

THE EDGE IS HERE



High-tech training for tsunamis

UVic researchers and graduate students are at the forefront of scientific and commercial breakthroughs, in our community and around the world—powered by the UVic Edge.

Virtual-reality game uses oceans data and immersive experience to predict and prepare for tsunamis.

What began as an educational virtual-reality game based on Port Alberni's 1964 earthquake and tsunami has exciting potential as an adaptable and innovative tool for emergency preparedness, explains University of Victoria computer scientist Yvonne Coady, whose research lab developed the game.

Coady, Derek Jacoby and Tania Lado Insua used historical data from the Alberni event to create VRTsunami, which immerses players in a seven-minute scenario during which they experience the earthquake and have minutes to prepare for the coming tsunami.

The game, which involves participants through virtual-reality goggles, smartphones, tablets and laptops, drew on data from UVic's Ocean Networks Canada to model the rising sea levels that would occur in narrow Alberni Inlet in the event of a tsunami.

The team imagined the game as a fun way to learn for students interested in STEM careers—science, technology, engineering and mathematics. But VRTsunami generated so much media interest when it made its public debut at the BC Tech Summit in May that Coady's research team saw the potential the model has for helping people and authorities prepare for natural disaster.

"There's an opportunity to say, 'Well, if an earthquake of x magnitude happens off Haida Gwaii, what would be the impact?'" says Coady. "You can imagine

being able to pre-compute a lot of the impact of natural disasters. If you had 100 different models for what might happen with 100 different events, that could really be useful for emergency preparedness."

Modelling with existing data is one thing, but putting people into the immersive experience of virtual reality creates a whole other level of understanding, notes Coady.

"There are so many examples of unforeseen problems that occurred during actual emergencies. Maybe this science could help with better outcomes, and help citizens do better planning."

The research is funded jointly by IBM and the Natural Sciences and Engineering Research Council.

Videos: bit.ly/18-tech-vids Story: bit.ly/18-tech-summit

Screen capture from the VR game.

AT THE BC TECH SUMMIT

Last month, visitors to the UVic display at the BC Tech Summit in Vancouver had the opportunity to explore the discoveries of UVic researchers, among the best of Canada's tech innovations. Along with Coady, Jacoby and Insua's VRTsunami demonstration, other UVic researchers included:

■ **NEUROSCIENTIST OLAV KRIGOLSON** brought a mind-controlled robot car and new brain-health game that will be tested by NASA this summer for potential use on astronauts bound for Mars.

■ **BIOLOGY STUDENT PAIGE WHITEHEAD** demonstrated her Nyoka glow-wand prototype, which uses bioluminescence for the glow and a seaweed casing that improves the soil once it's thrown away.

■ **COMPUTER ENGINEER XIAODAI DONG** showcased her 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** displayed his innovative cement materials along with prototypes of equipment that's already in use in a project with the BC government to evaluate the condition of civil infrastructure such as roads and bridges.

■ **BIOMEDICAL ENGINEER STEPHANIE WILLERTH** demonstrated her lab's 3D printer that is printing human neural tissue for potential use as a drug-testing platform.

■ **CIVIL ENGINEER PHALGUNI MUKHOPADHYAYA** had two advanced thermal insulations for buildings on display that are up to 10 times more effective than conventional insulation.

■ **MECHANICAL ENGINEER BRAD BUCKHAM** displayed new marine renewable energy technologies and showed how alternative energy can be integrated into the grid.

Kinesiology grad helps seniors access fresh air and exercise

There's nothing quite like looking across the ocean and feeling the fresh salty air filling your lungs as you ride your bike along Dallas Road. And Carson Sage, who graduated with an MA in kinesiology this month, has been offering senior citizens in Victoria and beyond the opportunity to reconnect with nature through free bike rides, via the Cycling Without Age program. "We're trying to reduce social isolation and loneliness for older adults," says Sage, who helped start Cycling Without Age in Victoria—the sixth chapter in Canada and BC's first. In May 2017, the first trishaw arrived, a custom-made three-wheeled bike with two seats in the front for passengers and a backseat for the pedaller. *More: bit.ly/cycle-age*

SUPPORTING INDIGENOUS LANGUAGES



Staff from the Chisasibi Heritage and Cultural Centre at UVic Convocation. PHOTO: CHORONG KIM

Supporting the Cree language and culture in Quebec

Margaret Fireman understands that language upholds her culture. Without language, oral traditions and wisdom passed down from her Cree ancestors would be lost. Language, she says, is closely tied to the land.

