INSPIRE Program

2022 Program Report

PREPARED BY: ALI HOSNY HAMDY, APPRENTICE GARAGE COORDINATOR

About INSPIRE

INSPIRE is a five-year program of research and community-based innovation at the University of Victoria that engages science and engineering students from underrepresented groups, including individuals of marginalized genders, Indigenous peoples, members of racialized minorities, people with disabilities, and LGBTQ2S+ individuals. We connect students with mentors from industry and the community to ideate and co-create solutions that address society's most pressing challenges, especially in the area of sustainability. INSPIRE is also a network of like-minded individuals where students are supported by ambassadors and industry mentors in an inclusive learning environment.

The program launched in 2022 and this year's INSPIRE featured its Apprentice Garage Program, as well as an Ambassador Program. The Apprentice Garage program facilitated six experiential-learning projects where diverse students worked on solving real problems affecting local communities, whilst co-creating with local client organizations and industry mentors from local and global companies to propose fully functioning, scalable, and inclusive minimum viable products.

Our Mission

- Promote sustainability
- Provide dynamic and experiential learning
- Engage local and global community challenges
- Foster respect and reconciliation
- Develop an inclusive learning environment
- Build a network of like minded individuals and organizations

VISIT US AT: **WWW.INSPIREUVIC.ORG**

Our Ideology

INSPIRE is an innovative hub centered around the idea of fostering a **sustainable**, and growing **multicultural and multidisciplinary community** where **inclusive and diverse** teams can engineer **inclusive and equitable solutions.** INSPIRE aims to promote and create for sustainable futures through dynamic and experiential learning to engage communities locally and globally through fostering **mutual respect, reconciliation, and inclusive working relationships.**

Apprentice Garage Program Breakdown

Currently INSPIRE's students breakdown includes **28 undergraduate students**, and **12 graduate students between the ages of 18 to 29** with the students falling in the following areas of study: Software Engineering, Computer Science, Geography, Biomedical Science, Mechanical Engineering, Sociology, Physics/Computer Science, Math, General Engineering, and Business all located at the University of Victoria, Victoria, British Columbia. Canada. The student's ranged in ethnicity including: Black, Arab, Hispanic, Asian, Indigenous, and White - including both **international and national residents of Canada**. Through an anonymous survey our students have identified their genders to fall in the following categories: non-binary, two-spirit, and cis-gender. In their projects, these students engaged with more than **200+ middle and secondary students from the schools in Greater Victoria**.

Timeline

INSPIRE's 4-month program timeline was broken up into 5 consecutive stages allowing for students to fully explore problem stages as well as create inclusive scalable minimum-viable products for each of their community partners.

1 MAY

Problem Identification & Validation

- Program Launch
- core skill development

Prototyping & Testing

- Prototype development
- Validation begins

2 JUNE

3 JULY

Testing & Refinement

- Project Presentations
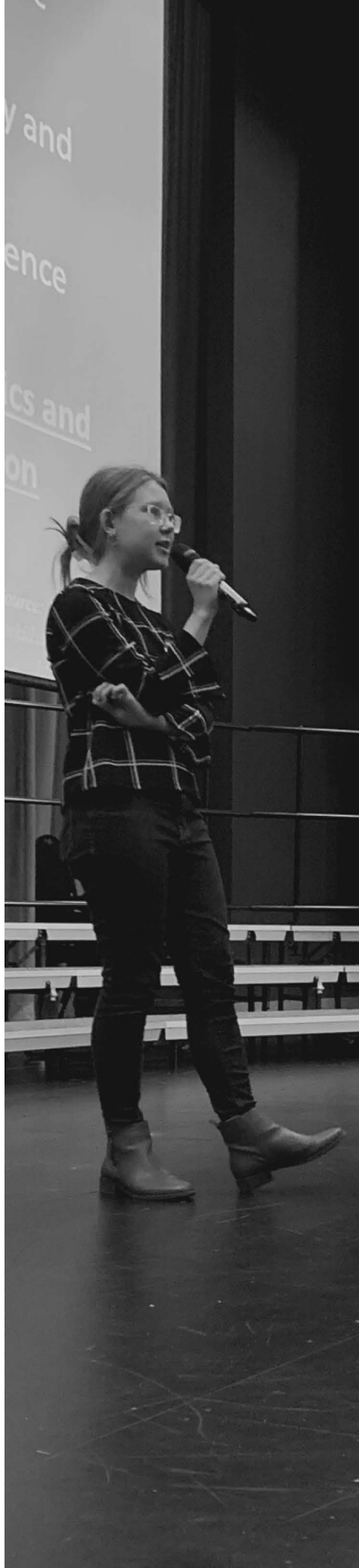- MVP development

Reflection & Documentation

- Final MVP fixes
- Finalization of project documentation
- Project Reflections

4 AUG

5 SEPT

Final Project Presentations

- Final MVP fixes
- Finalization of project documentation
- Project Reflections

Our Teaching Style

Our approach to the design and implementation of the program utilized a mixture of both **interactive lectures** to teach theoretical concepts, and **fieldwork** for students to put these concepts and methodologies to use. By leveraging **diversity in teams**, and the promotion of inclusivity - teams are taught about the importance of EDI from the get-go. Throughout the entirety of the program INSPIRE focuses on the idea of **human-centered design** where our community partners (stakeholders) are engaged throughout the entire process. These communications and relationships are led and **maintained by the students themselves**. This has allowed each of our stakeholders and students to **build a trusting relationship** with one another, creating a collaborative, inclusive, and co-creative workspace with one another - simulating the relationships they will have with future clients in their professional careers. As part of the program students also interact with and build relationships with ambassadors (graduate/experienced upper-year students) as well as mentors (local/international industry professionals) allowing them to ask for advice from a diverse range of individuals, report on project progress, and ask for opinions on project pivots when necessary.

