

REACH AND PESA AWARDS

CELEBRATING FACULTY, STUDENT AND STAFF ACHIEVEMENT pp. 6, 7 & 9



THE RING

APRIL/MAY 2018

The University of Victoria's
community newspaper

ring.uvic.ca



University
of Victoria

SPEED READ

CAMPUS UPDATE

Learn more about UVic's 2018/19 budget

On April 27 from 12:15 to 1:15 p.m. in the Roger Bishop Theatre, Phoenix Building, join university leaders in a Campus Update presentation on the university's *Planning and Budget Framework 2018/19*, which was recently approved by the Board of Governors. They'll also share news on other initiatives, including strategic enrolment management and student housing. There will be an opportunity to ask questions and share ideas. To view the Planning and Budget Framework 2018/19 document, visit uvic.ca/campusupdates

STRATEGIC FRAMEWORK

Senate endorses guiding document

On April 6, the UVic Senate unanimously endorsed the *Strategic Framework for the University of Victoria 2018–2023* and passed a motion recommending that it be approved at the May 29 meeting of the Board of Governors. Following the May meeting, the UVic community will be advised of the board's decision and next steps, including the formal launch of the framework in September. Info: uvic.ca/strategicplan/draft-framework/

BE PREPARED

Emergency Preparedness Week is coming

Do you have an emergency kit? Canada's national Emergency Preparedness Week, May 6–12, is a perfect time to make sure you, your colleagues and your family are prepared for an emergency. If you haven't already taken advantage of a free emergency preparedness workshop offered by UVic's manager of emergency planning, now is the time (May 8 and 10). Watch for tests of a new national notification system, Alert Ready, and UVic's own Emergency Alerts system during the week. Check bit.ly/2qhfHGV for an EP Week Toolkit. Info and learning opportunities: uvic.ca/services/emergency/events/



Whitehead with a demo Nyoka Light Wand. UVIC PHOTO SERVICES

150

IN MILLIONS,
THE NUMBER
OF PLASTIC
GLOW STICKS
CONSUMED
ANNUALLY
WORLDWIDE

MAKING LITTERING FEEL GOOD

BY JODY PATERSON

One morning at the Shambhala Music Festival in the Kootenays a few years ago, young scientist-to-be Paige Whitehead looked around at the vast piles of discarded glow sticks everywhere and was struck by the thought that there surely had to be a more environmentally friendly way to party.

The University of Victoria student didn't know it then, but that was the start of a very big idea. Whitehead has gone on to develop a prototype "Light Wand" lit by bioluminescence, inside a seaweed-based casing that

not only dissolves harmlessly wherever it's discarded, but actually improves the soil.

With a crowdfunding campaign planned for the end of summer to raise capital for patents and production, Whitehead anticipates her "green" glow wands could be in the hands of festival-goers by the 2019 season. Her fledgling company, Nyoka Design, is getting support from UVic's Coast Capital Savings Innovation Centre, an on-campus business incubator.

"The idea just kept coming back to me," says Whitehead, who graduates this summer with a Bachelor of Science in

microbiology and environmental studies.

"Anyone who goes to a music festival knows that you end up with glow sticks everywhere on the ground, and that it's a real problem. I started sending emails to researchers and searching for what was out there. That led to connections with research teams who've been working on developing bioluminescence in the lab that can be made into a viable light source, among other things."

Whitehead initially planned to make

SEE NYOKA LIGHT WAND P. 2

Award-winning materials chemist joins UVic science team as Canada 150 Chair

BY JODY PATERSON

An internationally recognized researcher renowned for his leading-edge work in molecular and materials chemistry is the University of Victoria's first Canada 150 Research Chair.

Ian Manners is currently a professor at the University of Bristol in Britain, where he's the chair of inorganic, macromolecular and materials chemistry. His research area has generated much interest around the world for its potential applications in electronics, medicine and displays.

Manners is a dual British-Canadian citizen who was on faculty at the University of Toronto from

1990 to 2006 before returning to Britain and his alma mater at Bristol. He joins UVic on July 1 as the Canada 150 Research Chair in Materials Science.

His many patents, awards and research papers—pioneering, for example, a method of creating tiny polymer particles up to 10,000 times smaller than a human hair—have made him one of the most cited chemistry researchers in the world, with more than 37,000 citations to date.

David Castle, UVic vice-president research, praised the Canada 150 program for providing a unique opportunity to attract "a true international leader" in materials science to the university. Manners will be working with science and engineering

researchers, and with UVic's Centre for Advanced Materials and Related Technology (CAMTEC).

"We're tremendously excited about having Ian join our university, where he's going to accelerate UVic's research discoveries in materials science," says Castle. "Ian is also recognized for his commitment to inclusive and equitable training. We look forward to his expertise in providing a dynamic environment for the training of future scientists."

Manners will establish and lead the Laboratory for Synthetic Self-Assembled Materials, where he'll continue his work with nano-scale synthetic

SEE CANADA 150 CHAIR P. 10

ringers

A PhD student from the Department of Biochemistry and Microbiology was the big winner at this year's Three Minute Thesis (3MT) competition, held as usual during Ideafest in early March. **Julian Smazynski's** talk on tricking cancer into aiding anti-tumour immune response won both first place and the People's Choice Award. Second place went to **Leo Rutherford**, a PhD student in the Faculty of Human and Social Development, for his presentation on trans men. The 3MT is a research communications competition that challenges master's and doctoral students to give a compelling and public-friendly presentation on their thesis research—and why it matters—in three minutes using only one PowerPoint slide. Smazynski will represent UVic at the 3MT western regional competition in Regina in late April.

In what can be described as, like, a coup for UVic, linguist **Alex D'Arcy's** work was a clue on the March 26 episode of *Jeopardy!* D'Arcy's book, which explored 800 years of the use of the word "like" in the English language, has been featured in publications including *The Atlantic* and now on the popular TV quiz show, which averages 25 million viewers each week. *The Jeopardy!* clue said: "Alexandra D'Arcy wrote a book on this word, as in, 'I'm _____ totally mad because Kim was all _____, why can't I date Kevin.'" Contestant Johnny Trutor correctly answered the question, which appeared under the category Linguistics for \$1,200. Skip to 13:34 to watch the clip: ow.ly/l8HJ30jiuq9

Board approves budget framework for 2018/19

The Board of Governors approved the University of Victoria's budget of \$369.1 million for fiscal 2018/19 at its March 27 meeting.

The university's new Strategic Framework, Strategic Research Plan, Campus Plan, Communications and Marketing Plan, Employment Equity Plan, Indigenous Plan and International Plan all provide important direction in identifying priorities and allocating financial resources across the university.

UVic operating costs are funded by two sources: government grants, accounting for 50 per cent of operating revenues; and student fees, accounting for 37 per cent of revenues. The provincial grant for 2018/19 is expected to increase by \$6.3 million for bargaining compensation and support for 50 new full-time equivalent student seats in an expanded computer science and engineering program.

Significant allocations

Consistent with the university's goals and mission, approximately 80 per cent of the total operating budget is allocated to academic areas including faculties, research, library, student financial aid and student services. Across the operating budget, faculty and staff salaries and benefits comprise approximately 80 per cent of all expenditures.

The university is making significant allocations in many areas. There is increased support for areas such as Indigenous academic and community engagement; the Division of Learning, Teaching, Support and Innovation; research; scholarships and bursaries; student work study; library collections; student services; health services; the UVic Edge communications plan; and development initiatives.

Several specific initiatives and associated funding in support of the emerging Strategic Framework will be announced in the coming months.

Fee increases

Student fees contribute to the enhanced quality and long-term financial sustainability of UVic. All current students pay inflationary increases. Domestic student fees will increase by two per cent in 2018/19, reflecting the provincial policy of limiting domestic fee increases. It was determined last year that international student fees would reflect actual inflationary increases, which are currently four per cent.

As also signalled last year, the university undertook a review of its international student fees for 2018/19 based on the actual costs of education, a comparison to other similar institutions and quality of degrees offered. Based on the findings of the review, new undergraduate international student fees will increase by 20 per cent in 2018/19 and the three-year planning and budget framework recommends a further 15 per cent increase for 2019/20.

The exception is the BCom program where the increase is six per cent, as current rates are more comparable to peers. Currently enrolled undergraduate international students are grandparented under the existing tuition structure and their fees will be limited to a four per cent inflationary increase.

Current and new graduate student fee increases will also be limited to a four per cent inflationary increase. The exceptions are Master of Global Business (MGB) and MBA programs, where international fees are lower than peers. New international MGB students will pay fee increases of 20 per cent each in 2018/19 and 2019/20. New international MBA students will pay increases of 14 per cent each in 2018/19 and 2019/20.

Enhanced supports and services

There was extensive consultation with students last fall on the supports and services that contribute to international student success and satisfaction levels with existing supports and services. As a result, in the coming year, investments to enhance support for international students will include work study, international student services including the integration of academic support services, the global communities program, co-op and careers, and health services.

To reduce financial hardship for students, UVic is providing enhanced international student financial assistance to those for whom higher fees would be a substantial barrier. International bursaries were increased by 10 per cent to \$270,000 and the university will monitor usage and adjust if necessary. There's also \$300,000 in scholarship funding available to international students.

The university's 2018/19 ancillary operations units are required to be financially self-sufficient and fees have been adjusted to reflect this. UVic is committed to transportation sustainability and encouraging alternate modes of commuting.

