns from diverse major areas of study have joined O’Neil and Smith in a strategic product review of the company’s iOS and Android mobile apps and website, tools that disrupt the cycle of personal property crime and its $50 billion direct economic impact, as well as the $90 billion in annual fraudulent insurance claims.


UNH Research Finds Growth in U.S. Angel Investor Market, Decrease in Deal Size
The UNH Center for Venture Research has observed continued moderate growth coupled with a decrease in deal size for the U.S. angel investor market in the first two quarters of 2014. There were increases in the number of ventures receiving funding and the total number of active investors, but these numbers remain lower than those recorded prior to 2008. “Historically, angels have been the major source of seed and start-up capital for entrepreneurs, and while this stabilization is an encouraging sign, it has remained consistently below the pre-2008 peak of 55 percent, signifying that there continues to be a need for seed and start-up capital for both new venture formation and job creation,” said Jeffrey Sohl, director of the Center.


UNH Rosenberg Center Franchise 50 (RCF 50) Index
2nd Quarter 2014 – UNH Franchising Index Returns Best Performance in More Than a Year

3rd Quarter 2014 – Restaurant Sector Drags Down UNH Franchising Index
http://www.unh.edu/news/releases/2014/12/em17franchising.cfm

UNHIInnovation Head Named to National Board of Directors
UNHIInnovation executive director Marc Sedam has been named vice president of professional development for the Association of University Technology Managers (AUTM), an international group dedicated to furthering research discoveries for the benefit of society. Sedam has participated in AUTM for almost 17 years as a member, speaker, and advocate for technology transfer. Sedam now will be responsible for identifying and clarifying professional development needs and goals of the membership, and developing and implementing programs to meet those needs and goals in coordination with AUTM’s board.

http://www.unh.edu/news/releases/2014/04/em09sedam.cfm
UNHInnovation Launches New Website to Centralize Commercialization of UNH Assets
UNH has launched a new website, http://innovation.unh.edu, as part of an ongoing effort to open its doors to the business community and underscore its active role in technology-based economic development. The new website will promote UNH research and assist in bringing research results to market, consolidate all of the business resources available at the University, and provide the contact information to learn more about the various opportunities to connect with the University. The website is also a hub for UNH news, events, blog posts, and resources for researchers and innovators on campus.

http://www.unh.edu/news/releases/2014/05/cd15innovation.cfm
http://www.unh.edu/campusjournal/2014/05/new-website-promotes-unh-assets

UNHInnovation Receives Grant to Support Entrepreneurship Opportunities
UNHInnovation (UNHI) received an 18-month grant from the National Collegiate Inventors and Innovators Alliance to develop a new course, Managing Innovation, which will focus on promoting UNH’s intellectual property (IP), creating relationships between UNH and the business community, and fostering entrepreneurship. Marc Sedam, executive director of UNHI, will teach the new course. In the words of Tim Willis, licensing manager and grant development specialist for UNHI, “UNH is committed to improving its entrepreneurial ecosystem across undergraduate programs and we saw this grant as a great opportunity to educate students on how to work with IP assets to create ideas and companies that improve productivity in the 21st century.” UNHI is a unit of the UNH Research Office and was known as the Office for Research Partnerships and Commercialization until its restructuring in October 2013.

http://www.unh.edu/news/releases/2014/03/cd06innovation.cfm
http://www.unh.edu/campusjournal/2014/03/unhinnovation-receives-grant-support-entrepreneurship-opportunities

Yixin Liu, Associate Professor Finance – Greece
Yixin Liu, associate professor of finance in the UNH Peter T. Paul College of Business and Economics, traveled to Greece in the fall of 2013 with the support of a travel grant from UNH’s Center for International Education. At the Hellenic American Education Center (HAEC), Liu supervised student-directed studies, a teaching method that operates on a nontraditional time schedule through weekly meetings to accommodate the careers of those enrolled in the course. In addition to widening her teaching experiences, Liu generated a number of ideas for future research through her interactions with not only business professors, but also professors from music, linguistics, and other disciplines.

http://unh.edu/cie/yixin-liu