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3D Modeling Case-Geyer: A Pilot Project Immersive Technology Summer Institute 2018
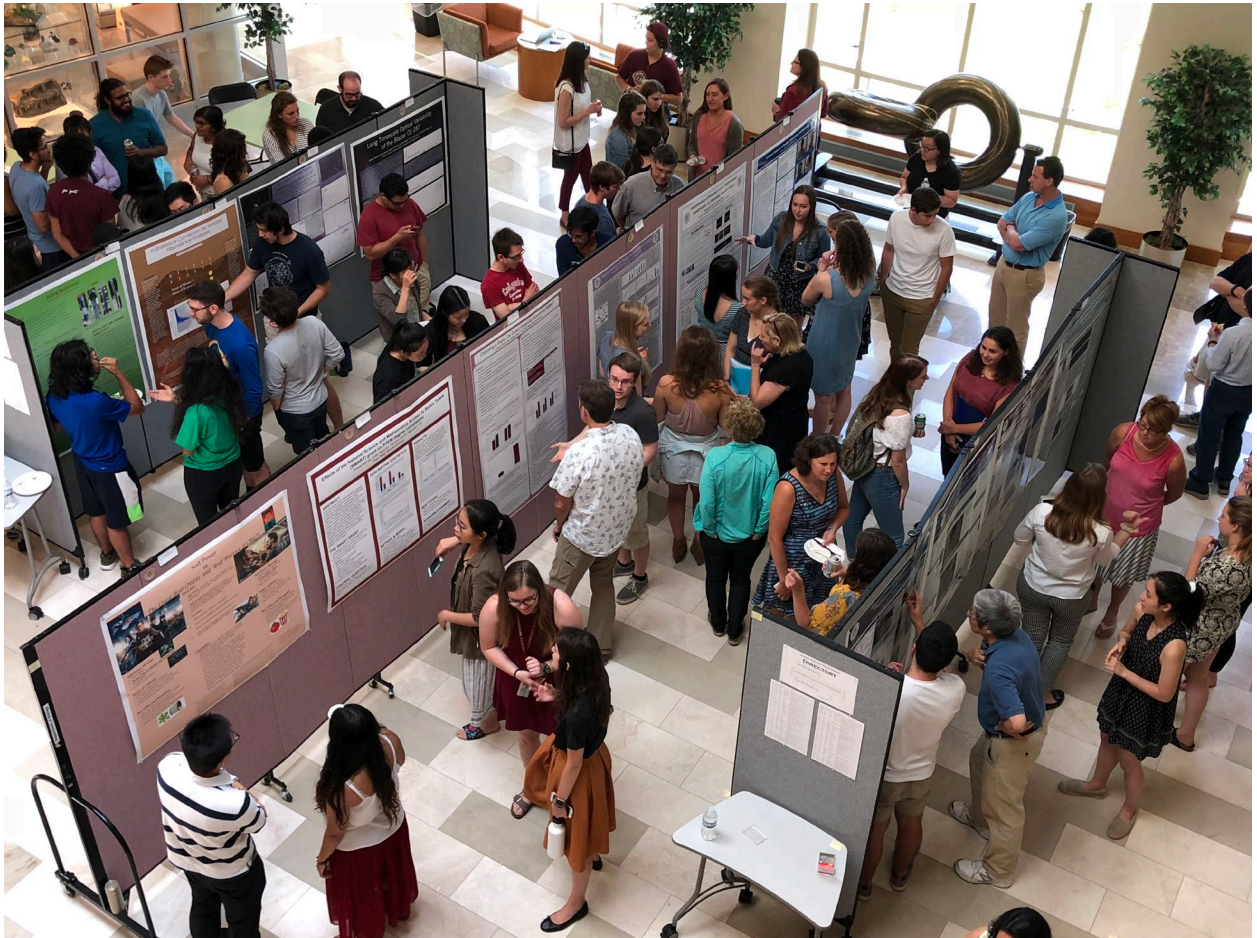
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Colgate University Summer Undergraduate Research Directory

Volume 25
2018

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Title of Project: 3D Modeling Case-Geyer: A Pilot Project Immersive Technology Summer Institute 2018

Project Summary:

The purpose of this project is to produce a virtual 3D model of the Case-Geyer Library using the computers and 3D-modeling software available at the Ho Tung Visualization Laboratory ("VisLab") for several potential future uses. The model will test the feasibility of creating other such models of current campus buildings for the purpose of historical preservation, and for creating models of historic campus buildings no longer extant. Secondly, a virtual library environment may be able to further aid current students in navigating the real Library so as to find books and other resources more easily. Finally, it can be used as a substitute for touring the actual Library for interested prospective students or incoming first-year students for whom distance, finances, and scheduling prevent them from visiting the campus itself.

Figure 7: North Façade of the Library, looking South (towards Colgate).

3DS Max is the software used to build the model, chosen for its ability to import *AutoCAD* plans, generate doors and windows, and build out walls, floors, ceilings, and other features in fine detail. *Maya* will likely be used in the future to add the Library model into another, larger model of the entire campus that will be used in "VisLab" shows for the Bicentennial celebrations. *Unity* will serve as the software for converting the model into a 3D virtual environment capable of being explored by those with 3D headsets and goggles.

The process of building the model included acquiring the *AutoCAD* plans from Joseph Bello, Director of Planning, Design & Construction at Colgate. Plans of the individual floors were imported into *3DS Max* to use as a reference for the layout of walls, ceilings, doors, windows, and furniture. They were scaled to 8.19% or 8.2% of their imported size and

Figure 8: West Façade (Little, Persson, and Student Union side), looking northwest.

the heights of each floor were determined from other *AutoCAD* plans at a scale of 1 *3DS Max* unit to 1 ft. Construction of the model began with the walls of the first floor and proceeded to the fifth floor. Floor slabs followed with subtracted openings for double or triple height ceilings and stairwells. Exterior walls, windows, and roofs were added, and textures were experimented with, but not yet fully applied. Unfortunately, the model remains only partially complete.

Figure 9: Unfinished South Entrance vestibule and terrace on the 5th Floor.

This project also included a week-long institute at Hamilton College for collaboration with other groups working on similar 3D models and immersive technology projects. The institute included teams from Hamilton College itself, Gettysburg College, and Occidental College. These other teams were generally far advanced in their projects and gave great insight on the wide applications, feasibility, and preservation of immersive technology creations. Overall, the institute provided us with many good ideas and new possibilities for collaboration as our respective universities and fields expand to include immersive technologies.

Fortunately, this project will continue in the fall semester of 2018 and possibly be resumed in the summer of 2019. Further applications of the model and other models of campus buildings continue to be explored and, hopefully, this project has opened the door for many new summer research projects in immersive technology and architectural modeling for the future.

Source of Support: ☐ AHUM Div.   ☐ NASC Div.   ☐ SOSC Div.   ☒ UNST Div.
☐ Other (specify):