Parking and other fees

Parking rates will increase by five per cent to contribute to the student UPASS bus pass program and pay for parking lot maintenance and operations. The increase will also provide funding for future parking-related capital projects, such as parkades, as recommended in the Campus Plan.

The university is implementing fees to cover infrastructure improvements, such as renewal costs in dining facilities and food services. The average standard meal plan for students will increase seven per cent to cover inflationary costs associated with rising food prices and provide funding for renewal and dining infrastructure improvements.

For more information, read the *Planning and Budget Framework 2018/19* document at uvic.ca/financialplanning/budget/budgetframework



Parnell, left, and Brent Mainprize, program director of the ACE Program in Gustavson. UVIC PHOTO SERVICES

Donation expands program for Indigenous entrepreneurs

Aspiring Indigenous entrepreneurs in Canada will benefit from a \$1-million gift from BMO Financial Group to expand the Aboriginal Canadian Entrepreneurs (ACE) program.

Developed in partnership with the Tribal Resources Investment Corporation (TRICORP) and UVic's Gustavson School of Business, the innovative program provides culturally sensitive and community-tailored business education in Indigenous communities across British Columbia.

Over 20 weeks, ACE participants engage in classroom learning, mentorship coaching sessions and hands-on entrepreneurial learning exercises, including the development of a business plan for a start-up venture.

The training program operates in four areas of British Columbia: the northwest (NW-ACE) in Prince Rupert and Terrace; central BC (LD-ACE) in the greater Enderby area; the Nisga'a Nation ACE program in the Nass Valley; and the Haida-owned-and-operated program that rotates between Old Masset and Skidegate.

To help expand the program throughout BC and other regions across Canada, BMO Financial Group has committed \$1 million to ACE. The first program expansion, slated to start in April, is a Vancouver Island-based artisans ACE. The BMO Aboriginal Canadian Entrepreneurship Catalyst

Fund will support entrepreneurial training for Indigenous artisans wanting to launch or expand their business artist venture.

"The ACE program has become, and will continue to be, the key catalyst in forging our economic self-reliance," says Frank Parnell, CEO of TRICORP. "Our program ensures the participation of Indigenous people in the economy as business owners."

"BMO has a long history of giving back to our communities and supporting the Aboriginal Canadians Entrepreneurship Program with customized, in-community entrepreneurship training reflects that ongoing commitment," says Michael Bonner, senior vice president and regional head of BMO Bank of Montreal.

"I'm looking forward to seeing the innovations and businesses that will emerge from the expanded ACE program and the impact the funding will have in supporting Aboriginal entrepreneurship throughout BC."

Since its inaugural class in 2013, more than 275 graduates from 26 Indigenous communities across BC have taken the ACE program, 72 business ventures have been launched and many more are in the planning stages. In addition to entrepreneurial start-ups, program graduates pursue further education or secure employment in their business area of interest.

NYOKA LIGHT WAND

CONTINUED FROM P.1

her wand casings out of biodegradable plastic. But she went looking for alternatives after discovering that such plastic disintegrates only under certain circumstances, requiring temperatures above 40°C.

"I found a material that is translucent enough to let light through that's made of seaweed," enthuses Whitehead. "That's what we're going to use. Throwing away one of the Light Wands will be no more harmful than throwing out an apple core."

Whitehead's one-minute video on her glow wand project won over both the judges and the audience at UVic's recent Research Reels competition (see story, p. 11) during Ideafest in March, winning first prize and People's Choice in the social media category. See the video at bit.ly/nyoka-wand-video

She's still putting the final touches on her prototype but is already dreaming big, envisioning a day

when she can offer customized casings impregnated with restorative microbes hand-picked to match the needs of a particular festival location.

"I studied permaculture design and am really interested in how you can improve on systems to heal the environment, not just stop the harm to it," she says.

Whitehead says the retail price of wands is still being determined. She and business partner Brianna LePaine are exploring the idea of a refillable necklace as well. The wand itself has a durable and reusable component. The necklace lasts "forever" and the short-term use refillable part lasts for a few days—long enough to get a few glow bursts before composting.

Want to follow the project on social media? Get glowing with Whitehead's memorable hashtag, #scientistswhoparty.



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A SALTY SOLUTION TO ENERGY NEEDS



Bharadwaj. UVIC PHOTO SERVICES

A UVic engineering graduate's new technology stores energy by mixing salt and fresh water

BY JODY PATERSON

Separate salt and water, and they long to come back together. That special chemistry could provide an innovative solution to the dilemma of storing and extracting surplus energy generated by intermittent energy sources such as solar, wind and wave power.

Entrepreneur and mechanical engineer Devesh Bharadwaj was still a UVic undergrad when he founded Pani Energy Inc. in March 2017 with a vision of providing clean water and energy to the world through affordable technologies that reduce emissions and costs.

Having discovered a more energy-efficient process to desalinate water for human and industrial consumption, Bharadwaj launched Pani with the support of UVic's business incubator, Coast Capital Savings Innovation Centre, to market that technology.

Along the way, Bharadwaj got intrigued by the idea of reversing the desalination process as a means of storing energy, taking advantage of the concentration differences between salt and fresh water. That has led to Pani's newest venture—osmotic energy storage.

Bharadwaj demonstrated that technology this March in Vancouver at the GLOBE Forum, a biennial event bringing together business and governments from all over the world to accelerate the shift to a sustainable, clean economy.

The unpredictability of energy produced by sunshine, wind and waves is a major barrier to countries and regions that don't have the mountainous terrain suitable for generating hydro-electricity. Intermittent sources provide clean, renewable energy, but can't be counted on to provide consistent power when it's needed.

"Take water up a hill and let it fall down, and it spins a turbine that produces electrical energy. The majority of the planet stores its energy this way through what's known as pumped hydro," explains Bharadwaj. "But that requires a certain terrain—hills and mountains—to take advantage of gravity.

"In the osmotic energy process, it's the mixing of the salt and water that spins the turbine. Our method stores energy using a difference in salt concentration, making it unconstrained by geography."

Similar to the way that a bank of batteries stores energy from solar panels for use on a day without sunshine, Bharadwaj's technology stores it by using that energy to separate salt from water on sunny days, then mixing the salt back into the water to draw out that stored energy when it's needed.

The technology is intended for large-scale applications, as the tanks of briny and fresh water require significant space.

Bharadwaj expects the storage cost per kilowatt hour to range from 10 to 60 cents, a significant savings compared to costs of between 70 cents and \$1.70 kw/h for storing energy in lead-acid batteries. "Our goal is to be cheap and environmentally benign," he says.

Funding for Bharadwaj's work comes from the National Research Council, ECO Canada and private investors.

UVic supports Bharadwaj's work through the Innovation Centre, as well as through the involvement of Pani Vice President of Research Tom Fyles, a professor emeritus in UVic's chemistry department; and advisor Henning Struchtrup, a professor in mechanical engineering.

Custodians continue a co-worker's legacy

BY SARAH TARNOPOLSKY

The university lost one of its unsung heroes in January 2017—long-serving member of janitorial services, Greig Cosier. His death is acutely felt by students and staff in the areas he worked.

"Because of his capacity to care, his huge smile and his signature wave, he would be a shining light for office occupants in times of personal and work stress," says Lawrence Yu, manager of janitorial services.

Cosier's shining light was far-reaching. He volunteered his personal time to UVic events at every opportunity. Staff and faculty from across campus gathered for his memorial service in the Interfaith Chapel, where staff member Gillian Cornwall offered these words about him:

"There are giants among us, walking humbly with their heads high and smiles upon their faces. The act of giving fills them with no need for a return on the investment but great pleasure in a smile or a word of greeting returned. Greig filled his heart through giving—every day to everyone. He gave with that smile of his, that twinkle in his eye, his sheer

joy at simply seeing a friendly face and sharing a greeting."

Few people knew that Cosier had been giving to UVic students for many years. He set up the Custodians Award for graduate students in science. He even took the annual recipient and 12 friends out for pizza.

"I saw how hard they worked and wanted to do something to lift their spirits and reward them," he said in a 2016 interview.

He also took great joy from seeing his example spread. "I see the folks who work in student services fill huge garbage bags for the food bank, or my co-workers in facilities raising money for cancer each year. It makes me happy to know other staff are giving back."

After his death, co-workers and friends decided to continue his legacy. So far, they've raised \$5,700 for the Greig Cosier Memorial Scholarship through individual gifts, ongoing payroll deductions and several fundraising events.

Continuing Cosier's other tradition, Lu and co-worker Peter Cassar took one of this year's recipients, Monica Mesa Perez, for lunch. "Although we understood Greig to have some learn-



Cosier, right, in 2008 with then-graduate student David Stuss, a recipient of the Custodian's Award. UVIC PHOTO SERVICES

ing challenges, he had no limitations to the capacity of his heart" says Lu.

Cosier's legacy of giving will be celebrated at the annual Faculty and Staff Donor Appreciation Breakfast on April 10. Any faculty and staff who have

donated to UVic in the past are warmly invited to attend.

Info: Cory Rabourn, donor relations manager at crabourn@uvic.ca. Donations can be made at extrweb.uvic.ca/donate-online/in-memory-of-greig-cosier

ringers

Math professor and researcher **Gary MacGillivray** is the winner of the Canadian Mathematical Society's (CMS) 2018 Excellence in Teaching Award for his "sustained and distinguished contributions in mathematics education at the post-secondary level at a Canadian institution." This is the first time a UVic professor has received this commendation. "Dr. MacGillivray has an ability to positively impact people's lives all around him. His love and passion for mathematics and mathematical education is clearly contagious, influencing many students and colleagues alike," says CMS education committee chair Joseph Khoury. MacGillivray won the Faculty of Science Teaching Award in 2010 and the Harry Hickman Alumni Award for Excellence in Teaching in 2011.

