Twitter Thread by Pratham Prasoon



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Here's everything you need to know about the math for machine learning.

(+ free resources)

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Before diving into the math, I suggest first having solid programming skills.

For example■

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In Python, these are the concepts which you must know:

- Object oriented programming in Python : Classes, Objects, Methods
- List slicing
- String formatting
- Dictionaries & Tuples
- Basic terminal commands
- Exception handling

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If you want to learn those concepts for python, these courses are freecodecamp could be of help to you.

■Basics:youtube■com/watch?v=rfscVS0vtbw
■Intermediate :youtube■com/watch?v=HGOBQPFzWKo

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■You need to have really strong fundamentals in programming, because machine learning involves a lot of it.

It is 100% compulsory.

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■Another question that I get asked quite often is when should you even start learning the math for machine learning?

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■Math for machine learning should come after you have worked on a project or two, doesn't have to a complex one at all, but one that gives you a taste of how machine learning works.

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■Here's how I do it, I look at the math when I have a need for it.

For instance I was recently competing in a kaggle machine learning challenge.

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I was brainstorming about which activation function to use in a part of my neural net, I looked up the math behind each activation function and this helped me to choose the right one.

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The topics of math you'll have to focus on for machine learning
- Linear Algebra
- Calculus
- Trigonometry
- Algebra
- Statistics
- Probability

Now here are the resources and a brief description about them.

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Neural Networks
> A series of videos that go over how neural networks work with approach visual, must watch.

■youtube. com/watch?v=aircAruvnKk&list=PLZHQObOWTQDNU6R1_67000Dx_ZCJB-3pi

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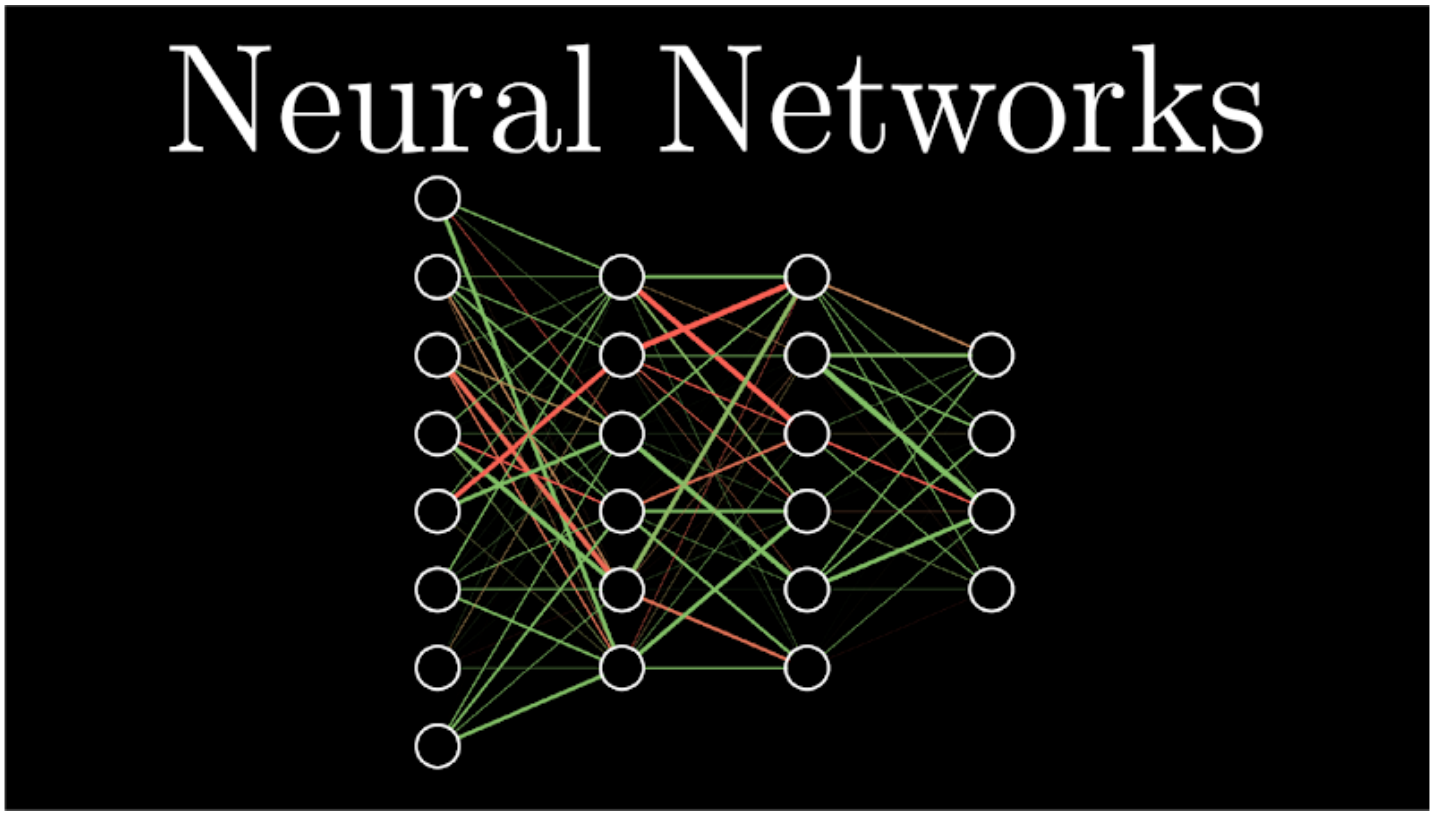

