Progress Report MB November 4, 2013 Erik Kountz

Nuclear Magnetic Resonance at the Atomic Level

Abstract

Nuclear Magnetic Resonance (NMR) is a widely used today. It is used in non-invasive and medical imaging and in NMR spectroscopy. The latter is a way to determine the structure of molecules by focusing on a particular element of choice. However, NMR is not well understood by the general public because it is a relatively new discovery and the effect comes from quantum mechanical descriptions of the atom. My project will be focused on visualizing the basic math used in NMR through a real time interactive computer animation (RTICA). This RTICA will visually show atoms changing orientation during a simulation of NMR, much as what happens when actual NMR is performed. This combination of activities complements my knowledge and understanding of NMR and my project will enable a general audience to understand how NMR works to some degree.

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I am now using Python OpenGL on Linux with a virtual machine because for some unknown reason, my computer decided that it would not like to cooperate with me when running Windows. I am not entirely sure why that is, but now that that problem is fixed, it does not particularly concern me.I have begun to work through Stan Blank's introduction of Python OpenGL, to reacquaint myself with object oriented programming. Through this process, I have also discovered that a number of python add-ons are missing such as tkinter and numpy. I am planning on installing these soon. Overall, my project is beginning to progress now that I have a working Python OpenGL on my computer and I plan on catching up to my schedule this week and next.

Bibliogrophy

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