Welcome back to the Fall semester. I hope you all had the opportunity to take some time off this summer and enjoy time with friends and family. I try to get away, do some work just to keep up, reflect on the previous year, and begin to make plans for the coming academic year.

We accomplished a great deal this past fiscal year. Our compliance activities are very strong with no major deficiencies. UNH CEMS is being used by more and more universities. Research Integrity Services is leading HIPPA compliance and supporting Export Controls and continues to provide exemplary service in the area of human subjects and animal care. UNHInnovation is up and running with lots of entrepreneurial activities and a record year for invention disclosures and royalty revenues. Sponsored Programs Administration is addressing the new federal uniform guidance requirements – the first major reform in regulation in 50 years. The Research Computing Center continues to provide outstanding support to the Research Office, with the deployment of an electronic proposal routing sheet and the creation of an on-line training platform for Research Integrity Services. Shawn Banker was hired as the new Director of the University Instrumentation Center (see featured profile) and has already engaged in developing a new strategic plan and extensive outreach. The Office of Research Development and Communications supported hundreds of faculty members and students to submit grant and fellowship applications. Michael Thompson deserves a shout out for mentoring 34 students to submit Graduate Research Fellowship applications to the National Science Foundation. Louise Griffin is providing our office with tremendous support as the new Director of Administration. Kevin Gardner is gearing up...

Each Insider to Feature a Research Office Unit

This issue of the Insider continues its Research Office Unit series by featuring the University Instrumentation Center. (UIC) The articles about UIC provide the rest of the Research Office with a glimpse of what’s going on in the unit – day-to-day activities as well as special activities and achievements – and a profile of UIC’s new director, Shawn Banker.

Paige Belisle, RDC Editorial Assistant and MFA ’15, wrote the UIC articles.

Thanks to all for the insights…and their interesting work!
Meet Shawn Banker, Director and Newest Member of the UIC

Shawn Banker has been in his current position as the new director of the University Instrumentation Center (UIC) for only a few weeks, but his ties to UNH are already strong. Banker is an alumnus of UNH’s Mechanical Engineering Technology Bachelor of Science program and the Whittemore School of Business and Economics Executive MBA program, and his daughter graduated from UNH last year. “I’ve always loved UNH, so I love being here now,” he explained.

From 1991 to 2014, Banker worked for Velcro USA Inc. in both Manchester and Somersworth, NH in management roles where he oversaw a large staff and maintained the company’s technical production equipment as the Plant Manager, the Director of Manufacturing, and the Director of Engineering. His impressive record with this company includes developing proposals for the acquisition of new, cutting-edge equipment, tooling, and instrumentation; restructuring operations to improve the quality of life for employees; and extensive experience connecting the business world with academia. In addition, he coordinated collaborations between departments, developed business ties with new suppliers, and worked with international sister companies. Banker was sponsored by Velcro to pursue his Executive MBA at UNH. For eight years, he also served as a member of the Industrial Advisory Board for UNH Manchester’s Engineering Technology program. In this role, Banker offered his time as a mentor and sponsor for student senior capstone projects and provided input on curricula. Now, he looks forward to bringing all of these skills to the UIC.

After Banker arrived at UNH this summer, Senior Vice Provost for Research Jan Nisbet had him embark on a “listening tour” of the campus to familiarize himself with his new role, meet UIC collaborators, and hear feedback from researchers at all levels. So far, Banker has met with at least thirty UNH research personnel, from deans to graduate students. “My first weeks here have provided me with an opportunity to meet with many people to get their valuable input. I would like to say thanks to everyone for taking the time to meet with me and provide me great input,” he said.

Now, he is working to develop and formalize a plan to improve the UIC’s ability to better enable research at UNH. Banker believes that the key to success is through finding an organization’s best attributes and applying them at all levels. Currently, he sees a need to establish stronger ties with partners from the business world by making the UIC’s resources familiar to the outside community. To connect UNH with new business partners, Banker would like to expand public knowledge of the University’s world-class research personnel and state-of-the-art facilities and equipment. He also plans to apply his twenty years of managing experience and lean manufacturing expertise to explore ways to improve internal processes to make things easier for all members of UNH’s research community. “We will be looking at the current processes within our department and looking to optimize and improve them to benefit both the UIC folks and those we interact with,” he explained. “By identifying what services and instruments are needed, we will implement actions to obtain them. This can be in the form of updated instruments or services we provide. One key approach will be to increase the focus on preventative maintenance which will improve reliability and reduce failures.”

