

3D Educational Resources

An online resource for the educational community on how they can create and use stunning digital 3D models to reimagine and enhance student learning.

GET STARTED TODAY

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Why should we keep creating and developing 3D resources?

Now that we are moving back into our classrooms, emphasis on 3D virtual resources is still important!

- Greater access to objects
- Better preservation of specimens
- Enhance online education for wider audience of learners and abilities
- Better than real-life demonstrations of objects and spatial relationships
- Enable flipped classroom design and accommodate larger classes

Goals

- Develop process for creating 3D objects
- Enable remote and online learning with enhanced materials
- Expand student access to rare and fragile items
- Enable independent access by students
- “Better than real life” demonstration of spatial relationships

Photogrammetry



Using the process of photogrammetry (multiple images captured from different angles, digitally combined into a 3D object by software), our team developed resources for different courses across campus.

Each new object posed a different challenge of texture, colour, and lighting. Our student team members worked with collaborators to ensure that editing was appropriate and accurate.

As we learned along the way, workflow and documentation of the project was critical to the team in developing best practices.

All photos by Michal Suchanek

Innovations

New tools and systems were developed along the way, as challenges presented themselves with each new collaboration.

Photogrammetry robot
Technical lead Mike Suchanek developed this robot to provide a faster and automated means of photogrammetry



Robotic tweezers developed via an Electrical and Computer Engineering Capstone course project – allowing smaller, fragile specimens to be rotated with precision.

Lessons learned

Our collaborators and their students helped us learn a few things along the way

- Download speeds of models make use in online exams challenging
- Accuracy of model surface not as critical (lower quality than for 3D printing)
- Student satisfaction with models depends on their use in advanced learning activities

Project Impact

Through this project, we were able to:

- Create over **250 high quality models**, now publicly available on Sketchfab.com, now used in over **26 countries** around the world
- Online collection includes:
 - **Second largest collection of soil monoliths** in Canada (*now used at seven Canadian universities*)
 - Skull specimens from the **Beaty Museum**
 - Fossils from the **Pacific Museum of Earth**
 - Tree and fungus specimens from the **Faculty of Forestry teaching collection**
 - Artifacts from the **Museum of Anthropology**

- Work with Sketchfab.com (online 3D resources platform) to develop custom enterprise
- Engage with **11 faculty collaborators** to reach thousands of students in four faculties
- Employ **15 students** as team members
- Create UBC website (3dlearning.ubc.ca) for project information and resources
- Provide training to **+30 faculty and staff** via workshops
- Canvas training course for student team members and UBC community

Learn how we do it via Canvas
<https://canvas.ubc.ca/courses/74859>



Next steps

Though the 3D resources TLEF is winding down, we are looking forwards to a few last items

- Self-help videos to support faculty, staff, and students who wish to use available resources on Sketchfab
- Fee-for-service creation of resources via UBC Studios
- Volumetric video capture studio development and testing



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