**Fourier Series 3D Tool Observations - Ryan Blocker**

When I first saw this web-app I thought it was in dire need of a CSS update. Haha I'm just kidding, for its purposes it and after messing with it for a minute I found it was an incredibly useful tool for visualizing different kinds of waves. Since I was most familiar with sin/cosine waves from past math classes and their behavior I chose to do my testing starting with those default presets. I found that by default the program displayed the cosine was as we all know it before any manipulation has occurred.
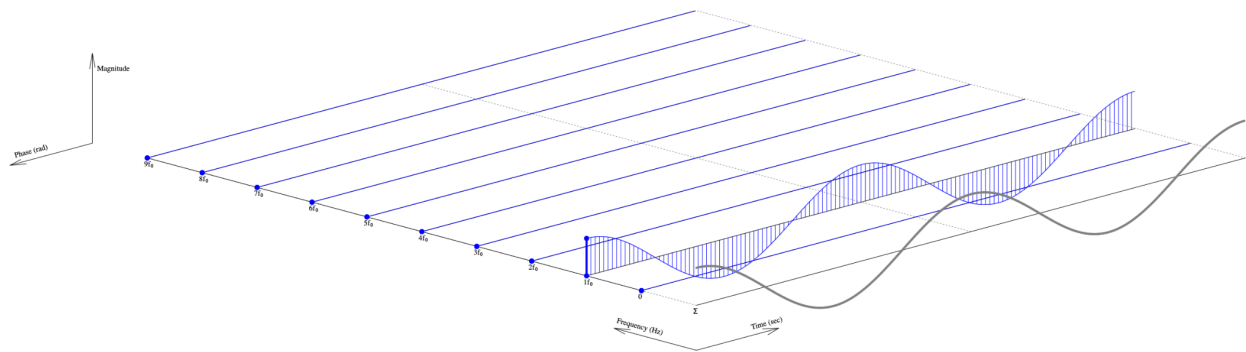

Then as I slowly increased the magnitude of the $2f_0$ wave I found that since it was the same type of wave and increased and decreased in magnitude at the same intervals it doubled the magnitude of the output cosine wave at its peaks but it also increased the rate at which it increased in decrease now in between the peaks there was a small

wave that formed in between.
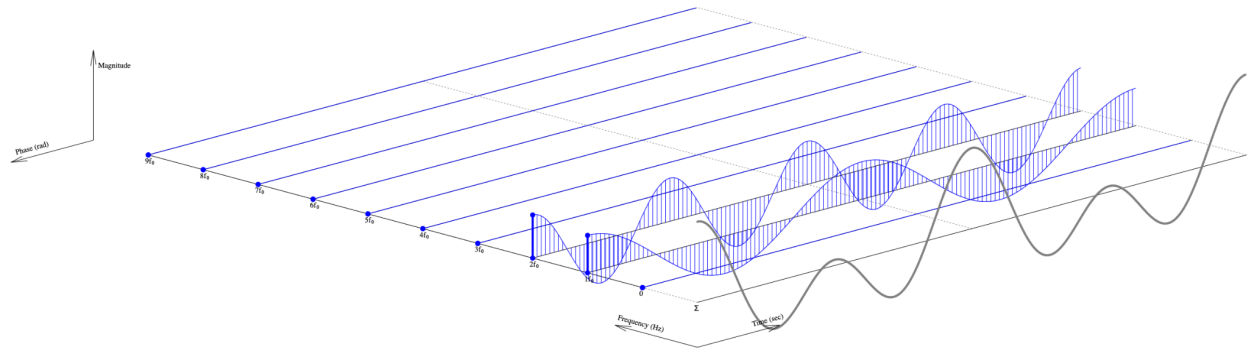
Then as I continued down the lines of waves I found that this trend held as more little

waves continued to proceed as the peak size increased until I had turned up the

magnitude of all of the other waves.
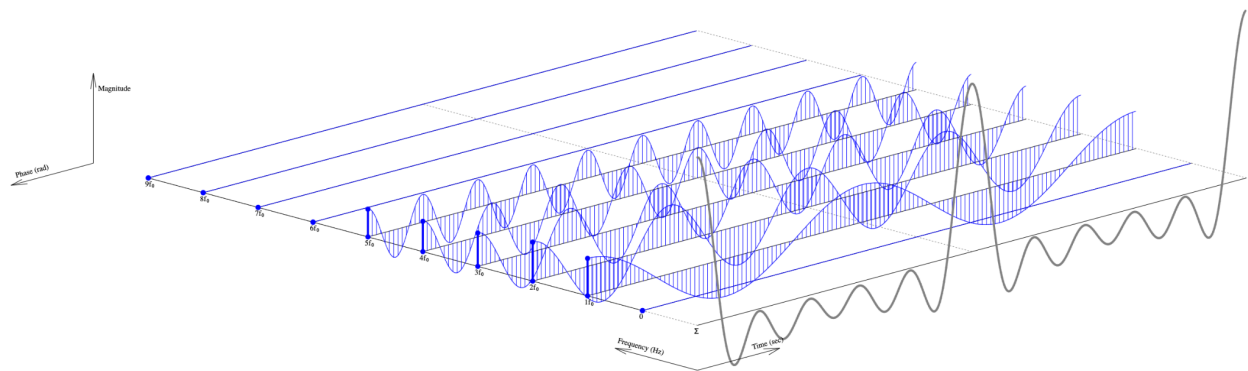
Now going back to the default cosine wave I also discovered that instead of adding an

identical cosine wave to the output I shifted the second one slightly it would result in

the output wave having a much more complex waveform due to the superposition of

the second wave/phase shift in time.