Core Methodologies Used

- **IBM Garage Method**
- **IBM Enterprise Design Thinking**
- **Agile Software Development**
- **SCRUM Project Management**
- **Peer-to-Peer Learning**
- **Cross-Functional Management**

1.5M

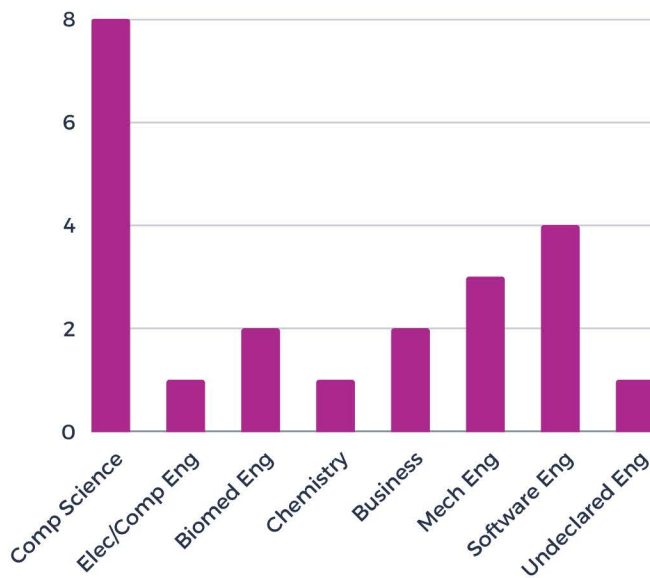Canadian Dollars in funding secured for the program's first 5-years of operation

40

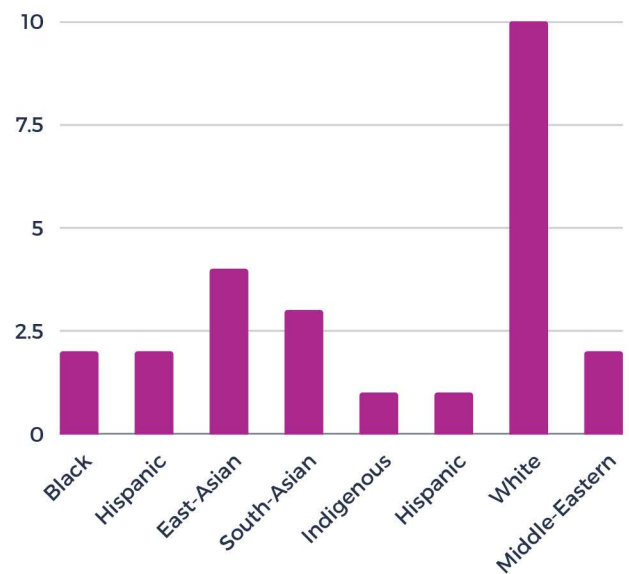Paid internships for students partaking in program

61%

Female representation within the INSPIRE Apprentice Garage Program

STUDENT AREAS OF STUDY

STUDENT INDENTIFIED ETHNIC BACKGROUNDS

MOST VALUABLE PROGRAM LEARNING OUTCOMES

A detailed research study conducted by INSPIRE's teaching team both during and post-program completion through the examination of a weekly team and individual student written reflections, as well as one-on-one focus groups, showed that the most valuable program learning outcomes were: Task interdependence, empowerment to take on new challenges, belief in oneself, empathetic design, inclusive interaction, and team communication.

inspire

STEM FOR SOCIAL IMPACT

75%

Apprentice Garage Students were made up of undergraduate students

10

Unique disciplines make up the programs in which INSPIRE students are pursuing degrees

6

Different countries host individuals involved within the INSPIRE Program

INSPIRE Program Supporters

INSPIRE's supporters have helped us create the community as well as projects that we have today. From financial aid, to course material, to technical support, to mentorship, as well as, teaching assistance they have helped INSPIRE become what it is today. The program's team as well as all of its participants are extremely grateful for each and every on of our supporters.
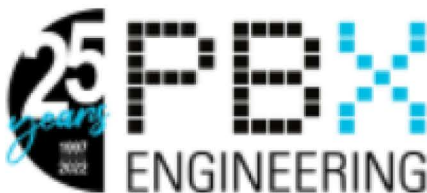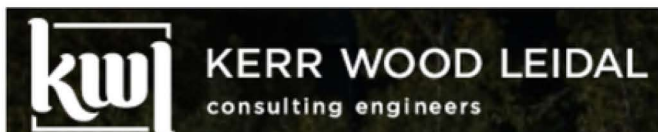
Our Advisory Board

MARCELLUS MINDEL

Marcellus Mindel is Head of Advanced Studies (CAS) at the IBM Canada Lab. His mission is to create transformative benefit for business and society through work integrated learning and applied research collaboration with students and faculty. Marcellus is passionate about creating inclusive communities of practice where multidisciplinary teams of students work "in the wild" to help service organizations. The most personally rewarding aspects of his work include collaboration with outstanding researchers and the development of future leaders inside and outside IBM.

MICHELLE MAHOVLICH

Michelle is Director of Engineering and Public Works with the City of Langford where she has worked for the past 14 years. Her responsibilities include overseeing road maintenance, new capital construction and new subdivision construction. Prior to working with the City of Langford Michelle worked in the private sector as Land Development Manager at the Bamberton Site in Mill Bay where she had managed the remediation of the former cement plant at this location. Michelle has worked in both geoscience and engineering fields having started her career in exploration geology, geotechnical engineering and then contaminated sites engineering.

VICTOR V. RAMRAJ

Dr. Victor V. Ramraj is Professor of Law and Chair in Asia-Pacific Legal Relations at the University of Victoria in British Columbia, Canada. Since 2017, he has served as Director of the of the Centre for Asia-Pacific Initiatives. Before returning to Canada in 2014, he spent 16 years at the National University of Singapore's Faculty of Law, and was twice seconded to the Center for Transnational Legal Studies in London. He also teaches regularly in the LLM in Business Law at Chulalongkorn University in Bangkok, Thailand. His recent research interests and publications span comparative public law, transnational regulation, and the regulatory challenges arising from the state-company relationship.

MEETA KHURANA

10 years as Associate Director, Engineering/CSC Co-op and Career Services at University of Victoria. I have previously worked at Nortel Networks and Alcatel Lucent (now known as Nokia) as a Software Designer/Developer. Have a Master's degree in Computer Science from Western University, a Bachelor in Information Systems from DePaul University, Chicago, US and a B.Sc. in Physics, Chemistry and Math from University of Lucknow, India.

MARCO PIMENTEL

Marco Pimentel is the Chief Marketing Officer at Redbrick - the parent organization to a portfolio of companies including Assembly, which he Co-Founded. Tasked with overseeing Redbrick's marketing and business objectives across all products and platforms, Marco is focused on connecting the organization's teams, nurturing creativity, and aligning the company's goals and objectives. His deep understanding of marketing, branding and partnerships was integral to the early growth of Redbrick, and its eventual place on the PROFIT 500 growth list.