Banker has arrived at UNH during an exciting time for the UIC. With funding provided by a Major Research Instrumentation award from the National Science Foundation, the UIC is now home to a new scanning electron microscope, or SEM, which is featured in this issue of the OSVPR Insider. In addition, the UIC will host a ribbon cutting ceremony celebrating the opening of the new instruments facility in Parsons Hall this October.

Away from work, Banker enjoys spending time with his wife Melanie of 28 years and their two daughters, Lauren, 23, and Isabelle, 17. “My number one hobby is working on cars. Old ones, new ones, you name it. I have done restorations of several vehicles over the years and currently have a 1967 Datsun 1600.
Construction In Progress on UIC Imaging Core Facility

The University Instrumentation Center (UIC) is pleased to announce that construction is well underway on the 1500-square foot UIC Imaging Core that will be located in the basement of the Iddles Wing in Parsons Hall. The new, state-of-the-art facility will be outfitted to house the UIC’s new scanning electron microscope (SEM), a transition electron microscope (TEM), and sample prepping equipment. Currently, the TEM and an older SEM are housed in a separate facility in Kendall Hall.

Construction began on May 19th, and the UIC anticipates a mid-August finish to coincide with students returning to the Durham campus. A celebratory open house and ribbon cutting ceremony has been planned for the fall.

The advantages of constructing a new, central facility are many. According to UIC Manager John Wilderman, granting agencies favor “core” facilities over universities that have separate collections of instrumentation spread around campus. The name “Imaging Core” was specially chosen by the UIC to “rebrand” UNH’s advanced microscopy resources. The TEM is currently housed in a Kendall Hall workspace that is over 40 years old, and Wilderman believes that the user experience will improve after researchers are able to employ the instrument in its updated home.

The UIC Imaging Core demonstrates the UIC’s commitment to the advancement of dynamic university research and business relationships. In keeping with UIC Director Shawn Banker’s vision to expand ventures with outside partners, the Imaging Core will offer prospective industry collaborators a spacious, clean, and contemporary setting for conducting research projects. Wilderman added that the facility will also provide a place for teaching through opportunities such as the UNH Summer Undergraduate Research Fellowship program (SURF). The construction of the UIC Imaging Core complements the UIC’s mission to be “open and available to all UNH faculty, staff, and students as well as non-UNH academic entities, government, and industrial customers.”

Roadster and a 1930 Ford Model A pickup. The Ford was actually owned by my great grandfather Charles who used it at fairs and auctions to make and sell popcorn out of. It had been out of the family for almost 30 years when I purchased it from a friend and did a full frame-off restoration, doing all of the work myself," he explained. Banker and his family own a small woodland camp in Vermont, and he has recently taken up fly fishing.

Banker’s impressive experience and new ideas for the future will serve him well as he strives to enhance UNH’s competitive edge with expanded instrumentation resources. “I would like to thank the UIC team for their welcoming, openness, and positive outlook towards me coming on board,” he said. Banker is thrilled to have returned to the university he loves to better the research experience for new and returning UIC users.

The 1967 Datsun 1600 Roadster — before and after. The 1930 Ford Model A pickup, fully restored.
UIC Welcomes Scanning Electron Microscope (SEM) Acquired Through NSF MRI Grant

The University Instrumentation Center (UIC) is now home to a new scanning electron microscope (SEM), which was acquired through a Major Research Instrumentation (MRI) award from the National Science Foundation (NSF). Since the SEM arrived at UNH in April, it’s been making a buzz. “Everyone at UNH who works with nanoparticles is very excited about this new instrument,” John Wilderman, UIC Manager, explained.

