

Engineers use supercomputer to create beautiful video

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A group of computing and software students have created some stunning videos using one of the most powerful computers in the world.

The fourth-year students used the Blue Gene/Q [supercomputer](#), located at the University of Toronto, to generate fractals – never-ending patterns that repeat at different scales.

The shapes are generated with a simple mathematical formula, but create incredibly complex shapes.

"Each pixel in an image is assigned coordinates," says Ned Nedialkov, associate professor in computing and software. "These starting coordinates are then fed into a formula, resulting in new coordinates, which are plugged into the same formula for the next iteration, and so on."

Nedialkov compares the process to zooming in on a digital map.

"Imagine the whole eastern coast of Canada laid out on a map. Then, as you zoom in and get closer, you can see the actual coast line, then the details of the beach, individual stones, pieces of sand, and then every molecule that makes up the sand."

The shapes take billions of computations to create, and without the use of a supercomputer would take months to complete.

The exercise helps students learn both about fractals and supercomputers, which are used for a variety of tasks, including [weather prediction](#).

Provided by McMaster University

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