RACHEL GREENSPAN

Rachel Greenspan is the Senior Director of Policy and Programs for Network BC in BC's Ministry of Citizens' Services. Her team's mandate is to connect all households in British Columbia to high-speed internet by 2027. Rachel has a strong background in technology policy and international relations. She is driven by a passion for public service, digital transformation, professional development, and tech workforce issues. Rachel's career has spanned positions in internet policy, journalism, the U.S. defence sector, and education. She was previously the General Manager for Lighthouse Labs in Eastern Canada, focusing on building a strong tech community and training the next generation of software developers. She believes strongly that career paths in technology do not need to be linear, and cares deeply about helping to grow a diverse and inclusive work force in the tech sector and beyond.

Our Executive Team

INSPIRE Founding Director

INSPIRE was founded by Dr. Daniela Damian – Professor of Software Engineering at the University of Victoria, 2022 Special Advisor to Dean on Inclusive STEM and Community-Engaged Innovation, as well as, CAPI Senior Research Fellow. Receiving support from the University of Victoria's Faculty of Engineering & Computer Science, Faculty of Science, CAPI, as well as international and local organizations working within the fields of Engineering and Science.

Dr. Damian's own research motivated her to create the program. While at the University of Victoria, she has studied the success and failure of multicultural, globally distributed software engineering teams. She believes the most innovative and successful teams are the ones that can effectively communicate and represent society's diversity.

As director of the INSPIRE Program – Dr. Daniela Damian focuses on creating business strategies and proposing implementation methods for the program, researches literature on EDI, communicates with partnering company executives on program advancement, prepares business plans, budgets, and provides the executive team with the resources they need.

DR. DANIELA DAMIAN

Daniela is a Professor of Software Engineering in University of Victoria's Department of Computer Science, and a PEng in Software. She is the Special Advisor to the Dean on Inclusive STEM and Community-engaged Innovation in UVIc's Faculty of Engineering, and a Senior Research Fellow at the Centre for Asia-Pacific Initiatives. She also leads SEGAL, the Software Engineering Global interAction Laboratory at UVic, where she directs research in human factors and diversity in software engineering. As an immigrant to Canada, she has experienced, reflected on and become passionate about diversity and inclusion in software development and now wants to lead changes towards more inclusive STEM fields. Recently she was the recipient of the 2020 REACH Award for Excellence in Teaching for Experiential Learning at UVic, the 2021 Google Award for Inclusion Research, and the 2019 Royal Society New Zealand Catalyst: International Leader Award.

INSPIRE Apprentice Garage Strategists

Apprentice Garage Strategists are two experienced education leaders and industry strategists that have joined in on the planning of the INSPIRE Apprentice Garage Program from IBM's Canada Advanced Studies division. They have helped with the planning, attainment of educational resources, and execution of the Apprentice Garage Program.

JENNIFER COLLINS

Jennifer Collins is the Community Strategist at IBM Canada Advanced Studies. Her mission is to engage and activate communities in projects to iteratively solve the complex challenges we face in society. Jenn is passionate about creating experiential learning opportunities for students to discover and connect with their community that support their journey towards a meaningful goal and purpose in their lives. Since 2015, Jenn has practiced, coached and taught Enterprise Design Thinking with researchers, educators, students, change makers and community activists. She has paved a path for her team to support the exploration of Enterprise Design Thinking applications with diverse stakeholders in urban development, public consultation, indigenous clean energy, municipal innovation, youth homelessness, watershed management, waste mitigation, student engagement, food security, community building, and policy co-creation. She has demonstrated that diversity and inclusivity are essential to resolve the many critical challenges facing our world today.

LILA ADAMEC

An experienced IBMer, Lila Adamec has held several roles from corporate marketing, sales, business partners and higher education and academia. She has held both world-wide roles and teams managing local and remote teams. She established the IBM Innovation Centre for Business Partners a training and hands-on lab environment; created the Learn@IBM skills program for higher education institutions and students and the work integrated learning framework; launched the IBM Startup Entrepreneur and Innovation Centre and co-created the centre for advanced computing. Currently she is the Principal Education Strategist for Canada working with academia. Lila has degrees in Extractive Mining and Metallurgy as well as a Marketing. She is an extensive traveler, avid reader, and community volunteer.

INSPIRE Apprentice Garage Coordinators

Apprentice Garage Coordinators are graduate students from the University of Victoria, and McMaster University working directly with the Director on managing program timeline, curriculum design and evaluation, trajectory, and overall supervision of the program including partnerships, and supporting resources.

ALI HOSNY HAMDY

Ali believes that everyone has the capability to change the world, all it takes is making use of a simple yet underutilized tool called education. Let's turn our dreams into reality and better our world together. Currently, Ali is an undergraduate Computer Engineering & Society student at McMaster University, and had recently completed an internship at IBM. As a S.W.A.T Developer at IBM Canada Advanced Studies I became both experienced and certified in human centered design thinking practices like IBM Enterprise Design Thinking, IBM Garage Methodology, and IBM Educational Advocacy. Through successfully leading a garage team working on food insecurity issues occurring within the city of Ottawa's vulnerable communities utilizing IBM Agile Methodology, being at the spearhead managing, organizing, and facilitating multiple international educational IBM events, conferences, and programs, as well as, leading several IBM teams through complete hackathon-style project cycles I have really come to a better understanding and appreciation of the power of inspiring change through community-driven innovation and education.

NOWSHIN NAWAR ARONY

Nowshin is a Computer Science Master's student at the University of Victoria. Her previous experience in Computer Science Education enabled her to identify the challenges students face to find purpose in learning new tools and technology in STEM, specifically in the underrepresented groups. Nowshin believes the values of the INSPIRE program to engage students in real-world projects while learning will create a driving force in finding motivation. Her passion for diversity and inclusion in STEM is what lead her to work with INSPIRE. She is incredibly excited to build this experiential learning environment for the students and take a step towards a better world.

INSPIRE Ambassadors Coordinators

Ambassador Coordinators are graduate students from the University of Victoria working directly with apprentice garage team ambassadors (leads) to manage, advise, and facilitate the resources needed to ensure that the apprentice garage students have all the knowledge bases, advice, and technical resources for success.

