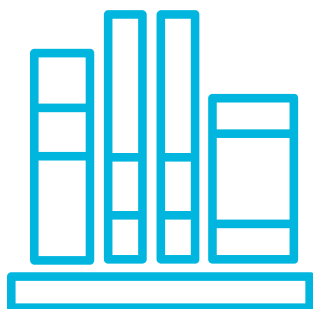


THE MAXWELL MISSION

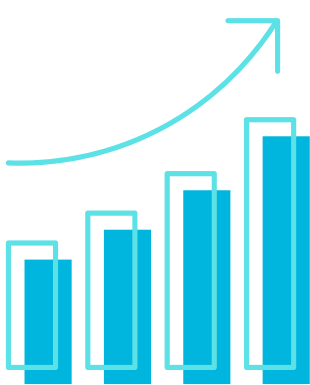
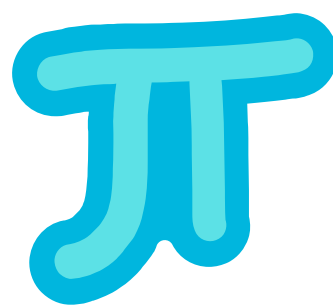


VECTOR CALCULUS THEORY

I'm still learning the theory for Vector Calculus (or rather, refreshing it). I just finished learning Surface Integrals and Flux. All that's left is Divergence and Stoke's Theorem and we're done.

VISUAL CALCULUS

I've decided to make a video highlighting all the major ideas of Vector Calculus in a definitely visual way -- an approach never executed before, to my knowledge. This means everything from Integrals (Surface, Line, Volume, Double, Triple) to Theorems (Greens, Stokes, Divergence) to Operators (Div, Grad, Curl, Lap, and Jac)

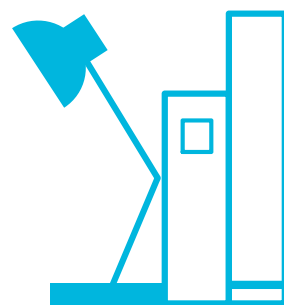


MULTIVARIABLE CALC PAPER

And of course, to wrap up my understanding of all these ideas, I will write a paper highlighting all the major ideas of Multivariable Calculus, supplied with some problems along the way and some tips to grasp the ideas intuitively.

MAXWELL'S EXPERIMENTS

I haven't done experiments in a long time, but the crux of Maxwell is in experiments! I've thus decided to make a series of videos of "Maxwell in Action", each one highlighting a specific facet of Electromagnetic Theory and how it connects to Maxwell.



MAXWELL'S THEORY

Of course, Experimental is as important as Theory. I'll make a series of videos solving problems for all four of Maxwell's Equations.

THE PAPER ★

The paper addresses 6 Research Questions, including

- Why does Special Relativity suggest there be a displacement current in ampere's law?
- How can we use the Electromagnetic Tensor to describe EM waves in Space-Time?
- Does Maxwell's displacement current produce a magnetic field?



DEADLINE: SEPTEMBER 1, 2020