Historian **Elizabeth Vibert** was a guest of the Canadian Embassy in Jordan in March for screenings of *The Thinking Garden*, a documentary she wrote and produced. The film screened at opening night of the UN Women Film Festival and, with Arabic subtitles, at Zaatari and Azraq refugee camps, home to more than 100,000 Syrian refugees. "It was a truly amazing experience," says Vibert. "The film screened five times across the week to a great response. It was especially powerful to hear Syrian farmers' responses." *The Thinking Garden* tells the story of three generations of South African women who have sustained a community garden for more than 25 years. The documentary has been screened on four continents and in three languages at 12 film festivals. The film was directed by Métis filmmaker and UVic professor emerita **Christine Welsh** from gender studies.

Vikes soccer captain and two-time Provost Award-winner **Emily Lieuwen** took home top honours as winner of the President's Cup at the Celebration of Champions and UVic Sports Hall of Fame event on April 4. The cup goes annually to the outstanding student-athlete in fourth or fifth-year who best combines scholastic achievement and athletic ability. Lieuwen holds a cumulative GPA of 8.75 in the Faculty of Science (chemistry) and has been an Academic All-Canadian in all four of her university seasons. For details on other winning student athletes of 2017/18 visit uvic.ca/news/topics/2018+vikes-presidents-cup+news

Four members of Convocation have been elected to the UVic Senate to serve three-year terms beginning July 1. Congratulations to staff members and alumni **Chandra Beaveridge, Rob Hancock and Carolyn Russell**, and alumnus **David Alexander**.

ringers

Inba Kehoe, copyright and scholarly communication librarian at UVic Libraries, has won the Award for Excellence in Open Education from BCcampus. In 2007, she established UVic Libraries' ePublishing Service, a digital open access publishing program, that has supported the publication of over 30 open access journals and over a dozen open access monographs. Kehoe has worked in partnership with BCcampus to encourage the creation, adaptation and adoption of open textbooks at UVic. The e-publishing service also facilitates the open dissemination of UVic faculty research publications through the university's institutional repository. Kehoe is currently pursuing an interdisciplinary PhD related to open scholarship.

Governor General's Award-winning poet and writing Professor Emeritus **Lorna Crozier** was recently named a recipient of the prestigious Chen Zi'ang Poetry Periodical International Poet Award. Crozier received the award at a March 23 ceremony in Sui Ning, China—the birthplace of famed 8th-Century Tang poet Chen Zi'ang—after a number of her poems were translated into Chinese and published in a 2017 issue of the noted Beijing magazine, *Poetry Periodical*.

Three decades of research into a cult figure of French literature has earned **Marc Lapprand** one of France's highest honours for culture and education. In March, the Department of French chair was made a chevalier (knight) of the Ordre des Palmes académiques, a national order of distinguished academics that was originally founded by Napoléon. Lapprand received the distinction for his work on the French modernist writer Boris Vian, whom he describes as a "blend of Lewis Carroll, Richard Brautigan and James Joyce, if compared to an English-speaking writer." Lapprand was also praised for his significant contribution as a professor to the promotion of French culture outside of France. He'll be awarded his medal at an official ceremony in September.



Cameron in her lab at UVic. UVIC PHOTO SERVICES

UVic patents potential vaccine candidate for syphilis

University of Victoria microbiologist Caroline Cameron has been awarded a patent for a potential vaccine candidate against syphilis.

While the bacterial disease dates back to at least 1495 and is treatable with antibiotics, its highly infectious nature makes it an enduring health issue. Worldwide, there are an estimated 11 million cases of syphilis each year, and rates of the disease in British Columbia are at their highest in 30 years.

The disease causes increased

susceptibility to HIV, and when untreated causes irreversible tissue damage.

"The pathogen that causes syphilis can pass from the bloodstream into the brain and from a pregnant woman to her fetus," says Cameron. This makes it one of the leading causes of infectious stillbirth in low-income countries, leading to over 205,000 fetal and newborn deaths globally each year.

The protein vaccine component that has been patented aims to pre-

vent the bacterium from entering the bloodstream.

Cameron is collaborating with researchers at the University of Washington and the Infectious Disease Research Institute with the goal of developing a vaccine composition that incorporates this patented protein component.

The World Health Organization has an ambitious target of reducing the disease by 90 per cent globally and reducing the number of babies born with syphilis to 50 or fewer cases per

100,000 live births in 80 per cent of countries by 2030.

"A vaccine would provide an effective tool against the global fight against syphilis when added to prevention, screening and treatment programs," says Cameron.

Funding for the project is provided by the US National Institutes of Health.

UVic has approximately 140 active patents and has been granted seven patents for innovations since the start of 2018.

Extreme weather puts focus on adaptation for buildings

BY JENNIFER KWAN

Forest fires in British Columbia. Floods in Quebec. Hurricanes in Texas. While it's difficult to say definitively that such events are caused by climate change, there's little doubt that a warming world exacerbates such extreme weather—and that our society will need to be ready for more of them.

These are the kinds of issues on Anika Bell's mind as she began her master's degree in applied science at UVic. Her previous research was featured in an infographic at the Livable Cities Forum in Victoria in September, where planners, policy-makers and other professionals across Canada dis-

cussed ways to build cities equipped for current and future climate change impacts.

"Human influence on the climate system contributes to the frequency and severity of extreme weather," says Bell, a former mechanical engineering intern with the Pacific Institute for Climate Solutions (PICS), led and hosted by UVic.

"My research sought to find practical ways for public-sector building owners and managers, policymakers, and even homeowners to prepare for, withstand and recover from climate variability."

Climate change affects the trends in temperature and precipitation that many regions in BC are already see-

ing and will see more of in the future: higher annual mean temperatures; increases in winter precipitation; and drier summers.

Such shifts can result in uncomfortably warm building interiors, and in some cases increase the risk of winter flooding and summer droughts. These changes must be factored into building design to reduce risks to infrastructure and to people's health and well-being, climate experts say.

Bell's research, conducted during her 2016 PICS internship placement with the BC government's Climate Action Secretariat, assessed the climate risks of three public-sector buildings in the province and focused mostly on how to incorporate adaptation solutions to prepare for the effects of climate change.

Her research was then used to develop an infographic featuring different climate risks such as flooding, extreme heat and drought, and potential measures for adapting to each risk factor.

"The three building cases show adaptation can be implemented in all stages of a building's life cycle, from design to post-construction," says Bell. Addressing mitigation, cost savings and adaptation can strengthen the business case for resilience, she adds.

During a subsequent co-op term at BC Housing, Bell also applied her research to build a climate risk assessment tool that calculates a vulnerability score for resilience in social housing. The tool, which asks more than 100 questions on a facility's components such as roofing and conveying, is expected to be integrated into building assessment processes



Bell at BC Housing's Evergreen Terrace in Victoria. PHOTO: ROBYN MEYER

by BC Housing.

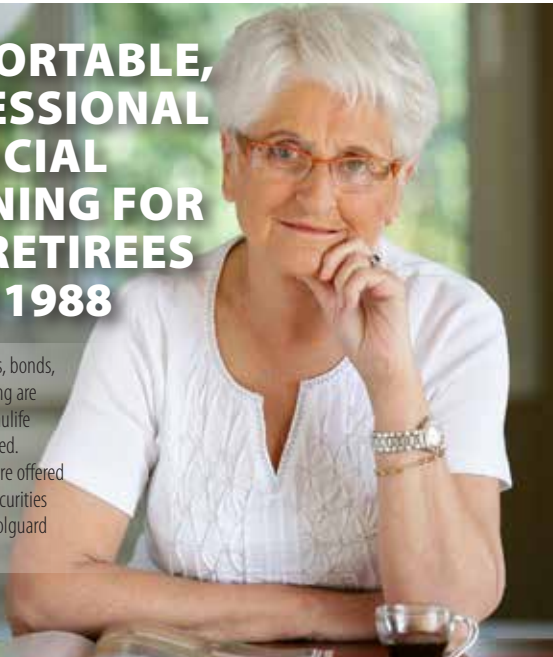
As well, some of Bell's research recommendations have since been incorporated into BC Housing's design guidelines and construction standards. The Climate Action Secretariat and BC Housing shared elements of Bell's work with other government and related stakeholders who can use it to inform and educate their networks.

Sybil Seitzinger, executive director of PICS, says the infographic is an example of the ways research can be used in practical terms in B.C. and beyond. View it at pics.uvic.ca/infographics

"We support initiatives that can be used in real life by a lot of people anywhere in the world to find solutions to climate change," says Seitzinger. "This handy, practical guide reminds us all that we must be thinking about climate resilience in the built environment."

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UVic plans to dazzle at BC's biggest annual technology event

Visitors to the UVic display at the #BCTECH Summit in Vancouver next month will be measuring their mental fatigue, checking in on their heart health, or just being dazzled by the discoveries of UVic's engineers as the university showcases the best of its tech innovations.

The annual summit is the largest tech conference in Western Canada. Aimed at highlighting made-in-BC innovation in technology, the May 14–16 event at Canada Place provides an opportunity for UVic to give the public a glimpse of some of the leading-edge research and entrepreneurial initiatives that are coming out of the university.