KEZIA DEVATHASAN

Kezia is currently a Computer Science undergraduate student at the University of Victoria. She directed the WECS (Women in Engineering and Computer Science) group for this last incredible year, guiding an amazing group of students through the COVID-19 pandemic while helping the group grow and gain traction at the university. Through her leadership of WECS, Kezia has learned about the importance of community, and this has reflected her passion for INSPIRE. Kezia is dedicated to education and EDI in STEM, which is what excited her about working with INSPIRE. She is much looking forward to mentoring Apprentice Garage projects as a Student Ambassador, and to see the power of community reach its full potential.

JENA WHEELDON

Jena has recently earned her bachelor's degree in Electrical Engineering at the University of Victoria. As Outreach Coordinator for Women in Engineering and Computer Science (WECS), she found the value in sharing her experiences and knowledge with others to create a more positive and inclusive space. WECS allowed Jena to integrate her love of technology with her passion for being a positive female role model for young girls interested in STEM. In Jena's spare time you can find her in a pottery studio attempting to make mugs.

Our Apprentice Garage Ambassadors

INSPIRE Apprentice Garage Ambassadors

INSPIRE Ambassadors are enthusiastic senior undergraduate, graduate, or recent graduates who are passionate about mentoring and advocating for science and engineering and diversity and inclusion within its disciplines. They coach an Apprentice Garage Team on its collaboration with the community partners, through problem discovery, brainstorming, co-creating, and validating solution prototypes. They also connect with professionals and innovators through the INSPIRE network, a community of like-minded individuals.

PAYTON CHERNOFF

Payton is in her final year of a mechanical engineering undergraduate degree. She is excited to be a part of a diverse and inclusive team of science and engineering-passionate people who want to make a difference. She struggled to feel like she belonged in her early undergraduate years, and wants to help more people find their place and realize that their skills and creativity can help solve important issues.

AIKATERINI TAVRI

Aikaterini is in her final year of a doctoral degree in the department of Geography. She is a remote sensing specialist with a love for teaching about satellites and environmental monitoring. Her passion for climate change solutions led her to her PhD project on sea ice melt monitoring using satellite data. For Aikaterini, INSPIRE is a great opportunity to make a difference in science and engineering by bringing together a diverse team and supporting them in creating a unique and sustainable solution. She is excited to work with students and lead an impactful project.

Ambassador Training

Prior to the onboarding and launch of INSPIRE's inaugural cohort, all ambassadors were taken through comprehensive training led by Ali Hamdy and various IBMers across covering all the topics, lessons, methodologies, and technologies that would be utilized by the ambassador's future garage team members. As a result of this training the ambassadors delved into creating solutions that expand the accessibility of the current equity, diversity and inclusion (EDI) resources that exist at the University of Victoria. Currently, an active project is underway following the fruits of the team's findings.

JENNA MEHLMANN

Jenna was born and raised in Victoria, BC. She has a BSc in microbiology, and is also a laboratory instructor within the Biology department and teaches second-year Cellular Biology and Genetics. She is extremely passionate about advocating for the accessibility of education within the science and engineering community and is grateful to be working with like-minded individuals this summer.

CALEM BARDY

Calem is in his final year of electrical engineering. He is excited to be part of INSPIRE because it's an opportunity to be a mentor for other engineering students while also promoting inclusion and sustainability within the community. He's especially excited about the real-world integration and conversations with those affected by the projects.

Our Program Mentors

INSPIRE Program Mentors

21 Industry professionals from both local partnering organizations as well as global partners have been working diligently side-by-side with the Apprentice Garage Teams advising the students both on a team and one-on-one basis, on how to handle project pivots, manage various project phases, as well as how to refine their pitches. Mentors were located in Canada, The United States, Brazil, China, and Pakistan.
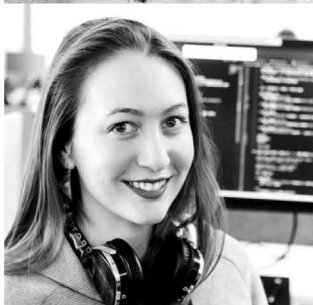
Jennifer Collins
Saniya Zubair
Stephanie Willerth
Soumya Thapliyal
Mahum Azeem
Rachel Greenspan
Erika Wiedemann
Ana Carolina de Lima Angelo
Mehreen Khan
Deqwain Hart
Rifang Liang
Holly Grewall
Nicole Ormiston
Annie Beauvillier
Daniel Bourdage
Madeline Geneau
Nazma Panjwani
Jeffrey Hunt
Matthew Wegener
Curran Crawford
Michelle Mahovlich
Nash Cook

Our Community Partners

ClimAct

ClimAct: Engaging teens through a gamified application to encourage climate action.

A team of 4 students aged 12-15 all from different schools (Matteo Carere: 7th grade at Ecole Brodeur, Sebastian Damian: 7th grade at Ecole Brodeur, Thea Damian: 9th grade at Claremont secondary, Zeinab Guitouni: 9th grade at GNS). They entered the Westmont Design Challenge competition, which was a design challenge towards a sustainability problem, with no intention to win, but for the learning opportunities instead. They ended up winning first place in the competition with a video of our plan for the app.

They hope to make a difference with their app and help guide teens in the right direction in maintaining an eco-friendly environment. They hope to have a working MVP by the end of the summer and have it adopted in schools on the island in September!

LEARN ABOUT THE 2021 WESTMONT PRIZE HERE

Redbrick

CIWB: A platform that calculates the carbon impact of any website.

The project involves researching and implementing strategies to calculate the carbon impact of web browsing. Students will work with their teammates to design and build web products that utilize the Web API of Redbrick, one of our industry partners. Student teams will be responsible for evaluating and choosing new technologies and libraries to incorporate into the project and writing and maintaining unit tests. The team will be working very closely with Redbrick, to create this solution.

Redbrick is known as a company of innovators and investors, conceiving of and acquiring products that superscale into disruptive digital companies. Every day, its products grab the attention of engaged audiences around the world, reinventing business across industries, countries and continents.

LEARN MORE ABOUT REDBRICK HERE

Greater Victoria Coalition to End Homelessness

GVCEH: A platform to connect shelters and make information accessible to women+.

The Greater Victoria Coalition to End Homelessness (the Coalition) was formed in 2008 with a mission to end homelessness in the capital region. The Coalition consists of local housing, health and social service providers; non-profit organizations; all levels of government; businesses; the faith community; people with a lived experience of homelessness (past or present); and members of the general public. This diverse membership, referred to as Coalition Stakeholders, come together to collectively address the needs of individuals experiencing homelessness in the capital region.