Seeing Theory
> This website helps you learn statistics and probability in an intuitive way.

■seeing-theory. brown. edu/basic-probability/index.html

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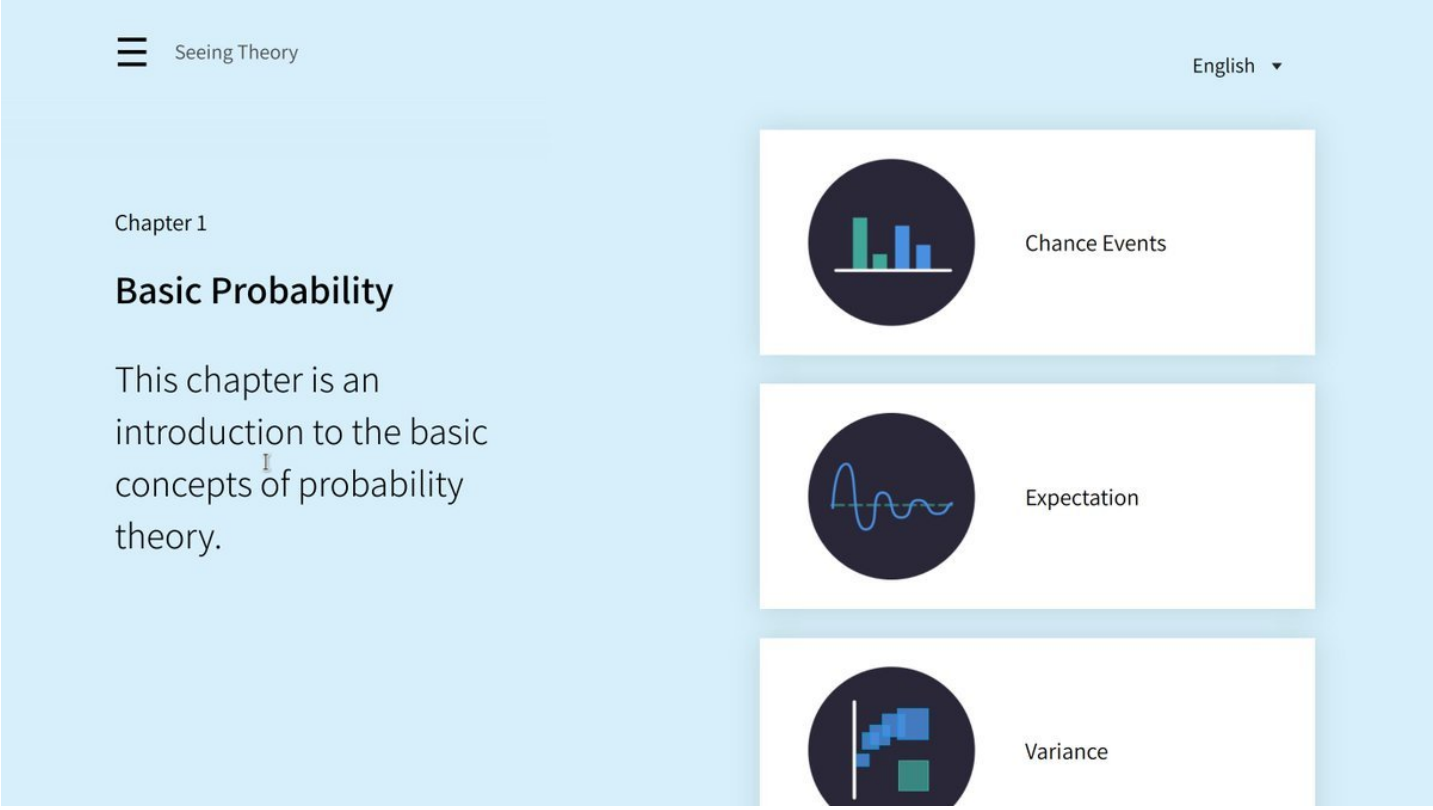