Eight UVic researchers will have interactive displays on diverse projects ranging from an "augmented reality" educational tool that brings large data sets to life; a demonstration of wave energy; and the 3D printing of human neural tissue that is setting the stage for personalized medicine.

Benoit Pirenne, director of user engagement for UVic's Ocean Networks Canada (ONC), is a featured speaker at the summit. The computer scientist led the team that built the data management and archiving system for ONC's observatories.

UVic's **Coast Capital Savings Innovation Centre** will also be at the summit to highlight the products of some of the startups the centre has supported in the past year, from mechanical engineer Mohsin Akbari's "smart" bandage that detects the earliest signs of infection, to a salt-water solution to energy storage (see story, p. 3).

The summit is an important meeting place for introducing BC-based technology innovators to large corporations, technology buyers, innovation scouts and government procurement specialists.

Among the UVic researchers who are planning to display at the summit are:

Computer engineers **Derek Jacoby** and **Yvonne Coady** will bring their educational and interactive display used at the Royal BC Museum student learning centre that uses augmented reality to bring large datasets (like that of ONC) to life.

Neuroscientist **Olav Krigolson** is back for a repeat summit performance of his popular testing stations where visitors can get their brainwaves analyzed. This year, he'll have new software that measures mental fatigue and a bio-feedback station where people can control a virtual ball with their brain waves.

Computer engineer **Xiaodai Dong** will showcase his high-tech ECG system, Heart Carer, a mobile electrocardiogram for heart monitoring that uses a sensor to collect the signal and then transmits data to the cloud.

Civil engineer **Rishi Gupta** will display his innovative cement materials and prototypes of equipment that are already in use in a current project with the BC government to evaluate the condition of civil infrastructure such as roads and bridges.

Biomedical engineer **Stephanie Willerth** will demonstrate her lab's 3D printer that is printing human neural tissue for potential use as a drug-testing platform. It will allow for better prediction of whether novel therapeutics are safe and effective for the treatment of human neurological diseases.

Civil engineer **Phalguni Mukhopadhyaya** will have two advanced thermal insulations for buildings on display that are up to 10 times more effective than conventional insulation.

Mechanical engineer **Brad Buckham**, who co-leads the Pacific Regional Institute for Marine Energy Discovery (PRIMED) at UVic, will have a display of marine renewable energy technology and show how alternative energy is integrated into the grid.



Charnock experimenting with bean roasting at Smoke & Mirrors. PHOTO: JULIAN SKETCHLEY

Co-op student brews success in coffee and beer chemistry

BY JULIAN SKETCHLEY

Hot coffee and cool science make the perfect pair for fifth-year chemistry student Hannah Charnock. As the co-owner of local coffee roaster Smoke & Mirrors, she's applying knowledge gained through co-op work terms in the beer and wine industries to create the perfect cup of coffee.

Charnock made her foray into the coffee business after gaining beer and wine chemistry experiences through co-op. She spent her first work term at Three Sisters Winery in the Okanagan as a viticulturist—cultivating grapes and assisting with quality-control testing in the lab. Her second work term was with local craft brewery Phillips as a beer chemistry researcher.

Inspired by the chemical side of the brewing process, Charnock pursued a directed studies course on an accelerated whiskey-aging technique, in collaboration with researchers at Phillips as well as UVic chemist Fraser Hof and Camosun College chemist Blair Surridge.

When Euan Thomson from Phillips suggested that he and Charnock apply these research principles to coffee, it led them to co-found Smoke & Mirrors Coffee Co.

"Chemistry is a challenging field but there's a whole network of amazing scientists willing to collaborate. It's like we're in this big symbiotic research world, and that's exciting."

Coffee chemistry, says Charnock, is all about extracting the best flavours from the beans and developing naturally sweeter coffee. "The quicker you cool the beans after roasting, the higher the sugar content and the sweeter the result. We're developing a method for measuring this process right now."

Through Smoke & Mirrors, Charnock and Thompson want to do more than make an amazing cup of coffee.

"We're doing this for the sake of science and having great coffee, but not necessarily to build the next Starbucks," says Charnock. "We wanted to give back, so we're donating half of our net profits to four local non-profit organizations."

For Charnock, chemistry is about working with others to bring new and exciting ideas to life, so it's no surprise that she founded UVic Women in Science, a networking community to connect women in STEM fields. Looking forward, she plans to build on her co-op experiences with a career in wine chemistry.

"Chemistry is a challenging field but there's a whole network of amazing scientists willing to collaborate. It's like we're in this big symbiotic research world, and that's exciting."

Learn more about Smoke & Mirrors Coffee Co. at facebook.com/smokeandmirrorscoffee

Watch a video about Charnock's adventures in coffee science at bit.ly/2HaXDrI.



Buckham. UVIC PHOTO SERVICES

Looking for the latest UVic news?

Visit uvic.ca/news



Lorna Williams receives Indspire Award



Earliest Known Human Footprints in North America
The New York Times

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DAVE LYNN

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A longtime resident and UVic grad, Dave is helping local residents and new-comers to navigate their way through the real estate market.

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REACH AWARDS

This May, the second annual REACH Awards will celebrate UVic scientists, scholars and artists for their extraordinary contributions in research and teaching—from a field school in Cuba to a performance atop a glacier in BC's interior.

"This year's REACH Awards recipients again demonstrate the strong link between research and learning," says President Jamie Cassels. "They share and advance knowledge and wisdom in a range of areas. UVic is privileged to be home to such a talented and dedicated array of people."

The awards will be presented on campus at an evening ceremony on May 24.



EXCELLENCE IN TEACHING AWARDS



EXCELLENCE IN TEACHING FOR EXPERIENTIAL LEARNING

Alexandrine Boudreault-Fournier, Anthropology

Picture a museum gallery come alive with a clutch of students. They listen attentively to fellow students who share sound installations that they've collaboratively developed. As a visual anthropologist, Alexandrine Boudreault-Fournier infuses her teaching with an infectious passion and hands-on experiences to deepen student learning. Her students describe her capacity to move them beyond their comfort zone of traditional classrooms, pushing their creative limits and inspiring them in their quest for knowledge. Reaching outside the classroom, the biennial field school in Cuba provides experiences of collaboratively engaged ethnographic research, where students share their creative works directly with the community. Through Boudreault-Fournier's teaching, knowledge comes to life.

Boudreault-Fournier with a digital audio recorder to listen in on environmental sounds. UVIC PHOTO SERVICES

HARRY HICKMAN ALUMNI AWARD FOR EXCELLENCE IN TEACHING AND EDUCATIONAL LEADERSHIP

Brian Leacock, Gustavson School of Business

Brian Leacock is an ardent educator who inspires his students and colleagues with his unfailing enthusiasm and passion for teaching. He's a renowned leader in intercultural competency development and training for burgeoning entrepreneurs at UVic and in the broader community. His excellence as a teacher is evident in the authentic and trusting relationships he builds with students, personalizing their learning to meet the challenges of working across cultural differences. Students thrive within this learning-centred approach in which he seamlessly blends face-to-face and online learning using audio recordings to provide tailored feedback, video lectures to increase access to learning, and video feedback to hone communication skills and cultural understandings.

EXCELLENCE IN GRADUATE STUDENT SUPERVISION AND MENTORSHIP

Brian Starzomski, Environmental Studies

"I love working with graduate students"—so begins Brian Starzomski's statement of teaching. Starzomski is described by his students and colleagues as an exceptional teacher, mentor and academic leader in the flourishing field of environmental studies. His patience, generosity and gentle leadership create a context where hard work, deep critical engagement and respect for current knowledge and emerging questions are paramount. Students value his commitment to listening, his accessibility and principled feedback. He sets high standards for research communication, offers support for students to develop their skills and then, with unfailing willingness, "acts as a cheerleader" to ensure their success in find fulfilling post-graduate careers.

EXCELLENCE IN UNDERGRADUATE RESEARCH-INSPIRED TEACHING

Stephanie Willerth, Mechanical Engineering

As a world-class researcher in the field of tissue engineering, Stephanie Willerth's classroom is rich with undergraduate student opportunities for creative production and inquiry-based learning. Linking classroom learning to real-life applications, she seamlessly incorporates wet lab experiences, in-depth projects with in-progress feedback and innovative technologies such as 3D printing to promote student learning. Undergraduates describe her scholarship and guidance as inspirational, including them with graduate students on vibrant research teams and giving them access to a state-of-the-art lab. Students thrive—completing independent research, presenting at conferences and publishing in scholarly journals—with more than 30 undergraduates published as co-authors and countless others engaged in knowledge translation and dissemination activities.

EXCELLENCE IN RESEARCH AWARDS

EXCELLENCE IN CREATIVITY AND ARTISTIC EXPRESSION

Paul Walde, Visual Arts

While the history of Canadian art has been built on our relationship with landscape and the environment, Paul Walde has fused that artistic legacy with decidedly 21st-century concerns and practices by exploring unexpected interconnections between landscape, identity and technology. Since joining UVic in 2012, he's enhanced the student experience with these skills while expanding his reputation as one of Canada's leading extended media artists. 2014's *Requiem for a Glacier* saw him take a 50-piece orchestra and chorus to the top of BC's threatened Jumbo Glacier (Qat'Muk), and while the performance earned international headlines at the time, the subsequent gallery installation continues to impact viewers across Canada and Europe.