The Coalition's activities centre around funding effectiveness, system effectiveness, inclusiveness, evidence-based reporting, and building capacity. As a backbone organization the Coalition facilitates information sharing, relationship building, and strategic planning to ensure the collective efforts of stakeholders are making the greatest possible difference.

LEARN MORE ABOUT THE COALITION HERE

NatuR&D

RUSH: An open-source & accessible mapping platform for local community .

NatuR&D is part of a collaboration across sectors to create an open-source & accessible mapping platform that integrates emerging, existing, and real-time datasets on community and ecosystem health indicators on the regional geographic information system (GIS) system to facilitate climate action. The municipal GIS maps are missing information to assess health outcomes. Without integrated data on projected climate change impacts, ecosystem health status, and hazard areas, it is impossible to know whether we are making good decisions. The aim of this project is to make complex data accessible through the technologies we use day-to-day so that active users as well as people living within these areas can verify and participate in revealing the opportunities to make the world a better place.

LEARN MORE ABOUT NATUR&D HERE

Swan Lake Christmas Hill Nature Sanctuary

SLCHNS: monitor visitor traffic to and from the park is a secure and anonymous way.

Swan Lake Christmas Hill Nature Sanctuary is 160 acres of the publicly accessible urban landscape in Greater Victoria with a distinct ecosystem and a wide array of native plants and animals. This extraordinary habit is being rapidly encroached upon by urbanization and this project will focus on determining a viable method to monitor the visitor traffic to the habitat will great precision. The goal of the monitoring system will be to use the data to conserve and protect these waters and land.

The Swan Lake Christmas Hill Nature Sanctuary is a local non-profit nature sanctuary located in Victoria B.C. It is home to a diverse ecosystem of wildlife, plants, and waters that face threats from increased urbanization and foot traffic.

LEARN MORE ABOUT SWAN LAKE HERE

Victoria Brain Injury Society

VBIS: making support for adults with ABIs more accessible at the touch of a button.

The Victoria Brain Injury Society (VBIS) supports, educates, and advocates for adults with acquired brain injuries and their families. They provide individual support services to brain injury survivors and their families along with programs such as Acquired Brain Injury 101 (ABI), Coping Strategies, Enquire Assisted Learning, Mindfulness, Yoga, Peer Support, and Family and Friends Support. The Apprentice Garage team partnered with VBIS has developed a mobile app with an accessibility-focused UI to ensure that adults with ABI's and their loved ones can find support without barriers.

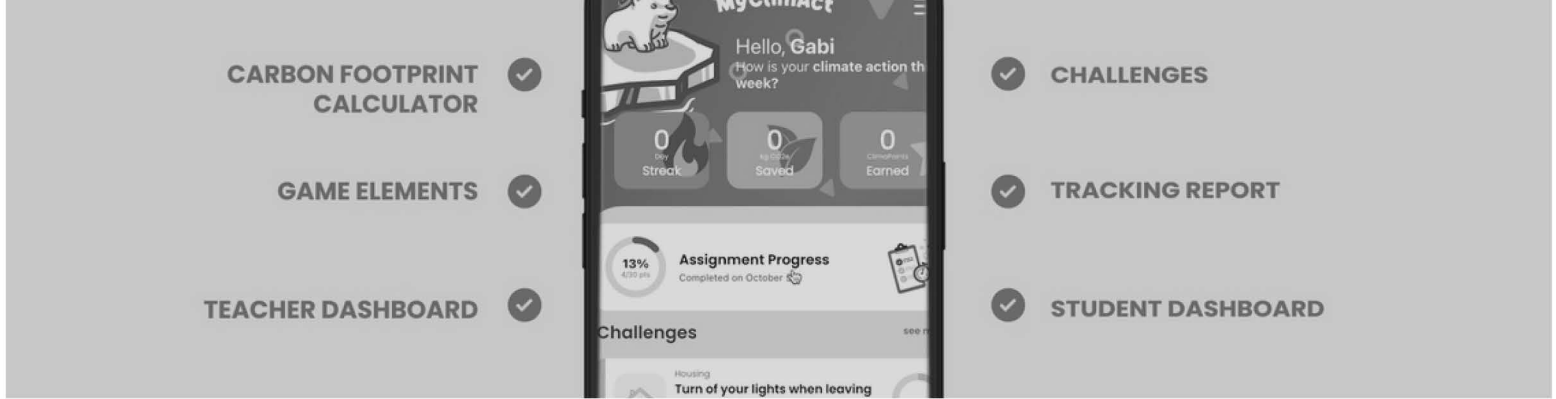**LEARN MORE ABOUT VBIS HERE**

Our Apprentice Garage Projects & Teams

ClimAct

A gamified approach to tracking users' carbon footprints and suggesting attainable, fun challenges to make climate change action feel more feasible to our youth.

CARBON FOOTPRINT CALCULATOR ✓

GAME ELEMENTS ✓

TEACHER DASHBOARD ✓

CHALLENGES ✓

TRACKING REPORT ✓

STUDENT DASHBOARD ✓

ClimAct

During a sustainability competition, four students came up with an idea. What if you could gamify climate action? ClimAct is an app that will encourage youth to participate in personalized activities to lead a sustainable lifestyle. Using a carbon footprint calculator, students will be able to see how great their impact is on the environment and earn points by completing activities to reduce that footprint. As the ClimAct team continues to develop the app, their goal is to have educators implement it in their classes as a tool to empower students and show them how they can have a personal positive impact on the climate.

Climate change is a long-standing global issue that has recently been an integral part of high school curricula. Despite the intensive education students receive, most youth find climate change to be an overwhelming, anxiety-inducing reality. This INSPIRE Apprentice Garage team is working with local schools in the Greater Victoria area (Claremont Secondary, GNS, Westmont Montessori School and Ecole Victor Brodeur) to introduce an app, ClimAct, into high school education. The app aims to track users' carbon footprints and suggest attainable, fun challenges to make climate change action feel more feasible to our youth.

"Receiving last-minute feedback on our school presentation was overwhelming at first but it made me feel more confident and adaptable as I was able to jump in and make the changes right away. As a professional, you have to make quick decisions when you have a deadline."

