Computer Science Virtual Learning

Computer Science Principles

May 22, 2020

Lesson: May 22, 2020
Assumptions, Abstractions, and Ethics

Learning Target:

In this lesson students construct an understanding of how the explosion of technology over the last two decades has impacted the field of epidemiology. Students begin by researching the impact of computer modeling and simulation, which has been made possible by the rapid increase in computational power due to the continued applicability of **Moore's Law**. Students explore simulation in NetLogo directly by manipulating a model of a model of the spread of viruses in humans. The lesson concludes with an examination of the code of ethics for simulationists and reflection on the necessity of adhering to such a code.
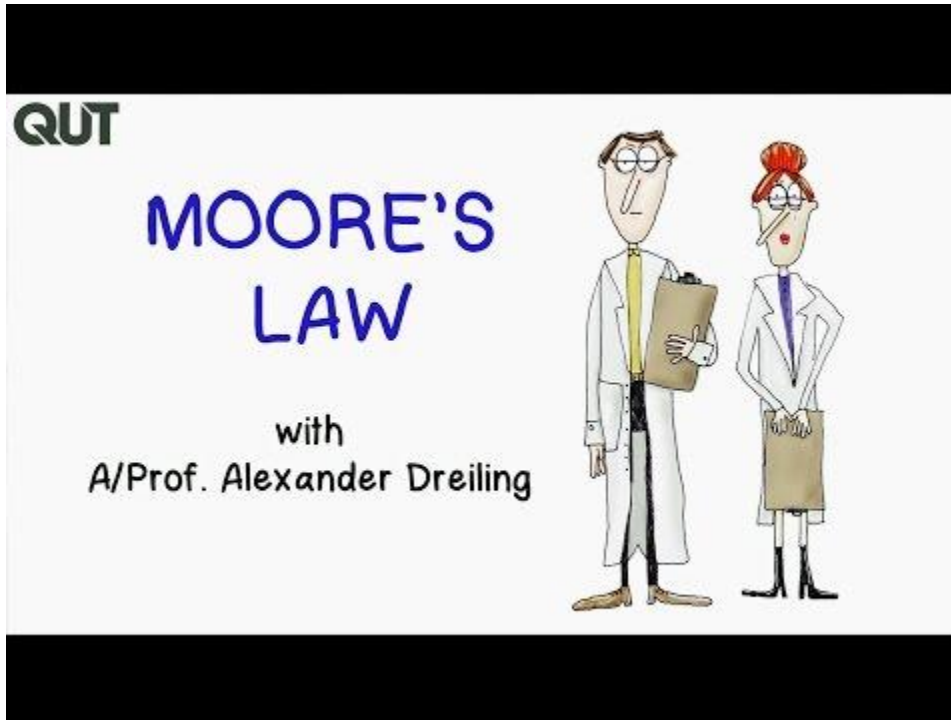
Watch this Video About How the Blue Dot System has helped Data Related to the Covid19 Pandemic
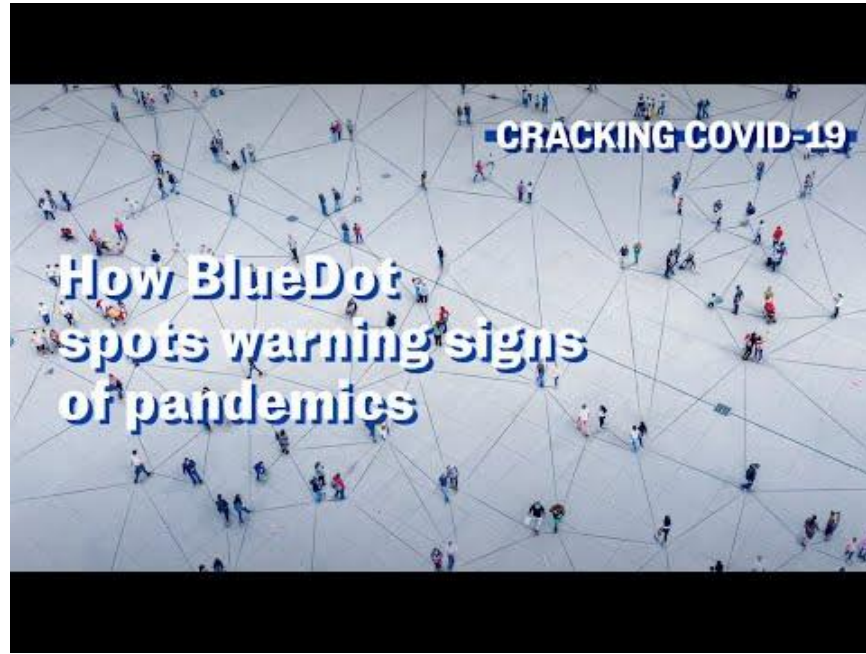
What is Moore's Law? Watch this Video to Find out:

Is activity, we will be working with data simulation software called NetLogo. Before we get started, be certain that you have either downloaded the latest version of **NetLogo**, or you can choose to work with **Web Version of NetLogo**. You will be able to do the activity with either version that you choose.

Watch as Bill Gates Explain How Use Data Simulation to Predict Outbreaks

Click the link and take notes in your computer science notebook over the Assumptions presentation.

Click here and make a copy of 4.1.5 Assumptions, Abstractions, and Ethics Activity. Follow the directions in the activity as you create a data simulation, using NelLogo software, of how a virus spreads in a community.

1. **Think of a phenomenon that you would like to simulate.**

    a. **What details would you want to include in your model, and which ones would you abstract?**

    b. **What assumptions would you make within your model?**

2. **What consequences could you foresee resulting from a trusted and respected simulationist acting unethically?**