But what does a SEM do, exactly, that makes it such a valuable resource for the University’s research community? Part of the answer lies in the SEM’s versatility. “You can use a SEM to examine just about anything you want to see that’s really small,” Wilderman said. The device’s capabilities will specifically impact the work of researchers and students studying nanoparticles in the fields of materials science, mechanical engineering, failure analysis, and geophysics, to name a few.

The new SEM, which is a Tescan Lyra Focused Ion Beam Scanning Electron Microscope (FIB-SEM), also boasts the capability to tilt in many directions. This is especially useful for researchers who will be using the microscope to make stereoscopic, or three-dimensional, images. (The UIC’s older SEM, a 1996 Amray 3300FE field emission SEM that remains in working condition in Kendall Hall, does not have this capability.) The new SEM will allow researchers to image samples all the way down to the nanometer resolution, a magnification that can produce images roughly 6 to 7 times more detailed than those made from the older SEM.

For researchers in the biological sciences, the FIB-SEM also is able to detect cathodoluminescence, an optical phenomenon that occurs when samples emit luminescence when studied using x-ray technology. The model was carefully selected through a planned shopping process, during which Wilderman and the MRI team took several samples to four vendors to examine each product’s unique options, pros and cons, and cost. “We feel confident that our new Tescan SEM will keep our facility ahead of the curve,” Wilderman said.

Todd Gross, professor of mechanical engineering, was the principal investigator on the NSF MRI proposal that made acquisition of the SEM possible. Marko Knezevic, assistant professor of mechanical engineering, will work with the SEM in his research on materials behavior. Other researchers who will or have already used the instrument directly in their research include Brad Kinsey, professor of mechanical engineering; Yannis Korkolis, assistant professor of mechanical engineering; David Lashmore, research professor of materials science; John Tsavalas, research assistant professor of materials science; and Gopal Mulukutla, research scientist in the Water Systems Analysis Group. Margaret Boettcher, assistant professor of geophysics and a recent recipient of an NSF CAREER award, will use the SEM to study particles impacted by earthquakes. (Kinsey and Korkolis are also NSF CAREER awardees.) In keeping with the mission of the UIC, the FIB-SEM will also be made available to undergraduate and graduate student researchers, as well as to industry business partners from outside of the University.

The research potential of this new device represents a key step for the evolving UIC. The FIB-SEM is currently housed in room W118 in Parsons Hall, but it will be moved to its permanent home at the UIC Imaging Core facility after construction is completed.

Comings, Goings, & Goings-on

Michele Gregg, Senior Financial Research Administrator in the SPA Accounting and Financial Compliance group, has decided to pursue part-time opportunities. Her last day in SPA was June 19. During her time in SPA she made invaluable contributions in improving the project closeout process and in bringing up the on-line effort certification system.

Shawn Banker joined UNH as Director of the University Instrumentation Center on May 27, 2014. Shawn will be responsible for developing, leading, and managing the university-wide core instrumentation facilities dedicated to the advancement of the research and the academic missions of UNH as well as the surrounding research and business communities. (See the profile on page 2 to learn more about Shawn.)

UNHI is pleased to welcome new licensing interns Cassie Simmons and Andrew Schmid to the office. Andrew and Cassie started on June 2, 2014 and will work with UNHI over the course of the next year. Both interns have just completed their 1L year (first year of law school). UNHI has worked with the UNH School of Law since 2010 to bring law school student interns into their office to gain technology transfer experience within a higher education setting.

OEHS’s Andy Glode and UIC’s Patricia Stone Wilkinson ‘88 were recognized as Unsung Heroes by the UNH Chemistry Department in May. The Chemistry Department gives this award for going above and beyond in service to the department.

Marc Sedam has been elected to the board of directors of the Association of University Technology Managers (AUTM) as its vice president for professional development. In this position, Marc is 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 the board.

Jeff Anderson and Marty McCrone successfully completed eight hour Hazardous Waste Site Worker Refresher training offered by the New England Consortium at UMASS-Lowell.