Walde. UVIC PHOTO SERVICES

DAVID H. TURPIN GOLD MEDAL FOR CAREER ACHIEVEMENT IN RESEARCH

Ned (Nedjib) Djilali, Mechanical Engineering

Imagine a time when we can heat and light our homes, drive our cars and power our many devices and appliances without such heavy reliance on fossil fuels. Ned Djilali can. That's what's driven his remarkable 25-year career in sustainable energy research—in particular the flow of fluids, gases, heat and charges in a variety of systems and devices. Along the way, he's charted new paths in international fuel cell science and renewable energy systems, partnered with clean energy technology companies and organizations around the world, become one of the world's most highly cited research engineers, and inspired the next generation of sustainable energy researchers in Canada and beyond.

SILVER MEDAL FOR EXCELLENCE IN RESEARCH

Ryan Rhodes, Exercise Science, Physical and Health Education / Psychology

We know that regular exercise is good for us and reduces the risk of disease, yet many of us still struggle to build physical activity into our daily routine. Why? What will motivate us to get more active? These two basic questions consume the keen mind of exercise psychologist Ryan Rhodes, one of the most published authors worldwide on the disconnect between intention to exercise regularly and actually doing it. In only 17 years at UVic, he's established a world-class research laboratory, authored a textbook and almost 300 peer-reviewed papers, trained 25 graduate students, and influenced public policy for encouraging us all to live healthier lives.

EXCELLENCE IN KNOWLEDGE MOBILIZATION

Elizabeth Vibert, History

Brilliant. Passionate. Tireless. These superlatives appear often in descriptions of Elizabeth Vibert's groundbreaking work on the history of poverty, colonialism and food sovereignty. Her long-term study of a women's cooperative farm in rural South Africa—made with collaborators into an award-winning film that has been screened on four continents—tells the inspiring story of resilience in the face of poverty, drought and HIV/AIDS. Deeply committed to community-based research and sharing new knowledge for societal benefit, Vibert uses public talks, media interviews, social media, a student field school in Africa and a popular Victoria garden tour to help us understand the importance of food security—in the Global South and locally.

EXCELLENCE IN RESEARCH PARTNERSHIPS

Colin Bradley, Mechanical Engineering

David Andersen, NRC Herzberg
Olivier Lardière, NRC Herzberg
Kim Venn, Physics and Astronomy

Taking the twinkle out of the stars may seem like a very unpoetic thing to do, but that's the technology at the heart of an astronomy and engineering collaboration known as RAVEN. The project, led by UVic in partnership with NRC Herzberg, has developed advanced adaptive optics instrumentation—in effect, eyeglasses for large telescopes—that allows astronomers to peer further and more clearly into space, at multiple objects simultaneously, through the Earth's blurry atmosphere. The RAVEN partnership successfully ended in 2017. But it will transform international astronomy research for decades to come as its technology is incorporated into the next generation of ground-based optical telescopes around the world.

ANDY FARQUHARSON TEACHING EXCELLENCE AWARDS FOR GRADUATE STUDENTS

Cassandre Campeau-Bouthillier, PhD Anthropology

"She demonstrated a great deal of compassion and showed genuine concern for each of her students," writes one of Cassandre Campeau-Bouthillier's students. The sentiment is echoed by many in the Department of Anthropology, from first-year to experienced faculty members. Her dedication to supporting others is evident in her relationships with her students and her peers. Her love of anthropology is contagious and, combined with her respect for others, creates an engaging and inclusive learning environment for all.

Kaitlin Findlay, MA History

Some teachers change lives. According to her students, Kaitlin Findlay should be counted among them. "Kaitlin's support," one student writes, "sent me on an academic trajectory that I hadn't imagined possible" by conveying the "ability of academic pursuits to affect real and compelling

changes in the world." Independently developing and overseeing an assignment that enabled students to communicate cutting-edge research to public audiences, Findlay brought scholarship into the classroom and then back out onto the streets. See some of the student work that she inspired at bit.ly/2GKhcle.

Maleea Acker, PhD Geography

"She was positive, enthusiastic, passionate and very approachable," writes one former student of Maleea Acker, who brings her expertise in the arts and the social sciences together in the classroom, encouraging students to think beyond discipline boundaries. Acker is a writer, a poet and a fantastic teacher. She's known for her ability to connect with students, her dedication to experiential learning, to including Indigenous history and perspectives in classes, and to incorporating the emotional and personal aspects of human geography into her labs.



Campeau-Bouthillier, left, and Acker. UVIC PHOTO SERVICES

around the ring

Gustavson retains accreditation gold standard

UVic's Gustavson School of Business has retained its European Quality Improvement System (EQUIS) accreditation through to 2023. The five-year re-accreditation is the "gold standard" for business school quality assurance with only 106 institutions worldwide in this select group. EQUIS assesses the internationalization and corporate connections of business schools, as well as program quality and research output. Prospective students seek out EQUIS-accredited schools knowing they rank among the best in the world. The accreditation also helps with recruiting new faculty members and international partners for study-abroad programs. Gustavson's commitment to the re-accreditation process is significant. Over 90 faculty members, staff, students, alumni and community representatives directly participated in the process over the past year.

Library opens renovated grad study space

In early March, UVic Provost and Vice-President Academic Valerie Kuehne formally opened the renovated graduate student study space on the third floor of the Mearns Centre for Learning—McPherson Library. Based on graduate student feedback, seating has been increased significantly to include 151 comfortable task chairs, long study tables, eight study pods, 114 graduate student-assigned lockers, power outlets for every seat, plus better lighting, refreshed paint and new flooring. Building on the concept of community, fluidity and well-being, the new area provides more openness to allow increased light, and a linear layout to improve visual impact of space. To book graduate study carrels and lockers: uvic.ca/library/use/policies/carrels.php

Get the dirt on Finnerty Gardens

Interested in helping out in the gardens? The Friends of Finnerty Gardens are planning a community spring clean-up on Saturday, April 21 (morning shift, 9 a.m.–noon). They need help raking, spreading mulch, cutting out the dead and diseased, clipping back the ferns and general tidying up. Wear a good pair of work shoes or boots, bring some gloves and join them for a fun day of digging in the dirt. Tools and refreshments will be provided. Visit the website for details and to RSVP: uvic.ca/finnerty/community/volunteer

A PASSION FOR BONES

UVic's "bone lady" retires after more than 30 years of student and community engagement

BY ANNE MacLAURIN

They keep us upright, we feed them to our dogs and we use them for instruments and tools. But for Becky Wigen, bones are so much more. They're a life's work.

"The shapes bones make are beautiful," she says. "It's very satisfying to figure out what they belonged to and what they represent. It's like solving a puzzle."

Affectionately known as "the bone lady," Wigen is curator of the bone lab in UVic's Department of Anthropology where, for more than 30 years, she's built one of the largest and most extensive collections of animal skeletons in the Pacific Northwest.

"There are now more than 2,500 fish, bird and mammal skeletons in the collection," says Wigen, who retires from UVic this spring and will be sorely missed by the many students and community groups who have benefited from her infectious passion for bones.

"Scholars, paleontologists, archaeologists, police, consultants, authors and countless graduate and undergraduate students use the collection," says Wigen. "It's a massive collection with a large variety of different species all in one space."

Wigen was hired as a part-time lab instructor in 1980, and soon took on the role of collection manager for the lab. As more people visited the lab, she discovered that she loved talking



Wigen shows a dog skeleton to Brownies Julia Webber and Sereia Felipe-Alves. UVIC PHOTO SERVICES

to small groups about the bones, the teeth and the biology of the animals.

"It's very rewarding sharing my interest and enthusiasm about the bones," she says. "People, especially children, get so excited that they're allowed to touch the skulls and teeth."

In 1999, Wigen saw an opportunity with the UVic Speakers Bureau to share her knowledge with an even wider community. She created a small travel-friendly collection called "Bones, Beaks and Teeth: A Comparative Look at Animal Skeletons" that she took on her many visits to schools and community groups.

"Working with Becky for nearly 20 years has been a rewarding experience," says Mandy Crocker, coordinator of the Speakers Bureau in University Communications + Marketing. "I can't begin to express how much I've ap-

preciated all of Becky's volunteering with the program for so many years. She always made herself available to the community."

In addition to her community outreach work, Wigen got to know most of the anthropology students as the department's lab instructor and undergrad advisor. "Since I taught two required labs, I saw all the undergrad anthropology majors," she says. When she started at UVic she saw 60 students a term. Now she sees nearly 150 students.

One of them was Justin Kimball. "Becky helped me to achieve my aspiration to become an archaeologist," he says. "Her guidance and enthusiasm has nurtured similar qualities in myself. I hope one day to have the opportunity to do for others what Becky has done for me."

"Becky has guided thousands of students with her patient and engag-

ing hands-on lab instruction on the archaeology of animal bones," says department chair Ann Stahl. "She's been an ambassador for the department and the university, thanks to her tireless engagement with other scholars, local police, the broader community and especially thousands of elementary school students."

Wigen plans to use the collection herself as a private researcher and hopes her colleagues and graduate students will continue to share its treasures with school groups and community organizations. As for the collection itself, she's writing lab manuals and instructions for whoever takes it over.

"The handing over of any collection can be hazardous," she says. "Any change, any shift to the next generation can threaten its future. Someone has to love it and be its steward."

'Indspired' scholar used the power of education to heal and renew

BY HOLLY HEUVER

Wanosts'a7 Lorna Williams, Lil'watul from Mount Currie BC, has been honoured with a 2018 Indspire Award for her contributions to Indigenous education.