– ClimAct Team

Meet The Team

GABRIELLE APARECIDA PIRES ALVES

Gabrielle Alves is currently enrolled at the University of Victoria pursuing a Masters of Science at SEGAL Lab where she is studying user-centered processes for climate change solutions.

MANISH SIHAG

Manish Sihag is a Graduate research student in the Computer Science department at the University of Victoria, with 2.5+ years of experience in commercial application development and a Bachelor of Technology focused in Computer Science.

AMY PENNEY

Amy Penney just finished her second year in Math and Computer Science at the University of Victoria. In a world that's filled with change and unknowns, Amy enjoys being able to explain even just the smallest piece of it with certainty using mathematics.

FANNY WEBER

Fanny Weber is an international student from France and a second-year undergraduate in commerce with a major in International Business at Concordia University in Montreal.

ADAM BOOKOUT

Adam Bookout is a Software Engineering undergraduate student at the University of Victoria. Joining INSPIRE has presented as an unimaginable opportunity for personal growth.

Swan Lake Christmas Hill Nature Sanctuary

Internet-of- devices and platform that monitor visitor traffic with great precision, allowing nature sanctuaries to conserve and protect their waters and land.

Swan Lake Christmas Hill Nature Sanctuary Project

Swan Lake Christmas Hill Nature Sanctuary (SLCH) is a nature sanctuary on South Vancouver Island that is home to endangered and native species of plants and wildlife, including 180 different species of birds. Staff at the sanctuary have noticed more people visiting for recreational use. This creates issues for site ecology - for example, these visitors may go off designated trails and create their own, in turn, trampling and killing native plant life. So, SLCH wants data on how many people are visiting and where foot traffic is heaviest, and we are developing something to help them get that data.

Due to a lack of available visitor data, it has become increasingly difficult for the Swan Lake Christmas Hill Nature Sanctuary (SLCH) to sustain site ecology with a rapidly increasing visitor population. By combining hardware and software technologies, we aim to scale our solution to conservation parks around the globe. Adapting to user needs and schedules, allowed us to . Through a boots-on-the-ground approach, we were able to empathize with our users and develop a core understanding of the problem, and from there develop a solution that respected the privacy of user whilst being mindful of stakeholder's needs.

"The INSPIRE program has taught us a lot about working in a professional environment. We learned about making arrangements with stakeholders and working around schedules and availability changes. "

– Swan Lake Team

Meet The Team

FIONA BECHTOLD

Fiona is going into her second year at UVic in the biomedical engineering program. She is passionate about applying her engineering skills to human-based problems. In the future, she hopes to apply her engineering skills in order to make advancements in the medical field.

AUSTIN MBURIA

Austin is from Kenya, and he is an undeclared second-year Engineering student at the University of Victoria. He has a wide range of interests which has made it difficult to choose a particular engineering discipline. He feels he still has little knowledge of what different engineers do on a day-to-day basis and would like to learn more about that before making a decision.

MADELINE TENNIER

Madeline is a third-year Computer Science student at the University of Victoria, is interested in how technology can help people, and is passionate about leadership, human-centered design, and applying what is learned in the classroom to real-life problems.

JOHN BURGESS

John is a third-year Mechanical Engineering student at the University of Victoria. Through INSPIRE he wishes to apply the skills he has learned throughout his education to real-life issues, particularly in regard to helping environmental problems. He is passionate about the outdoors and spends his free time camping.

18

beds, mats and rooms available

phs
COMMUNITY SERVICES SOCIETY

beds, mats and roo...

Arbutus Shelter
Emergency Housing

PROJECT 3

Greater Victoria Coalition to End Homelessness

An easily accessible online platform for women+ at risk of violence and homelessness to learn about and access safe and appropriate housing, supports, and services.

...midate action...

📞 CALL   ✉ EM

Hope
SALVATIO   Today
ARMY

beds, mats and roo...

26

beds, mats and rooms available

...th Shelter

The Salvation Army
Emergency Housing

...midate action:

📞 CALL   ✉ EMAIL

Press the buttons for immidate action:

📍 MAPS   📞 CALL   ✉ EM

LEARN MORE ABOUT THIS PROJECT HERE

Greater Victoria Coalition to End Homelessness

Each night, a thousand women and their children are turned away from shelters in Canada due to a lack of a coordinated support system as well as volunteer burnout. Women+ struggle to flee intimate partner violence and find their supportive recovery systems.

The Greater Victoria Coalition to End Homelessness (GVCEH) is a regional backbone organization that, in collaboration with the homelessness sector in the Greater Victoria region, works towards a mission of ensuring there is adequate and safe housing, shelters, supports, and services for everyone facing homelessness. The Garage Apprentice team partnered with GVCEH has developed an easily accessible way for women+ at risk of violence and homelessness to learn about and access safe and appropriate housing, supports, and services.

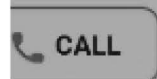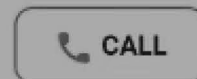Currently, the team is in the process of launching this initiative as a full-scale non-for-profit tech start-up with its primary focus on an app that enables homeless shelters, and women shelters, to manage everything to do with waitlists, logbooks, and internal reporting from one spot- all while maintaining data privacy and anonymity.

"We rely on each other: even if it goes unspoken, it's reflected in our progress. There's a sense of humble pride in what we've accomplished so far and in the challenges we've overcome. The project is going to succeed."

– GVCEH Team

Meet The Team

MOBINA RAFIEIPOUR

Mobina is a fourth-year biomedical engineering student. She is hoping to practice her knowledge to give back to the community that supported her throughout her formal education by providing a support system for women+ fleeing domestic violence.

BACHAN GHIMIRE

Bachan is a graduate research assistant at UVic. He graduated BSc. Computing from London Metropolitan University with first-class honours in 2018. In 2017, he co-founded Kathmandu Codes, aiming to cater to businesses and organizations.

PARKER DEBRUYNE

Parker is a second year Computer Science & Statistics undergraduate, and proud member of the INSPIRE program. He was excited to be part of the GVCEH project because it addressed a social issue that was deeply important to him: homelessness and intimate partner violence.