UNHInnovation launched their new website, innovation.unh.edu, as part of an ongoing effort to open the doors of UNH to the business community and underscore its active role in technology-based economic development. The new website is designed to promote UNH research and assist in bringing research results to market as well as consolidate all of the business resources available at the university. The website is also a hub for UNH news, events, blog posts, and resources for researchers and innovators on campus. A whole section is dedicated to providing faculty innovators with important information regarding the protection of their intellectual property.

(Links on the Research Office web page now direct users to innovation.unh.edu for this information.)
An image of the Mariana Trench, mapped and developed by University of New Hampshire scientist James Gardner, was licensed to Warner Bros. by UNHInnovation. The image is being used within a quick-cut-montage sequence in 2014’s Godzilla movie.

The licensed image (shown below) was taken during an underwater survey of the area that took place from August through October of 2010. Scientists from the UNH Center for Coastal and Ocean Mapping/Joint Hydrographic Center (CCOM/JHC) used a multibeam echosounder, state-of-the-art equipment for mapping the ocean floor, to map the area of the Mariana Trench. The survey yielded the maps of the seafloor and the most precise estimate to date of the depth of the Challenger Deep, the deepest spot on earth, measuring around 10,984 meters (36,028 feet) deep.

Making Your NSF-Forts Count

Michael Thompson, and eight of the twelve-member faculty cohort visited the Seacoast Science Center (site of numerous UNH faculty projects over the years), the Port Inn (to see the work of the UNH Stormwater Center), and Robert’s Maine Grill (where Cooperative Extension has assisted with marketing local seafood). The experience expanded horizons for faculty working on broader impacts and educational plans for their NSF proposals.
March 31 – April 4  **Bob Noseworthy, Patrick MacArthur, Edward Mossman, Qian Liu, and associate professor of computer science Robert Russell** traveled to Monterey, CA for the 10th Annual OpenFabrics International Developer Workshop. Slides and video of Bob Noseworthy’s presentation, *OFA Logo Program Developments*, are available to learn more about this program that the UNH-IOL coordinates for the OpenFabrics Alliance.

Patrick MacArthur presented “**Implementing TCP Sockets over RDMA**” at the IBUG (InfiniBand User’s Group) Workshop. He discussed his work with Dr. Russell that has been supported by the National Science Foundation under Grant No. OCI-1127228 and the National Science Foundation Graduate Research Fellowship Program under award number DGE-0913620.

March 31 – April 4  **Marc Sedam** helped provide training in the field of technology transfer policy and practice, and technology-based economic development for the Association of University Technology Managers (AUTM) in China. Training sessions were held in Beijing and Shanghai and served over 130 people from government, universities, and industry.

April 10  **Kathy Cataneo** and **Michael Thompson** took a small group of UNH faculty to NSF to meet with program officers in graduate education, undergraduate education, biological sciences, chemistry, molecular biophysics, and chemical, bioengineering, environmental science, and transport systems. This is one of the opportunities offered to faculty participating in the UNH Research & Engagement Academy and the UNH “Making Your NSF-Forts Count” program.

April 23  **Marc Sedam** presented a “Start-up Infrastructure on a Budget” seminar during a Lunch & Learn at the abiHUB (now the Alpha Loft) in Portsmouth, NH.

April 29 – May 1  **Pete Scruton** traveled to Santa Clara, CA for the Broadband Forum Board of Directors Strategy Meeting.

May 5 – 7  **Victor Sosa** and **Melissa McGee** attended the Second Annual Impact of Export Controls on Higher Education and Scientific Institutions, hosted by Georgia Tech. The two-day conference focused on sharing best practices and discussion of the most pressing export control issues facing universities, clinical research centers, and other nonprofit research institutions. Speakers included university compliance officers, lawyers, and federal agency representatives.

May 13  The **UNH-IOL** partnered with Granite River Labs (GRL) to host the MIPI Testing Seminar in Santa Clara, CA. During the seminar, **Andy Baldman**, Chair of the MIPI Conformance Test Subgroup and Vice-Chair of the PHY Subgroup discussed MIPI topics.