The UVic Professor Emerita of Indigenous education (Curriculum and Instruction) has been living and breathing the Truth and Reconciliation Commission's (TRC) calls to action on education and language since before the TRC was ever imagined. She built her career at UVic on the principle that quality education for Indigenous children must be characterized by strong cultural teachings alongside a Euro-Western education.

The Indspire Awards represent the highest honour the Indigenous community bestows upon its own people.

Working with the Faculty of Education and the Department of Linguistics, Williams co-designed and developed three degree programs in collaboration with Indigenous communities: the bachelor and master's degrees in Indigenous language revitalization, and the counselling in Indigenous communities master's degree program.

She served as the Canada Research Chair in Education and Linguistics at UVic and was the first director of Aboriginal education. She also co-chaired the Task Force on Aboriginal Education, which led to the requirement that all teacher education programs in British Columbia include a course in Indigenous education.

"At UVic, we created an inclusive learning environment," says Williams. "I am most pleased to have demonstrated that a university can create an open space for Indigenous knowledge learning and languages."

Williams still hears from former students who tell her about ways they've incorporated their classroom learnings into their own teaching. And faculty members tell her how they use Indigenous principles of teaching and learning in the development and teaching of their own courses.

Williams also sees the tangible impacts of the degree programs on communities where their graduates now work.

"People are much more focused, creative and inventive in their approach to language revitalization," she says. The next step is to develop a PhD program and share the students' work with the world. "It's a tremendous help to other Indigenous peoples in the world who are striving to do the same."

"Due to the legacy of colonization in the formation of Canada, Indigenous people's knowledge, languages, histories, identities and lifeways have been designed to be invisible, and education as an institution has been the primary social tool used to eradicate Indigenous languages, knowledge and identity from existence," says Williams.

"If education can be so destructive it can also serve to reverse the destruction."

In 2017, Williams co-authored *Braiding Indigenous Science with Western Science, Book 1* along with



Wanosts'a7 Lorna Williams. UVIC PHOTO SERVICES

Gloria Snively, to support the indigenization of science curriculum. "The book showcases the work of our graduate students in Indigenous knowledge and serves to help teachers learn about Indigenous knowledge in the world of science," she says. The second book in the series will be published later this year.

Williams recovered her lost Lil'wat language with the help of Elders in her

community and became an English interpreter and guide for the creation of a writing system. "I use everything I've had the privilege of learning throughout my life in everything I do," she says.

Williams received her Indspire award on March 23 in Winnipeg. Now in its 25th year, the Indspire Awards have honoured 350 First Nations, Inuit and Métis individuals for their outstanding achievements.

PRESIDENT'S EXTRAORDINARY SERVICE AWARDS



President Jamie Cassels, centre, gathers with some of the nominees for this year's President's Extraordinary Service Awards. UVIC PHOTO SERVICES

The President's Extraordinary Service Awards celebrate the outstanding contributions of our people. This year, 15 nominations—representing 38 people (10 individuals and five teams)—were received from across campus in the five award categories.

"I sincerely congratulate each of the nominees on their extraordinary service and dedication to UVic," says President Jamie Cassels. "It's always such a pleasure for me to celebrate our staff and faculty. Year after year I'm impressed by the quality of the submissions for these awards. Each of this year's nominees is deserving of our thanks and our recognition."

Congratulations to all of the 2017 nominees. This year we celebrate four individuals and one team as award recipients. See the full list at bit.ly/2EysWqZ

CULTIVATOR AWARD

Joyce Gutensohn
Academic Advising Centre

Joyce Gutensohn's work to cultivate and deepen the understanding of academic advising at UVic transcends official titles, positions or role descriptions. In her 30-year career as an "astute academic adviser and an expert contributor to curriculum review," Gutensohn has had an "invisible yet significant impact on students, staff and faculty," says former registrar Lauren Charlton.

As academic advising consultant and a mentor and leader in the Academic Advising Centre, Gutensohn's efforts to create reliable, easy-to-understand resources have empowered students to thrive at UVic. The new tools and procedures she's developed have improved the delivery and effectiveness of services offered by the Academic Advising Centre, the Office of the Registrar and the faculties of humanities, science and social science.

"Joyce continues to be a teacher, mentor and valued member of the academic advising community at UVic," says Robin Hicks, associate dean (academic) in the Faculty of Science. "Future generations of advisers will use Joyce's work as a strong foundation from which to build their own practice."

Thanks to her dedication, a pilot tutoring program at First Peoples House has quickly developed a loyal following. "Brittany's gentle approach allows her to find ways to build trust with the students in a respectful and non-judgmental way," says Crystal Seibold in Indigenous Academic and Community Engagement.

Off campus, Halverson-Duncan is building partnerships to establish community mathematics and statistics help centres. Working with the WSÁNEĆ School Board's Saanich Adult Education Centre, she's helping Indigenous Education Language Keepers upgrade their math courses. And she's working with the Victoria Native Friendship Centre to assist carpentry students with the math portion of their program.

"Brittany saw an opportunity to have a lasting impact on the way all of us in the department engage with Indigenous students, how we welcome them into our learning community, and how we foster intercultural understanding," says mathematician Kieka Mynhardt.

COLLABORATOR AWARD

Neil Honkanen
Physics and Astronomy

When the new telescope was mounted on the roof of the Bob Wright Centre, it quickly became apparent that there was a problem with viewing. So the department turned to electronics shop supervisor Neil Honkanen. He and his team spent days running between the Wright and Elliott domes, carefully monitoring and comparing temperatures within both structures. From their meticulous data, they proved that the unpainted Wright dome had temperature issues that

required a permanent solution. This is just one example of Honkanen's commitment, resourcefulness and ability to trouble-shoot.

Over his 36 years in the electronics shop and 12 years as supervisor, Honkanen has gone above and beyond to provide invaluable service across campus—from assisting Facilities Management with a failing lighting system, to developing demonstrations for undergraduates, to designing and fabricating electronics for international particle physics collaborations.

"His whole approach encourages people to work together," says physicist Michael Roney. Although Honkanen is retiring in April, his leadership will ensure the electronics shop stays in excellent hands.

INNOVATOR AWARD

Carolyn Swayze
Graduate Studies

If you're looking for Carolyn Swayze in February, you'll likely find her behind the standing-room-only crowd at the finals of the annual Three Minute Thesis (3MT) competition. You might also find her chairing the graduate curriculum review committee, supporting more than 100 graduate advisors and secretaries, coordinating new program submissions, fielding student requests, and managing the online presence for the Faculty of Graduate Studies.

"Carolyn does the job of two or three people and does it with seemingly boundless energy and enthusiasm," says Stephen Evans, acting dean of graduate studies.

Combining a seemingly super-human ability to meticulously manage multiple projects with almost 30 years of graduate studies experience,

Swayze has built 3MT into a flagship event for the university. "Carolyn is an innovative thinker and a problem solver," says David Capson, former dean of graduate studies. "3MT is over and above the expectations of her role and it happens because of her talent, experience and energy."

NAVIGATOR AWARD

Legacy Art Galleries team

The team at Legacy Art Galleries consistently demonstrates excellent navigation through their powerful exhibition program that engages through creativity, and guides community and academic audiences through important contemporary issues.

In 2017, Mary Jo Hughes, Caroline Riedel, Gillian Booth, Roger Huffman,

Katie Hughes and Emerald Johnstone-Bedell developed and facilitated a program primarily at Legacy Downtown that explored challenging aspects of Canadian history.

Some of these exhibitions included: a look at resurgence through children's residential and day schools art curated by anthropology professor Andrea Walsh; the first major focus on Ellen Neel, the first woman pole carver, curated by Williams Legacy Chair Carolyn Butler Palmer; and a transformative photo project by Lindsay Delaronde, which dismantled negative stereotypes of Indigenous women.

As part of the necessary emotional preparation for these exhibitions, the Legacy team worked with Coast Salish elders. Walsh says, "This is not the typical role of a gallery and its staff, to become so integrally involved in such social justice work based on reconciliation through academic activism."

CONNECTOR AWARD

Brittany Halverson-Duncan
Mathematics and Statistics

In the two years that Brittany Halverson-Duncan has been a senior lab instructor, she's connected the Department of Mathematics and Statistics with communities on and off campus.

CAUSE FOR APPLAUSE
PRESIDENT'S EXTRAORDINARY SERVICE AWARDS

Come together and celebrate all nominees and recipients for their service and dedication at the Cause for Applause event on May 2, hosted by President Cassels. All faculty and staff are invited to attend. Light refreshments will be served. Please RSVP online at uvic.ca/applause by April 25.

May 2, 3-4:30 p.m. | McKinnon Building lobby



Recently seen at JCURA, this photograph from Laura Gildner's "Groupie" series will be on view at *Good Grief!*, the Department of Visual Arts annual BFA graduation exhibition. "Groupie" explores the nature of obsession in relation to the idolized female image. *Good Grief!* features the work of nearly 40 emerging artists and opens with a 7 p.m. reception on April 20 in the Visual Arts Building. The exhibit runs from 10 a.m. to 6 p.m. daily, April 20–28. CREDIT: LAURA GILDNER

CANADA 150 CHAIR CONTINUED FROM P.1

materials. A coming generation of scientists studying with Manners and his research team will learn how to create and manipulate the properties of minuscule synthetic particles—work that will shape future technological advances on a number of fronts.

