

Final Project Proposal

A Dynamic Model of Human Populations

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The purpose of my project is to create a precise depiction of various human populations and using that data, be able to make accurate predictions about how these populations will change under several different assumptions. For example, looking at current events in the world, I could make at least two different assumptions: first, a world in which the issue of Iraq escalates into a full blown war, causing a draft to be enacted in the US - second, a situation in which the issue was resolved peacefully, and no draft was enacted. These two different situations would obviously differ in the population changes.

Many people have attempted projects of similar nature. For example, in the Chinese research project, "Surface modelling of human population distribution in China," they split the population into units of grid-like nature. They analyze this data and create two concurring predictions for 2015 under different assumptions. My inspiration for predictions under several assumptions was from this project.

The language I am using is Python. But I am only using Python to generate the data. I will use Java or OpenGL in C to create the graphical display. I am currently using the basic logistics curve, the Verhulst equation, to calculate the growth rate. And I, of course, need great amounts of population data to continue forth with my project. To test my program, I first intend to "predict" population values for 2005, 1995, and so on. These are

the years for which the US Census estimates the current population according to collected population data, because the census is taken every ten years, the latest being 2000.

The final result of my project should be able to make predictions of the population in different situations that I create. A graphical display and perhaps a GUI so that I do not need to hard code the assumptions.