Youtube and Physics: Balancing rigor and clarity

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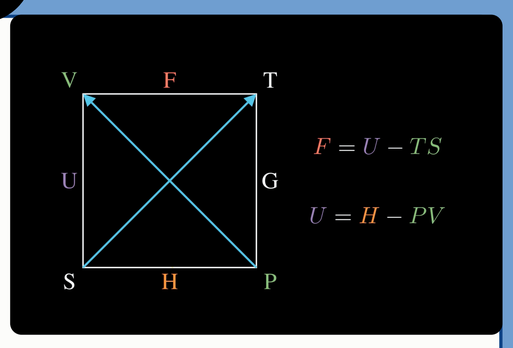
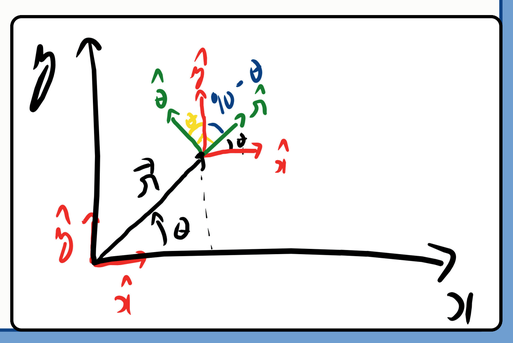
Introduction

I create video content for *Youtube* teaching math & physics using a more **visual approach** than what traditional formats would allow.
My project aims to create **learning resources** that complement students' studies by offering clear, visual explanations they can revisit at their own pace.
The content I make is mostly in **Portuguese**, with the aim of addressing the scarcity of high-quality portuguese video material in mathematics and physics.

What I do

The video content I make is usually in one of two formats: **programmatic animations** or **whiteboard** content. Sometimes I use a mix of both.
The purpose of my channel is to help people learn more **effectively**, so depending on the content of the video I choose the approach that fits the concept best.

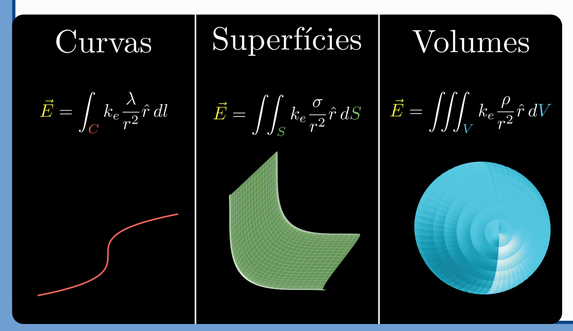


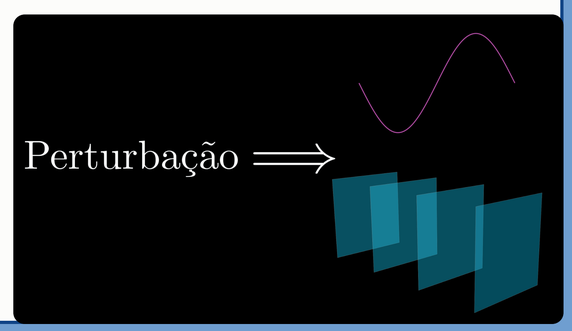


What I'm currently working on

I am currently working on two videos about **eletromagnetism.** One is about **eletric fields** and **continuous charge distributions**. The other video is a *crash-course* on **circuits** that starts with simple examples, culminating with an explanation of **infinite circuits**.

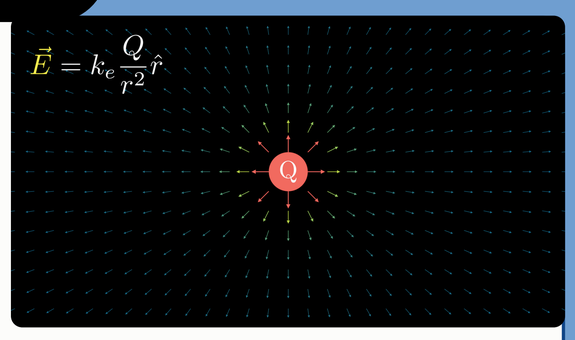
I am also currently sketching what might become a video about **waves** and **wavefronts**.

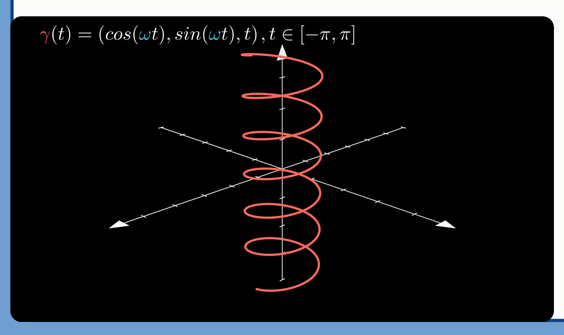




How I do it!

The 1st step in creating a video is **making the script**. Afterwards I try out different animations to see which ones are more effective. Once most of the animations are finished, I start **editing** them and **record** the script.

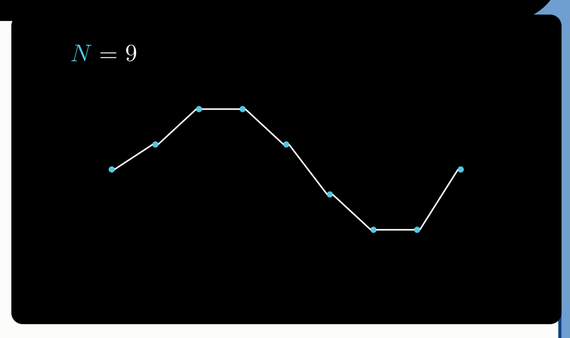


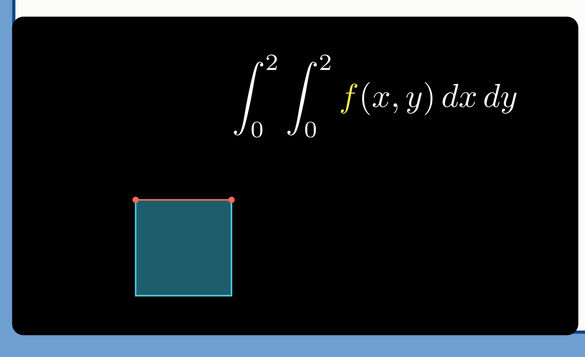


By using the Python library *Manim,* I'm able to plot manifolds, vector fields and other mathematical objects and change them **dynamically**.

What's next?

There are many topics that I have yet to cover on my channel, such as **Fubbini's Theorem** or visualisations of derivations of the **Wave Equation.** Some of these topics will surely become videos in the future.





I have also been exploring other tools that would
allow me to convey the concepts more effectively such as **Desmos**.

What I use

Video editing
DaVinci Resolve

Whiteboard
OpenBoard

Programatic Animations
Manim

Screen Recording
OBS

Microphone
Blue Snowball iCE

Want to support me?