"The generous and flexible C150 research funding provided will allow us to perform the most creative and high impact research that we're capable of," says Manners, who was awarded the Royal Society of Chemistry's De

Gennes Prize last year for outstanding and exceptional work in materials chemistry.

"Overall, our work aims to lead to fundamental scientific advances that will enable applications in fields such as electronics, magnetics, displays and biomedicine."

Manners joins a thriving chemistry department at UVic that has more than doubled its students and number of major research grants in the last 15 years.

The Canada 150 Research Chairs Program is a national initiative established in 2017 to celebrate Canada's 150th anniversary.

The federal government is investing \$118 million in one-time grants of up to seven years to attract top-tier international scholars and researchers to the country. The program aims to enhance Canada's reputation as a global centre for science, research and innovation excellence.



Juvenile rockfish in Barkley Sound. PHOTO: EMILY ADAMCZYK

Study shows human disturbance affects fish diversity

BY VIMALA JEEVANANDAM

In a study that spans Canada's Pacific Coast, University of Victoria researchers have confirmed that human disturbance of seagrass meadows results in lower fish diversity.

While human activity is known to impact a variety of ecosystems, the effect of human activity on coastal biodiversity is largely unknown. Coastal seagrass meadows are important nursery grounds for commercial and ecologically significant fish species.

Globally, these ecosystems have declined at an average rate of seven per cent a year since 1990, making their preservation all the more urgent.

Led by UVic post-doctoral fellow Josie Iacarella and biology professor Julia Baum, the collaborative effort involving government, non-government organizations and academics examined 89 seagrass meadows across Canada's Pacific Coast, including meadows in Saanich Inlet, Victoria Harbour and Sooke Harbour.

Disturbance was measured by the proportion of overwater structures such as ferry terminals and

marinas, amount of shoreline modification, and the number of people living in a particular watershed.

The study found that in areas with high levels of human disturbance, the same few fish species thrived. While hardy species such as the threespine stickleback dominated in high-disturbance areas, sensitive rockfish species and slow-swimming egg-guarders, such as pipefish and gunnel fish, were more likely to be found in areas with less human disturbance.

"We discovered that the number of different fish species that thrive across disturbed areas is reduced," says Iacarella. "Understanding how human disturbance affects fish communities will inform our conservation efforts of seagrass meadows."

Funding partners included Mitacs Elevate, Pacific Salmon Foundation, the Natural Sciences and Engineering Research Council, the Canada Foundation for Innovation, the BC Knowledge Development Fund, Hakai Institute, and the Canadian Institute of Ecology and Evolution.

The paper was published in the peer-reviewed journal *Global Change Biology*.

KENT MONKMAN
2260 Oak Bay Avenue
April 3 - 24, 2018

Study for *The Subjugation of Truth*, wc, gouache, gold acrylic, 15" x 11"

WINCHESTER GALLERIES
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K. Monkman 2015

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Lights, camera, action: UVic videography talent goes on display

Biodegradable light wands, citizen science scuba divers, the Holocaust, and killer whales—these were the winning topics among 17 juried videos featured at the second annual Research Reels competition on March 6.

The Ideafest event showcases short videos produced by students, faculty and staff that demonstrate how UVic research and creative activity is making a difference in our lives and in the world.

Videos are screened and judged in two categories: 60-second social media and three-minute features. The judges were UVic chemical oceanographer Jay Cullen, *Hakai Magazine* editor-in-chief Jude Isabella, and Victoria filmmaker Bryan Skinner.

The big winners of the evening were undergraduate students **Colton Hash** (visual arts/environmental studies/computer science) who won \$1,250 for a feature video on his multimedia orca installation and **Paige Whitehead** (microbiology/environmental studies) who collected \$750 for a social media video on her biodegradable light wand.

Hash and Whitehead also won the People's Choice Awards in the feature and social media categories, receiving \$500 and \$250 respectively. Both are featured in separate stories elsewhere in this edition of *The Ring*.

Second place in the social media category (\$500) went to master's student **Stefania Gorgopa** (envi-



First place in the social media category, the Nyoka Light Wand.

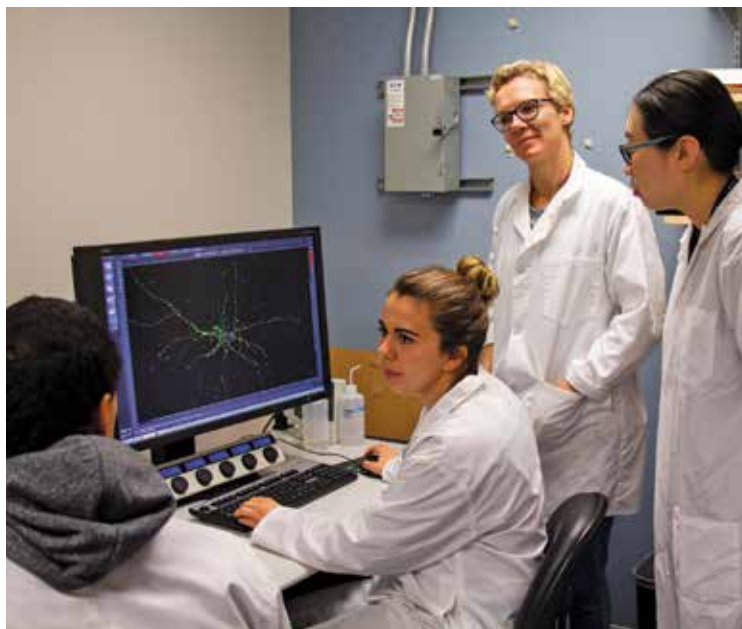
ronmental studies) for a video on how research using citizen science divers is helping to monitor local rockfish populations.

The feature category second-place prize (\$750) went to PhD student **Chorong Kim** (Germanic and Slavic studies) for a video on how the European Studies Field School is helping students deepen their understanding of global issues.

"There were many excellent submissions and the judging was quite lively when they were deciding on a final winner; it wasn't an easy decision," says event organizer Beth Doman, video production coordinator in University Communications + Marketing. "We had a great evening with excellent speeches by the judges and the winners, all of them emphasizing the vital impact of the highlighted work."

"We also got many positive responses from the audience who said they were inspired by the variety of research taking place on campus."

See the depth of our video and research talent for yourself at bit.ly/uvic-rr-2018



Swayne (centre, back) and her research team examine a neuron for "active" regions. UVIC PHOTO SERVICES

Federal innovation grants lay foundation for discovery

From a cheap and easy way for mining-impacted communities to test their drinking water to a powerful microscope able to observe the tiniest "workhorses" of our cellular system, UVic researchers are putting Canada Foundation for Innovation (CFI) grants to work to address some of the world's most daunting problems.

Federal Science Minister Kirsty Duncan visited the campus April 11 to announce more than \$42 million in CFI grants. That included a \$355,000 investment at UVic, where researchers Heather Buckley and Leigh Anne Swayne have received CFI support for their projects.

Buckley, a civil engineer, is developing a test strip that will one day let residents of mining communities in BC and around the world quickly and easily test their drinking water as needed for harmful by-products

of mining such as arsenic, mercury, chromium, cadmium and lead.

She's receiving \$135,000 toward the \$337,500 project, which will also lead to the development of a method of extracting valuable metals from mine tailings.

Swayne, a microbiologist, has been awarded \$220,000 toward the half-million-dollar upgrade of her lab's confocal microscope, purchased in 2013 through a previous CFI grant and matching funds from the BC Knowledge Development Fund.

The upgrade will allow even closer scrutiny at the cellular level, and for the first time will permit Swayne's research team to observe cellular processes as they occur as part of their work to understand neuron changes related to neuro-developmental conditions such as autism.

around the ring

More eyes on the ocean

Geographer Maycira Costa has received \$361,500 in funding from the Marine Environmental Observation, Prediction and Response Network (MEOPAR) and UVic's Ocean Networks Canada (ONC) to study biophysical processes in ocean waters along the migration route of juvenile salmon. "This will be a large effort combining data from ocean satellites and other platforms, such as ships of opportunity and ONC observatories," says Costa, whose area of expertise includes remote sensing, coastal oceanography, wetlands and biogeophysical processes. Analysis will incorporate satellite data from the past two decades, sampling from vessels of opportunity, research cruises, cabled observatories (ONC), aquaculture industry surveys, citizen science and archived data. The project will inform management of salmon stocks and provide new visualization tools for monitoring the state of the ocean. The partnership between MEOPAR and ONC grew out of a mutual interest in using ocean observation to advance marine science for the benefit of Canada. The two organizations frequently work together on marine research initiatives and hosting regional science-focused workshops.