May 14 – 15  **Lincoln Lavoie** traveled to San Jose, CA for the Broadband Forum Board of Directors Strategy Meeting.

May 19 – 22  While at the annual meeting of NORDP (National Organization of Research Development Professionals) in Portland, OR, **Kathy Cataneo** and **Michael Thompson** attended a workshop on “Team Science.” In addition to hearing keynote speaker Sally Rockey (NIH’s Deputy Director for Extramural Research), Kathy and Michael and UNH Advancement colleagues Diane Schaefer and Liz Park attended various presentations on strategies for increasing competitiveness of grant proposals.
May 19 – 23  **Patrick MacArthur** traveled to the Arizona Grand Resort in Phoenix, AZ for the IEEE International Parallel & Distributed Processing Symposium. While at the symposium, Patrick presented his paper, “An Efficient Method for Stream Semantics over RDMA.” This paper describes an algorithm used in UNH EXS to allow using direct or indirect messages based on the application.

May 22  **Maria Emanuel** and **Chelsey DiGiuseppe** co-presented a webinar titled, “How to Successfully Rebrand your TTO: Lessons Learned from UNH Innovation,” that was hosted by Tech Transfer Central, the world’s leading content provider in tech transfer and research commercialization. The presentation was attended by twenty organizations interested in rebranding and reorganizing their tech transfer office.

May 23  **Melissa McGee** and **Julie Simpson**, accompanied by professor of microbiology Thomas Pistole, attended the University of Southern Maine’s 6th annual Research Integrity Symposium in Saco, Maine. The symposium featured speakers addressing topics related to research compliance and integrity issues faced by Institutional Review Boards (IRBs), Institutional Animal Care & Use Committees (IACUCs), and Institutional Biosafety Committees (IBCs), as well as other research integrity topics. Julie presented a session titled, “Lying, Cheating, & Stealing: A Primer on Research Misconduct.” Her presentation is available on the symposium website at [http://usm.maine.edu/orio/research-integrity-symposium](http://usm.maine.edu/orio/research-integrity-symposium).

May 28  **Kathleen Stilwell** attended the 13th Administrative Office Professionals Conference held at UNH in Durham. This year’s conference theme was “Reflect, Respond, Renew, Reinvest…in Your Development.” Over 20 workshops on professional and personal growth were offered to 260 USNH office professionals in attendance. Keynote speaker was David Zamansky, Assistant Director of Program and Leadership Development at UNH, who provided an interactive and energizing presentation on teambuilding, leadership development, and interpersonal communication.

May 29  **Michele Arista** attended the Annual Technical Symposium sponsored by the New England Chapter of the Health Physics Society.

Plymouth State University

May 30  **Tim Willis** and **Maria Emanuel** attended the “Protecting the Creative Spirit: Copyright, IP Law, and the Creative Arts Conference”, hosted by Plymouth State University, as part of UNH’s efforts to further develop its growing creative works program. The conference focused on copyright matters and protection of IP in the field of liberal and fine arts.

June 9 – 11  **Timothy Carlin** traveled to Herndon, VA for the SIPNOC 2014 event. While at SIPNOC 2014, Timothy joined the “Get Tested: New SIPconnect 1.1 Compliance Testing Program Overview” panel

June 10-11  **Patrick Messer** was part of a group from UNH that visited SAS headquarters in Raleigh-Durham, NC. Patrick and the team presented UNH’s current efforts in analytics and proposed a partnership with SAS to expand those efforts.

**Mark Maciolek** attended a four-day Enterasys S4 “Switching NMS and Routing Boot Camp” at Adaptive Communications in Portsmouth in June.

**Marty McCrone** and **Jeff Anderson** attended New Hampshire Hazardous Waste Coordinator recertification training. An individual acquires certification through attending training provided by the New Hampshire Department of Environmental Services, and then passing a comprehensive exam.
And Even More Comings, Goings, & Goings-on

**June 11**  Allan Wright taught a one-day course on the USNH Events Management System at the IOL.

**June 17 – 18**  Marion Dillon traveled to Chicago to the Big Telecom Event where she demonstrated her latest study of end-to-end NFV. The growth of home networks in complexity and size is unsustainable in small, inexpensive home gateways that are on the market today. The study proposes to leverage NFV to relocate some of the home gateway functionality out of the home.