AHMED BELLO MOMOH

Ahmed is a senior engineering student at the University of Victoria. He has a passion for exploring and working on environmental sustainability projects. He is also interested in research and design opportunities in the field of mechanical and biomedical design.

o exit full screen

ap contributors

PROJECT 4

Carbon Impact of Web Browsing

A Web API that accurately calculates the carbon impact of any given website, bringing to light the severe impact things such as web-browsing have on our environment, especially on the climate.
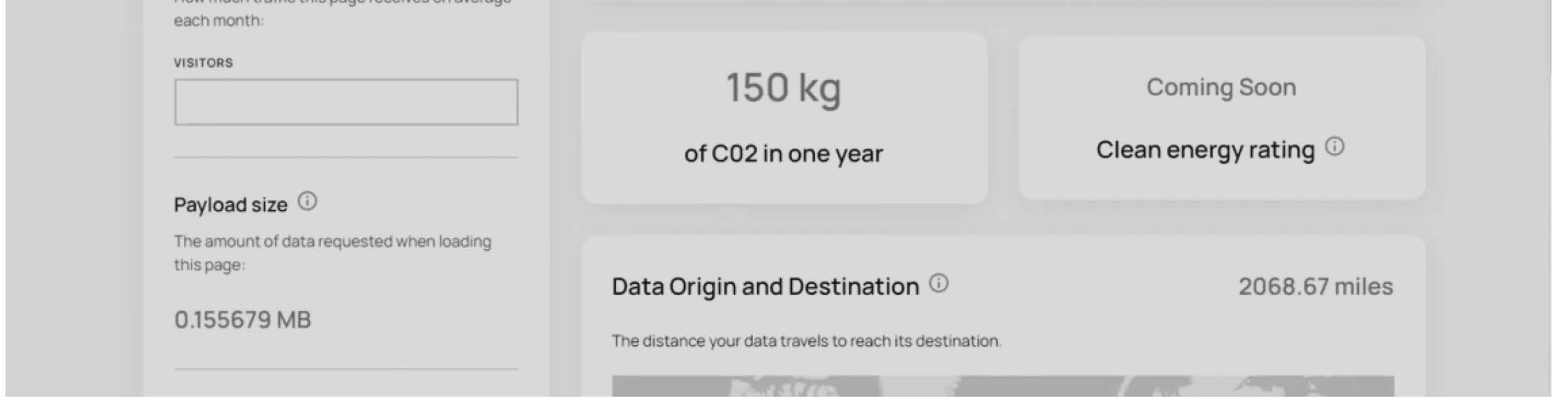
6 trees

It takes 6 trees a whole year to absorb the CO2

16 cars

This webpage has the same annual CO2

wh

LEARN MORE ABOUT THIS PROJECT HERE

VISITORS

Payload size ⓘ

The amount of data requested when loading this page:

0.155679 MB

150 kg
of C02 in one year

Coming Soon
Clean energy rating ⓘ

Data Origin and Destination ⓘ   2068.67 miles

The distance your data travels to reach its destination.

Carbon Impact of Web Browsing

Carbon emissions are causing several impacts on our environment, especially on the climate. However, most people either underestimate or are unaware of the climate impact of digital activities such as browsing the internet.

In collaboration with Redbrick, this team has created a website that will accurately calculate the carbon impact of any given website. To solve a problem, the problem needs to be known. By showing users the carbon impact of their web browsing, the team hopes they will be encouraged to find alternatives to reduce CO2 emissions from browsing the internet and, at the very least, be mindful of their web browsing habits.

This Apprentice Garage team has designed a website that will allow anyone to learn the carbon impact of a website by simply inserting a URL. They hope that this website will create awareness around the often-disregarded impact of web browsing on the climate.

The team is currently working with Redbrick on the Digital Scope project to publish a research paper surrounding the calculations that were developed for this web-based API, and to create an industry standard that will help move all web based organizations towards a more sustainable future.

"One of the biggest intakes from the workshops and training sessions is communication. I feel that using "why" is essential to get to the root causes of problems. Therefore, we can understand the project even better by having a clear understanding of the main problem."

– CIWB Team

Meet The Team

EDRA PRASETIO

Edra is a fourth-year software engineering student from UVic. He finds his passion in arts and video games which he would like to incorporate later in his career. Through INSPIRE he wants to learn more about empathy and working with people within a development cycle to develop his technical skills.

MOLLY CRAIG

Molly is a Computer Science student at UVic and she will be starting her third year in the fall. One of her greatest joys is books, especially ones like Atomic Habits, When, Why We Sleep, The Power of Habit, Designing Your Life, and Lean In as they leverage our understanding of the human condition in ways that can be applied in our daily lives.

XIN DENG

Xin Deng is from China, pursuing his second degree in computer science at UVic. He got his first degree in sociology and had four years' work experience in community services and corporate social responsibility consulting. He is passionate about environmental issues and is looking forward to harnessing the power of tech to help communities.

GUOLIANG LI (LEE)

Lee is a PhD student in UVic. He is interested in machine learning, blockchain and communication system. He has years of engineering experience in hardware and embedded systems. Global warming, pollution and other environmental issues are his concerns.

Copy of North Park H...
Riley Sondergaard

SHARE

Transportation/Travel

- Bike Route
- Pandora Block

Areas of Relief

- Misting S
- City of Vi
- Substand
- Ground F

... 10 mo

Areas of Concern

- Hockey rinks
- Notably not open
- Parking Lot
- Large parking lot
- Large parking lot
- Street Trees

PROJECT 5

The Resilient Urban Systems & Habitat Initiative

A simple to use web-based tool that connects communities to the data that motivates policymaking. By leveraging geographic information systems (GIS), the data can be made comprehensible and accessible to all community members.

LEARN MORE ABOUT THIS PROJECT HERE

The North Park Heatwave Map

Connectivity on the Saanich Peninsula

The Pollinator Project

WSÁNEĆ Peninsula Environmental Organizations

Making room:

Zero

The Resilient Urban Systems & Habitat Initiative

Climate data is hard to understand, access, and is mostly available on a global scale. 67% of people are not participating in climate action because they feel the issue is too large & overwhelming. The Resilient Urban Systems & Habitat Initiative (RUSH) seeks to foster ecological healing through community engagement by centralizing information on an interactive landing page that reports regional climate change vulnerabilities, allowing for local communities to make collective decisions on changes that must be made.

The RUSH project aims to support the RUSH initiative. The initiative seeks to foster ecological healing through community engagement. They asked their Garage Apprentice team to create an interactive landing page that reports information about regional climate change vulnerabilities: NatuR&D. As a result, the community can develop consensus on the risks and corresponding preventative actions that are needed. This tool will connect communities to the data that motivates policymaking. Further, by leveraging geographic information systems (GIS), the data can be made comprehensible and accessible to all community members. In the long term, NatuR&D can become a tool for the region to develop community autonomy, awareness, and agency.

