THE UNIVERSITY OF BRITISH COLUMBIA

Help design the future of education

SUPPORT UBC'S EMERGING MEDIA LAB

EMERGING MEDIA LAB

The world is changing, and education must change with it. The potential to revolutionize the classroom—to take students beyond the page, and even the screen, to deeply engage with information—is here.

In 2017, UBC created its award-winning Emerging Media Lab (EML) to be part of this education revolution. The EML is an experimental hub for the university where faculty, students and staff from all different disciplines collaborate with industry and community to design the future of education. Using cutting-edge technologies, EML members develop new and more effective ways of learning through virtual reality, augmented reality, artificial intelligence and machine learning.

"We work together at the EML. We listen and learn and collaborate. This leads to innovation, the expansion of knowledge and an open invitation for us to continue to explore and learn together."

– Kathryn Gretsigner, Faculty in Residence, EML

FOSTERING TRUE INNOVATION

Since its inception, the Emerging Media Lab has grown into a 63-member cross-disciplinary group and already has 24 proof-of-concept projects either completed or in development.

EML projects use immersive storytelling, 3D data visualization, photorealistic object representation, biosensing, interactive video and simulation spaces to help students learn faster and more successfully. These intensified learning experiences move learners beyond wonderment and help solve the most pressing challenges of teaching today: how to keep students engaged while helping them persist in problem-solving and build skills in teamwork, empathy, and mutual support.

These projects are dreamed up, built and tested in the unique EML environment, which promotes the free flow of ideas and collaboration by removing much of the artificial distance between those with more expertise and those with less. It provides space to dream wildly, and even more important, to fail—opening up the pathway to true innovation.


Photo: Paul Joseph

While they are busy changing the way people learn, students experimenting in the EML also gain problem-solving, team-building and technical skills—not to mention invaluable experience working with a range of emerging technologies—that will prepare them to be engines of creativity and innovation beyond the boundaries of UBC.

And as technology continues its rapid evolution, the EML will be there to provide the experimental space needed for UBC to keep pace and meet the ever-changing student learning needs well into the future.

> *"I like the freedom we have that some places probably wouldn't give, like being able to make big decisions on projects or working with a principal investigator [or client] directly."*
>
> *– Michael Goh, Student Developer*

CASE STUDY: BRINGING THE FIELD TRIP TO THE STUDENTS

The field trip is a time-honoured tradition that allows students to immerse themselves in different learning environments. But what if the place you want to go to is too far away? Too expensive to get to? Too dangerous?

Enter the Geography VR Case Study project. Led by Dr. Loch Brown and Dr. Arthur Gill Green in the Department of Geography, students created an immersive, interactive virtual field trip that brings the location to the students—not the other way around.

The team chose Prospect Point in Stanley Park for its many historical and geographical features. Students used 3D spatial environment models, ground-level photogrammetry and the Unity game engine to create a fully interactive virtual space. "Probably 70 to 80 per cent of the work done on this project has been either students creating content, writing code or creating technology," says Dr. Green.

"This kind of learning is invaluable," he adds. "We can then turn around and do this again but much more efficiently and much more quickly."

And because the project is publicly accessible, a trip to Stanley Park is now possible for those beyond the Lower Mainland—without a plane ticket.

In 2018 EML received the CUCCIO Innovation Award, in recognition of its role as a space for experimentation and an incubator of new approaches to enhancing student learning and engagement.

MOVING BEYOND THE START-UP PHASE

In its first two years, the EML has been in "start-up" mode, successfully proving the strength of its concept as a high-functioning, innovative lab where ideas for transforming education are thought up, created, and tested—all while providing a rich learning environment for students.

The next step is for the EML to evolve from a small-scale, experimental space to a powerful, sustainable driver of change, with the resources and leadership needed to allow ideas to leave the lab and truly transform the way students learn and educators teach.

CASE STUDY: A NEW WAY TO LEARN ABOUT METABOLISM

Metabolism can be likened to a complex transit map where stops represent chemicals and lines connecting stops represent reactions. Thousands of stops and routes exist within the map. But the complexity of metabolism is challenging to learn—so much so that this can lead to students wanting to give up on studying biochemistry altogether, according to Dr. Lindsay Rogers, an EML Faculty in Residence and instructor teaching biochemistry and molecular biology in the UBC Faculty of Medicine.

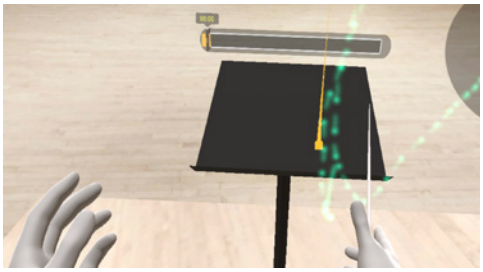
Unfortunately, very few learning tools present metabolism as a dynamic network. The EML aims to build a 3D metabolic map displaying all major chemical reactions within a cell. Manipulating this map to reveal, highlight, or hide particular reactions will support learners at all levels to understand the molecular functions of a cell.

However, there aren't enough resources within the EML to act on novel ideas with this level of complexity. With an influx of funding, the EML can take this concept out of the idea phase and create a sharable, open-source tool that can change the way students learn a vital but complicated biological process.

Holobrain Project

Photo: Microsoft


Photo: Takumi Hayashi



Interactive Orchestra Project

THE OPPORTUNITY

In order to realize and enhance the capabilities already developing in the EML—effectively moving the lab out of start-up mode and into a sustainable venture—UBC is seeking donor support. Additional funding will enable the EML to:

- Hire new staff members.
- Invest in new technologies (hardware & software), including the implementation of 5G network.
- Bring in industry professionals to mentor students and consult on scalable product development.
- Create pathways to disseminate knowledge (workshops, seminars, publication, conferences, travel and media production).

With these new resources in place, the EML will be able to:

- Contribute to richer, technologically enhanced learning environments that transform how teachers teach and how students learn.
- Scale promising ideas to bring immersive learning opportunities to learners beyond the university.
- Provide unique resources for faculty members to develop innovative teaching and research tools that benefit their students.
- Provide students with an unmatched learning environment, giving them invaluable soft and technical skills and enriching mentorship experiences that will prepare them for the workplace or future study.
- Contribute to the creation of best practices for emerging technologies.

Please join us in advancing this rapidly evolving and much-needed lab. Your gift will put UBC at the forefront of new pedagogy creation for the 21st century and strengthen a program that can positively affect thousands of students, faculty, staff and alumni across disciplines for decades to come.

Thank you for your consideration. For more information, please contact:

Janine Root
Director, Campus Initiatives & Awards
UBC Development & Alumni Engagement
T: 604-827-4996
E: janine.root@ubc.ca