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A student-created interactive sculpture fuses art with ocean and climate data

BY JOHN THRELFALL

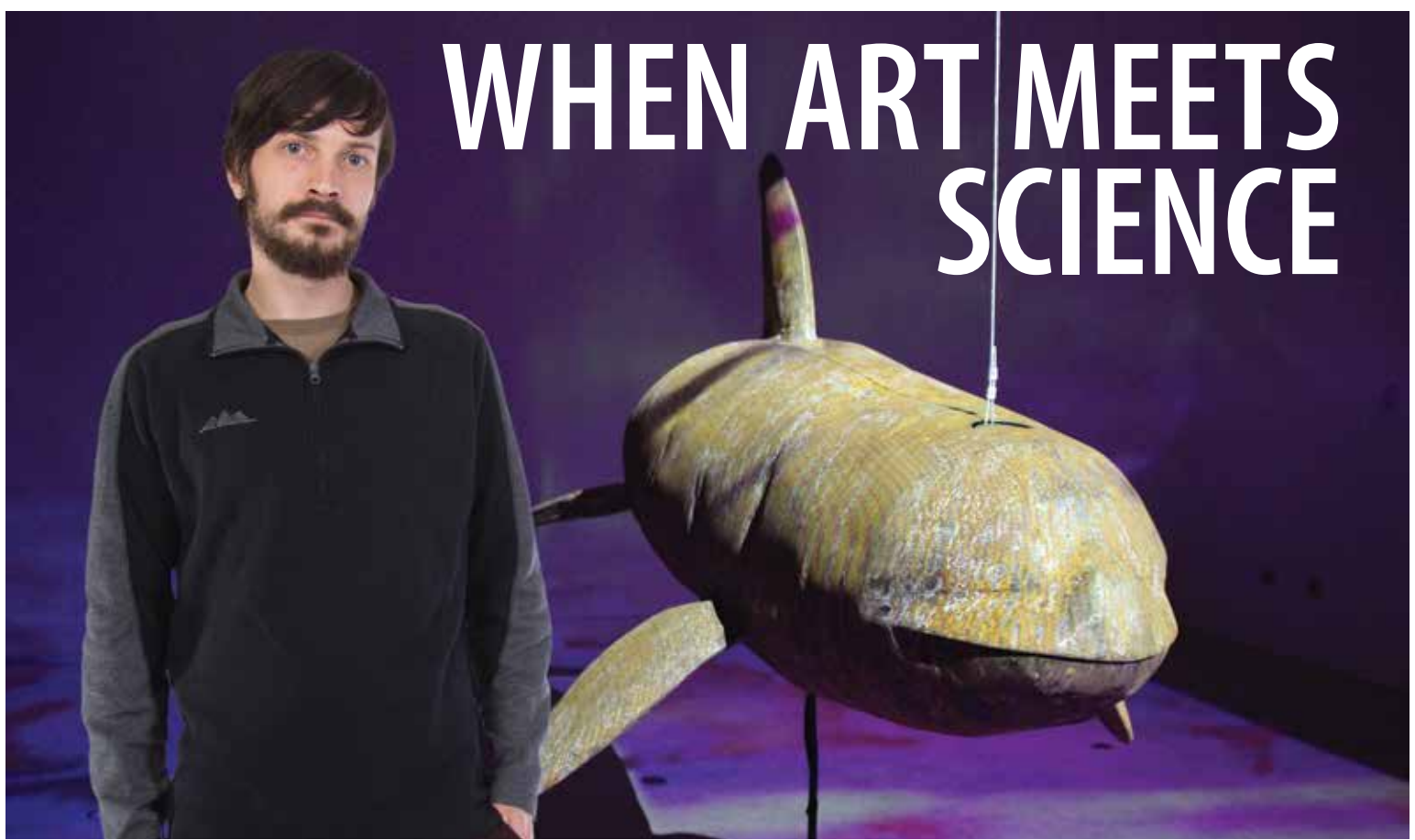
Ever wanted to have an intimate, interactive moment with a baby orca? A new student-created sculpture allows viewers to have just that, while also learning something about the threats currently facing our local killer whale population.

“Resonant Disintegration” is an intermedia installation created by University of Victoria undergraduate student Colton Hash. Featuring a life-size representation of three-year-old J53, the youngest surviving female of the endangered southern resident orcas, the eight-foot-long hollow sheet-metal sculpture is suspended by wires to simulate an aquatic environment.

After cutting, shaping and welding it, Hash then submerged the piece in a quiet bay off Esquimalt’s Saxe Point to achieve a rust-textured coating that allowed it to be “physically infused with a sense of local place and local water.”

But creating the physical sculpture was only half the concept. When installed, a projected visualization of climate data plays across the surfaces of both the whale and the room, while underwater recordings of passing freighters fill the space with a disturbing rumble.

“When people enter into the interactive space, their movements are recorded by a motion sensor and, as they approach the whale, the background noise and the speed of the climate



Hash. UVIC PHOTO SERVICES

data slows down, so they have somewhat of an intimate moment with the sculpture,” Hash explains.

Add in a microphone and another set of speakers playing the same sounds from inside the whale, all connected by a real-time computer program, and the whole effect becomes both beautiful and haunting.

“Because it’s a hollow object, it acts as a resonating chamber, and the contact microphone picks up vibrations that create a feedback loop and cause the sculpture to make its own sound,” says Hash. “Essentially, the sculpture is responding to underwater noises, as well as the interactions of the viewer.”

While visually appealing, Hash’s sculpture is firmly rooted in science—entirely appropriate, given that he’s also working toward a minor degree in environmental studies.

The project data is gathered from the Canadian Centre for Climate Modelling and Analysis located on the UVic campus. It includes variables such as precipitation, ocean temperatures and ground surface temperatures, all of which impact the health of different aquatic systems. The audio recordings are taken from UVic’s Ocean Networks Canada hydrophone stations in the Salish Sea.

“Climate change is happening and

it’s already having devastating impacts on species we love, such as orcas,” says Hash. “This whole installation is an attempt to create a reflective and emotionally driven space where people can be present with their feelings. In this world of social media and information saturation, we’re not really allowing ourselves the time to reflect on how we’re feeling about the state of the world.

“I’ve always loved sculptures honoring animals that are important to us,” he continues.

“Obviously, there’s a lot of fascination with orcas around Victoria. But there’s a real disconnect between how

they’re shown in art and the reality of their rapidly declining numbers.”

Although Hash’s sculpture is not currently on display, you can see it in a short, award-winning video documenting how he created it. During Ideafest in March, Hash won two first-place prizes at the Research Reels video showcase event (see story, p. 11).

“[This installation] offers the chance for people to engage spiritually and emotionally with the art and the issues,” he says. “Art has the ability to engage on those levels more than through intellectual or scientific information, which often seems overwhelming.”



An endangered southern resident killer whale near a freighter in Haro Strait. PHOTO: VALERIE SHORE

Research looks at impact of underwater noise on killer whales

Three University of Victoria researchers have been awarded a total \$935,000 in federal funding to study the impact of underwater noise on endangered southern resident killer whales and the chinook salmon they depend on for almost 80 per cent of their diet.

Fisheries and Oceans Canada Minister Dominic LeBlanc announced the funding in March as part of \$3.1 million for research focused on the issue of underwater noise. The funding will increase knowledge of how noise from human activities is impacting the resident whales and chinook, and affecting the quality of the marine environment.

Only 76 whales remain in the southern resident population, which

forages for chinook salmon in its core range off southern Vancouver Island. The primary cause of their decline and inability to recover is chronically low chinook numbers, although pollution and noise disturbance from vessels are contributing factors.

The UVic researchers—Francis Juanes (biology), Rosaline Canessa (geography) and Stan Dosso (Earth and ocean sciences)—will study three aspects of underwater noise: how it impacts the ability of the southern residents to use echolocation for detecting prey and communicating with each other; how it affects the behaviour and physiology of chinook salmon; and how to improve current methods of measuring disturbances from marine vessel

traffic and its impact on the whales.

“We’re thrilled by this opportunity to undertake important research into human impacts on the southern resident killer whales and their prey,” says Juanes, a fisheries ecologist and the Liber Ero Chair in Fisheries Research at UVic. He’s lead investigator for the chinook salmon research and spokesperson for the overall project. “We anticipate contributing significantly to understanding the stressors affecting these magnificent marine mammals and, ultimately, to mitigation measures to help ensure their long-term survival and success.”

Coastal geographer Rosaline Canessa leads the vessel disturbance study, while marine acoustics specialist Stan Dosso leads the echolocation research.



Masterminds lectures return for 2018

Since 2006, Wednesday evenings in April have belonged to the Masterminds lecture series at UVic. Every year, there’s a new roster of entertaining speakers who delve into their personal passions to bring engaging and visual presentations to the community on an eclectic range of subjects.

The two remaining talks in the free public series feature Mary Sanseverino on the Mountain Legacy Project and Bob Crosby on Ocean Networks Canada’s earthquake detection system.

On April 18, Sanseverino, a Professor Emerita in computer science, returns by popular demand to take audiences through an image-rich evening of mountain landscape discovery.

For 20 years, the Mountain Legacy Project has been using repeat photography to examine landscape change in the mountains of western Canada. She describes how historical images are recreated by scientists hiking with cameras to determine the location where photos were taken. The scene is then re-photographed as accurately as possible.

The historic and modern images are aligned, analyzed and made available to anyone who wants to

examine ecological and human legacies, look for evidence of climate change in mountain landscapes and explore cultural processes over time. Sanseverino’s talk takes place in the Human and Social Development Building, room A240.

On April 25, Bob Crosby, a retired software engineer from UVic’s Ocean Networks Canada (ONC), will demonstrate how the earthquake early warning system works and discuss how it can potentially save lives and critical infrastructure.

ONC is in a unique position to detect subduction earthquakes through the operation of seismic sensor networks both on land and the seafloor. Learn about the prototype earthquake early warning system and how it’s being expanded and enhanced with support from the BC and federal governments. The talk takes place in the Hickman Building, room 105.

Masterminds is sponsored by the UVic Retirees Association and UVic’s Institute on Aging and Lifelong Health, with support from the university.

Both talks run 7–8:30 p.m. Register by calling 250-721-6369 or online at uvic.ca/masterminds