"Talking to professionals familiar with our fields of work was a great experience. They could understand our work and ask thoughtful questions that forced us to think. After talking to these people, there was a feeling of relief and reassurance within the team."

– RUSH Team

Meet The Team

K'SANA WOOD LYNES-FORD

K'sana is a third-year student at UVIC, majoring in Chemistry for Medical Sciences. She is an Indigenous student from the Namgis, Gixstan and Tsimshian First Nations. K'sana loosely translates to "woman of the river' after the Ksan River, which runs through traditional Gixstan territory. K'sana is excited to work with the RUSH initiative because of her experience in climate change and the clean energy sector. She was drawn to the INSPIRE Program because it combines two of her passions, science and engineering, and community-oriented work.

YASSIN GUITOUNI

Yassin is a second-year computer science & business student. His biggest passion in life right now is sports. I love playing soccer and basketball and watching all kinds of different sports. I am hoping that through INSPIRE I can pick up a lot of new skills that can help me work on my passion project which is a sports-related app. I truly believe that through sport, we can bring people together and foster more love for one another.

KRIS PEWAR

Kris is a third-year student at UVic in the computer science and physics program. I hope to further explore the areas of nuclear, quantum, and experimental physics going forward with my undergrad. Through the INSPIRE program, I've recognized the deep value and reward of empathetic and user-centered design when combined with analytic thinking. I will continue to look for opportunities that uphold these values in the future. My passion lies in music, I love to play guitar and write songs with friends, while experimenting with sounds from different electronics.

VBIS

Victoria Brain Injury Society

⚙️ **Tutorial**

🔍 Search

Programs

My Schedule

VBIS Schedule

Other

News

PROJECT 6

Victoria Brain Injury Society

An easy to navigate mobile app which directs clients towards appropriate resources to help mitigate current acquired brain injury symptoms or needs.

LEARN MORE ABOUT THIS PROJECT HERE

Victoria Brain Injury Society

Our team is working with the Victoria Brain Injury Society (VBIS) which aims to support, educate, and advocate for adults with acquired brain injuries and their families; and to increase community awareness about acquired brain injuries. Particularly, VBIS provides individual support services to brain injury survivors and their families along with programs such as Acquired Brain Injury 101 (ABI), Coping Strategies, Equine Assisted Learning, Mindfulness, Yoga, Peer Support, and Family and Friends Support.

This team has developed a mobile app for VBIS, which directs clients towards appropriate resources to help mitigate current ABI symptoms or needs and encompasses VBIS's information and programs. After many conversations and research into barriers of access faced by those with ABIs, the app was designed to be easy and comfortable to use for almost anyone. The app needs to present and visualize data and information in an ABI-friendly, easy and comfortable way for people with ABI susceptible to visual and cognitive overload. Once the app has been launched for VBIS, the team hopes to offer customized mobile applications to brain injury societies across BC, and even Canada. Currently, the team is developing a fully deployable system that will be delivered by December, with testing beginning as soon as mid-November.

"Diversity is what allows this to work. Being able to think differently from the person next to you can provide an advantage to a certain situation, including foreseeing an event occurring if we continued with this path"

- VBIS Team

Meet The Team

SYDNEY MACDONALD

Sydney is a first-year student in Software Engineering at UVic. Sydney loves to code and wants to learn more about creating things with technology. She is excited to learn more about engineering and build her engineering skill set so she can solve problems effectively. Sydney aims to use her software skills to solve real-world problems and make a positive difference.

MARCUS RINZSCH

Marcus is between his second and third year of mechanical engineering at the University of Victoria and is an apprentice-garage member of the Victoria Brain Injury Society (VBIS) team. Raised in Victoria and spending most of his free time CAD designing, sketching or just randomly thinking about physics, Through this project Marcus hopes to further engage in his passion of engineering through the development and implementation of a real system.

SHIYU(VIVIENNE) ZENG

Vivienne is a fourth-year software engineering student. She is interested in designing and developing apps and websites, particularly developing for artificial intelligence. She has experience in quality assurance and software development and is willing to improve her development skills in the future.

SHAMIM SHIHAB

Shamim is a final year graduate student also working as a research assistant at the University of Victoria. Previously he worked with the Bangladesh Power Distribution Board as a design Engineer. His prior experience as a design engineer, as well as his present research on designing authentication schemes for IoT devices, provide him with the analytical ability to assess and solve problems.

Current Projects

INSPIRE is thrilled to announce that we have launched a several new initiatives as well as expanded on the continuation of some of our summer apprentice garage projects for the Fall 2022 semester:

• INSPIRE x CIFAL x Claremont joint project
• Launch of INSPIRE in Nepal - Team AKAS
• Launch of the INSPIRE ClimAct project in Greater Victoria Schools
• Development of the INSPIRE EDI Helpline
• Launch of Herluma as a standalone start-up
• Testing of the VBIS Project in several ABI Societies located in Victoria, as well as, on Victoria Island
• Launch of the INSPIRE Podcast

FIND MORE ON THESE PROJECTS HERE

THANK YOU

"I have thought about creating a program such as Inspire for many years. While this was has been wonderful to dream about, I cannot put into words how exciting it is to see the vision of this program become a reality. I sincerely thank our students, ambassadors, mentors, community partners, and supporters for helping me create something amazing at the University of Victoria, and beyond."

– INSPIRE Director

"It is difficult to describe how much we have learned from our experiences in the Inspire program. Through this process we have seen how much our work is valued in our communities, and our experiences in this program have put us years ahead in our careers. We are incredibly grateful for all of those who have supported the Inspire program in some way; you have truly changed the lives of many science and engineering students at UVic. Thank you!"

– INSPIRE Students

"We would like to thank our program supporters, for their incredible support in the first year of the Inspire program. Your contributions have made it possible for our students to create projects that will impact countless community members, and for our students to embrace the power of this interdisciplinary, experiential learning process. You have provided mentorship, opportunity, and given many students at the University of Victoria the confidence and skills they need to become successful in their STEM careers."

– INSPIRE Executive Team

"We would like to extend a huge thank-you to the supporters of the INSPIRE program! We have watched our students grow so much during their projects and we are each incredibly proud of all of our teams. None of this would have been possible without your support, mentorship, and guidance."

– INSPIRE Ambassadors