So when Fireman, a residential school survivor and then-manager of Chisasibi Heritage and Cultural Centre in northeastern Quebec, was searching for a program to bolster the preservation of her community's language of James Bay Cree, she chose carefully. Fireman turned to UVic's Certificate in Aboriginal Language Revitalization (CALR) program to support her workplace's efforts to sustain the first language of Chisasibi's nearly 4,600 members.

The entire staff at the Chisasibi Heritage and Cultural Centre, all of whom speak James Bay Cree, enrolled in the CALR program, which teaches new approaches and practical strategies to strengthen language revitalization while honouring traditional knowledge and practices.

This week, 14 of the graduating students made the three-day journey to UVic, driving 16 hours from Chisasibi, on the edge of James Bay, to Ottawa, before boarding a flight to Victoria to attend convocation. Their journey reflects the community's determination to ensure their culture and language flourishes. *More: bit.ly/cree-lang*

SINGING BACK THE YEARS



Goodman at choir practice. PHOTO: BETH DOMAN

Making memorable music

Rita Goodman was nine or 10 years old when she first started singing songs about bluebirds flying over the white cliffs of Dover and the long, long road to Tipperary. Then, she was being led in song by nuns in the basement of their Liverpool orphanage to drown out the sounds of the German Luftwaffe bombing the British port city during the early years of WWII. Now, she's 88 and singing in the basement hall of St. Joseph's church in Victoria along with her daughter and about 30 others.

Goodman is part of "Voices in Motion," an intergenerational community choir for persons with dementia, their family caregivers and high school students. The choir is also a UVic research study led by nursing professor Debra Sheets and fellow research affiliates of UVic's Institute on Aging and Lifelong Health. Their two-year study is examining how participation in an intergenerational choir might foster social engagement and caregiver well-being, improve quality of life for persons with dementia, and reduce some of the stigma surrounding memory loss. *More: bit.ly/voices-rise*

NEW AUDAIN PROFESSOR: WITNESS TO HISTORY



Newman with "Witness Blanket."

Art as an act of reconciliation

Newly announced as the next Audain Professor of Contemporary Art Practice of the Pacific Northwest, Kwagwiltz artist and master carver Carey Newman brings art practices that focus on reconciliation to UVic. Newman's "Witness Blanket," unveiled at UVic in 2014, has travelled across Canada, sparking reflection and conversation about the traumatic past of residential schools, settler-Indigenous relations and reconciliation. He'll be the first Audain professor to hold a new, three-year position in UVic's visual arts department—and will also play a role in the Gustavson Business School's award-winning ACE program to support the entrepreneurial practices of Indigenous artists.

GLOBAL RESEARCH HUB



UVic ranks as a top-performing university in Canada based on research impact, and is #1 among Canadian universities in the proportion of its international collaborations with researchers around the world (2011–2018 Leiden university rankings).

94%

EMPLOYMENT RATE

Preparing students for success.



UVic students have a 94% employment rate two years after graduation.

3 IN 10

2018 3M NATIONAL STUDENT FELLOWS ARE UVIC STUDENTS

UVic is the first and only Canadian university to have three student awards in a single year.



Just 10 national 3M Student Fellowships are awarded annually. Find out more about tomorrow's leaders: uvic.ca/3M-winners

IN THE GLOBAL TOP 200

Leadership that crosses all fields.

The 2018 QS World University Rankings by Subject place UVic in the top 200 institutions globally for research in four subject areas: Earth and marine sciences, English language and literature, geography, and philosophy. QS ranks UVic for world-class performance and subject-specific leadership in 35 of 42 fields.

41,863

PEOPLE IN GREATER VICTORIA HOLD A UVIC DEGREE

Every day in communities around the world, UVic alumni are making a difference—starting right here. The one in eight adults in Greater Victoria who are UVic alumni are key contributors to the thriving knowledge economy, well-being and vibrant cultural life of our region.



\$3.7

BILLION IN ECONOMIC IMPACT

Driving Canadian prosperity.

UVic operations generate \$3.7 billion in annual economic activity—including direct and indirect expenditures such as salaries and benefits, spin-off companies, patents and licenses, student and visitor spending, taxes and the effects of an educated workforce. University research and technology innovation accounts for \$1.09 billion of that effect.

Creating vital impact and dynamic learning opportunities in an extraordinary academic environment—that's the UVic Edge.

UVIC