Gilbert Strang's lectures on Linear Algebra (MIT)

> This is 15 years old but still 100% relevant today!
Despite the fact these lectures are made for freshman college students at MIT,I found it very easy to follow■

■youtube. com/playlist?list=PL49CF3715CB9EF31D

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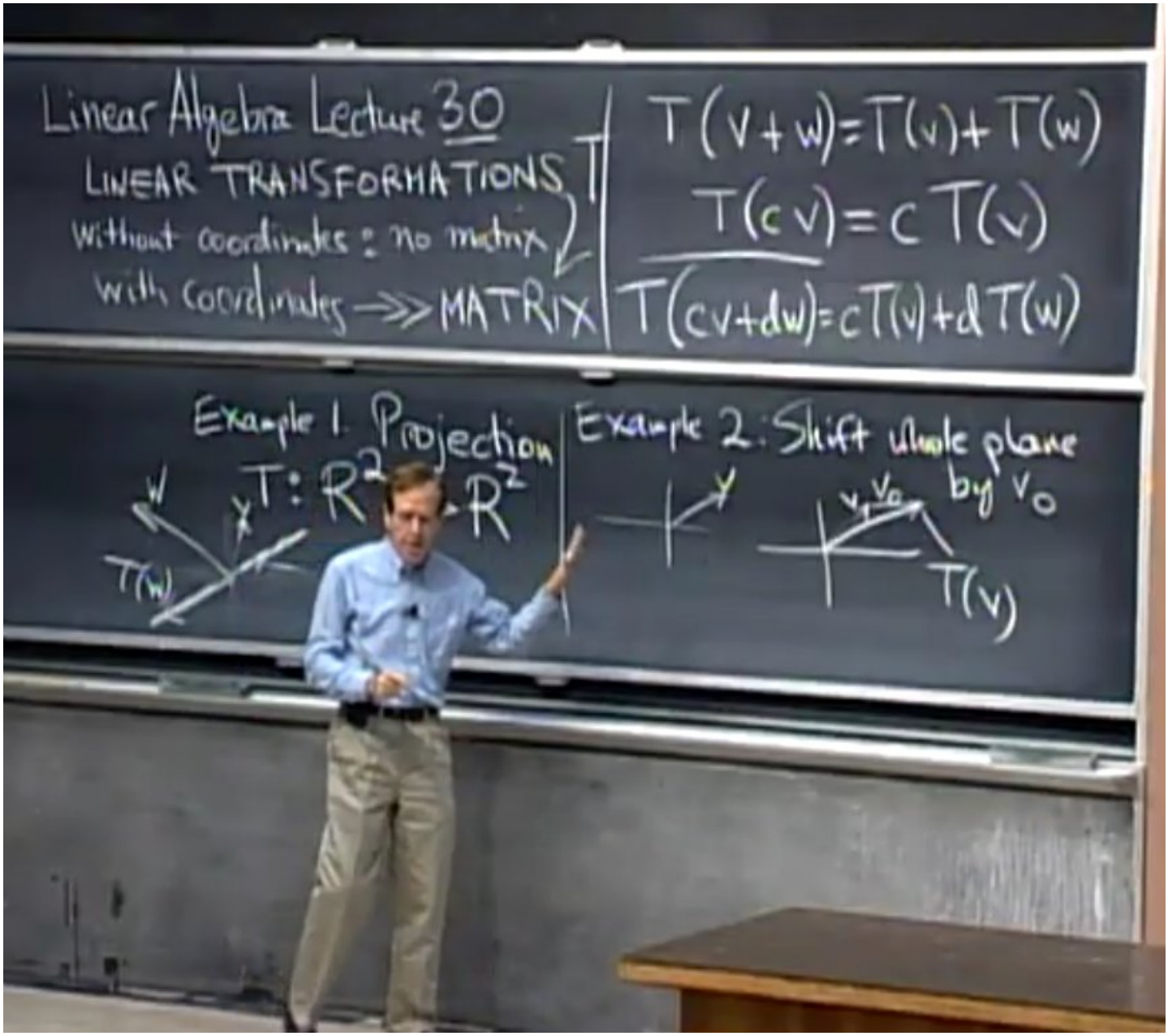
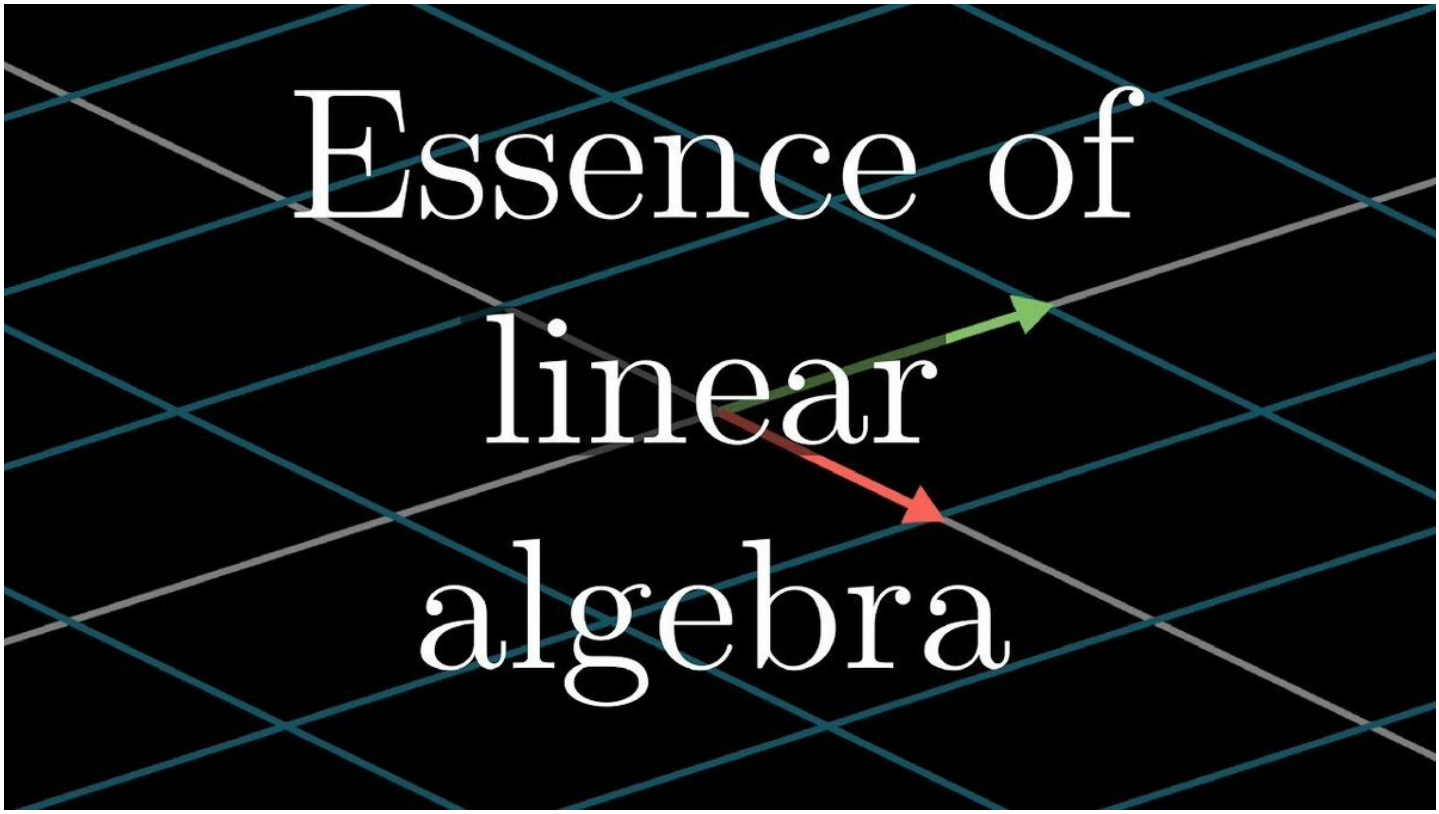


Essence of Linear Algebra

> A beautiful playlist of videos which teach you linear algebra through visualisations in an easy to digest manner

■youtube. com/watch?v=fNk_zzaMoSs&list=PLZHQObOWTQDPD3MizzM2xVFitgF8hE_ab



Khan Academy
>The resource you must refer to when you forget something or want to revise a topic super quick

■khanacademy. org/math

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Essence of calculus
> A beautiful series on calculus, makes everything seem super simple.