**June 25 – 27**  Erica Johnson attended the Open Networking Foundation Leadership Meeting in Palo Alto, CA. While at the meeting Erica presented the Testing Leadership Council’s accomplishments to the ONF working group chairpersons and board members.

As a member of the UNH Writing Academy leadership team, Kathy Cataneo served as a reviewer of applications for this year’s academy, which began in May and ran through the end of August. Michael Thompson joined Kathy at the off-campus 4-day writing workshops in early June, and both continue as coaches for the faculty participants who are working on manuscripts and proposals.

Mark Townley spent two weeks in May on a trip to the Greek island of Chios, collecting the spider *Palpimanus uncatus*. Twenty specimens were collected under rocks behind beaches and brought back alive to UNH. They are being used as part of a study, partially funded by a staff professional development grant and with the cooperation of the biodiversity conservation group Chios Nature Ltd., to better understand the evolutionary relationships among members of two superfamilies of spiders, *Araneoida* and *Palpimoidea*. No members of the superfamily *Palpimoidea* are known to occur in North America, making the trip to Greece necessary.

Underside of a rock with a *Palpimanus* and its most recently shed exoskeleton attached to the rock. This is how they appear when found.  
Credit: Mark Townley

Typical habitat with a yellow arrow pointing to a rock under which a *Palpimanus* was found.  
Credit: Mark Townley

An adult female *Palpimanus* holding her meringue-like egg sac in her chelicerae .  
Credit: Pat Watts, UNH Cooperative Extension
On May 13, UNH hosted USDA Climate Change Program Director William Hohenstein and USDA Northeast Regional Climate Hub Director David Hollinger in an all-day event to acquaint the visitors with the breadth and depth of climate change research conducted at UNH, and the work of UNH Cooperative Extension and the New Hampshire Agricultural Experiment Station to successfully apply the research. Over 25 UNH faculty, postdocs, and grad students presented posters and conducted guided tours for the dignitaries (who also included Agriculture Commissioner Lorraine Merrill and representatives from NH’s congressional delegation in Washington). The event was organized and supported by Kathy Cataneo, Diana Couture, and Louise Griffin.

William Hohenstein, center, sits with David Hollinger, left, and John Wraith, Dean of UNH’s College of Life Sciences and Agriculture, right, while describing the goals of the new climate hub based in Durham.

Credit Morgan Palmer, Fosters Democrat

Chris Keeley, UNH Sea Grant, center, discusses the work he and others are doing with the NH Coastal Adaptation Workgroup with David Hollinger, left, and Cameron Wake, UNH research associate professor, Institute for the Study of Earth, Oceans, and Space, and Josephine A. Lamprey Fellow in Climate and Sustainability, right.

Credit: UNH Cooperative Extension

William Hohenstein, left, listens while graduate students describe UNH research using water quality sensors to monitor the Lamprey River.

Credit: Michael Thompson

SVPR Corner (continued from page 1)

for the next EPSCoR submission, which will be a huge task this year. He is also steering the research analytics activities. Our own InterOperability Lab (IOL) will be the anchor tenant in a new $30 million development poised to enhance and expand the downtown area. So, all in all, it has been a very good year. Thanks for your hard work.

This year we will be developing a comprehensive research communications strategy in coordination with Communications and Public Affairs, working with the Graduate School to better align our graduate education and research strengths, hiring a person to support large interdisciplinary grant applications to advance our institutional research agenda, increasing our entrepreneurial footprint across the University, expanding our outreach to corporations and businesses, strengthening centers and institutes, improving our technology platforms to enable more efficient grant submissions, and enhancing our training capacity.

I expect that you will be seeing some changes in our website, newsletters, annual reports, and other communications over the year. The Management Team will stay abreast of all these changes and communicate them to all of you.

Thanks again for your hard work and everything that you do to make UNH a terrific place for students, faculty, and staff.

Jan Nisbet