Jose Guzmán

PhD

Department of Earth & Atmospheric Sciences, Faculty of Science

Image created on campus at University of Alberta

Images of Research Competition

University of Alberta

An Elm cloud

Semi-finalist (2019)

A cloud? Yes, take a deeper look! This is a cloud of more than 20 millions of points. This point cloud was acquired in a survey using a Terrestrial Laser Scanner. This sensor fires several beams of light to a surface and records the time it takes to return to the sensor. Knowing the time of return, shipping angle, and the speed of light, it is possible to recreate a point of the surface with XYZ coordinates. With hundreds of thousands of points, it is feasible to build 3D-models of objects. Specifically, this image shows the below, front, and above view of an Elm without leaves scanned on campus during the fall of 2018. In our research, we use point clouds like this one to estimate the volume, the allometric, and the branching pattern of trees. Only by having a good understanding of the trees architecture and its structure can we improve models that estimate the carbon stocks in the forest, and therefore, the predict the possible future impact of the climate change in the ecosystems.