■youtube. com/watch?v=WUvTyaaNkzM&list=PL0-GT3co4r2wlh6UHTUeQsrf3mlS2lk6x

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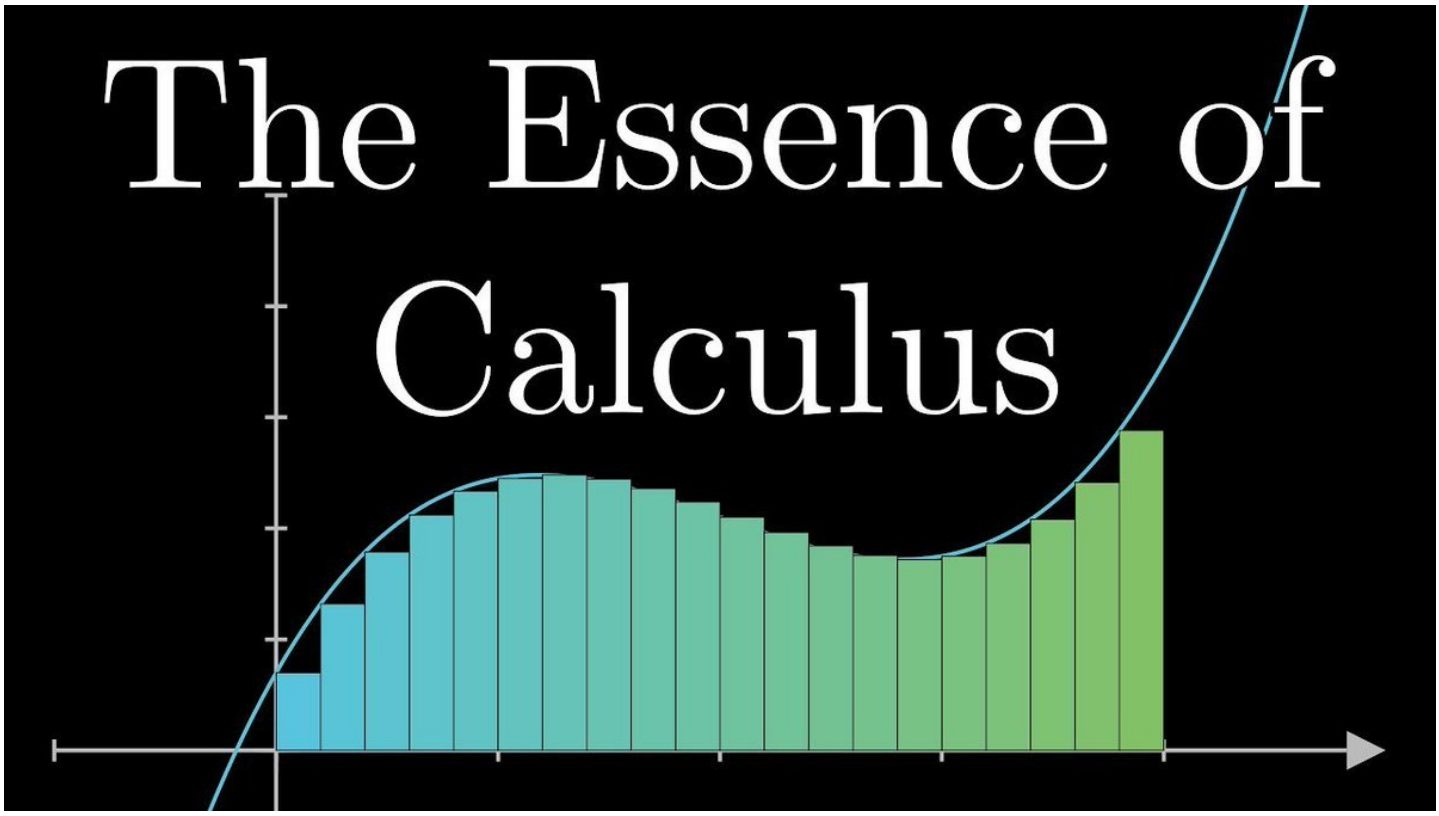

The math for Machine learning e-book

> This book is for someone who knows quite a decent amount of high school math like trignometry, calculus, I suggest reading this after having the fundamentals down on khan academy.

mml-book. github .io

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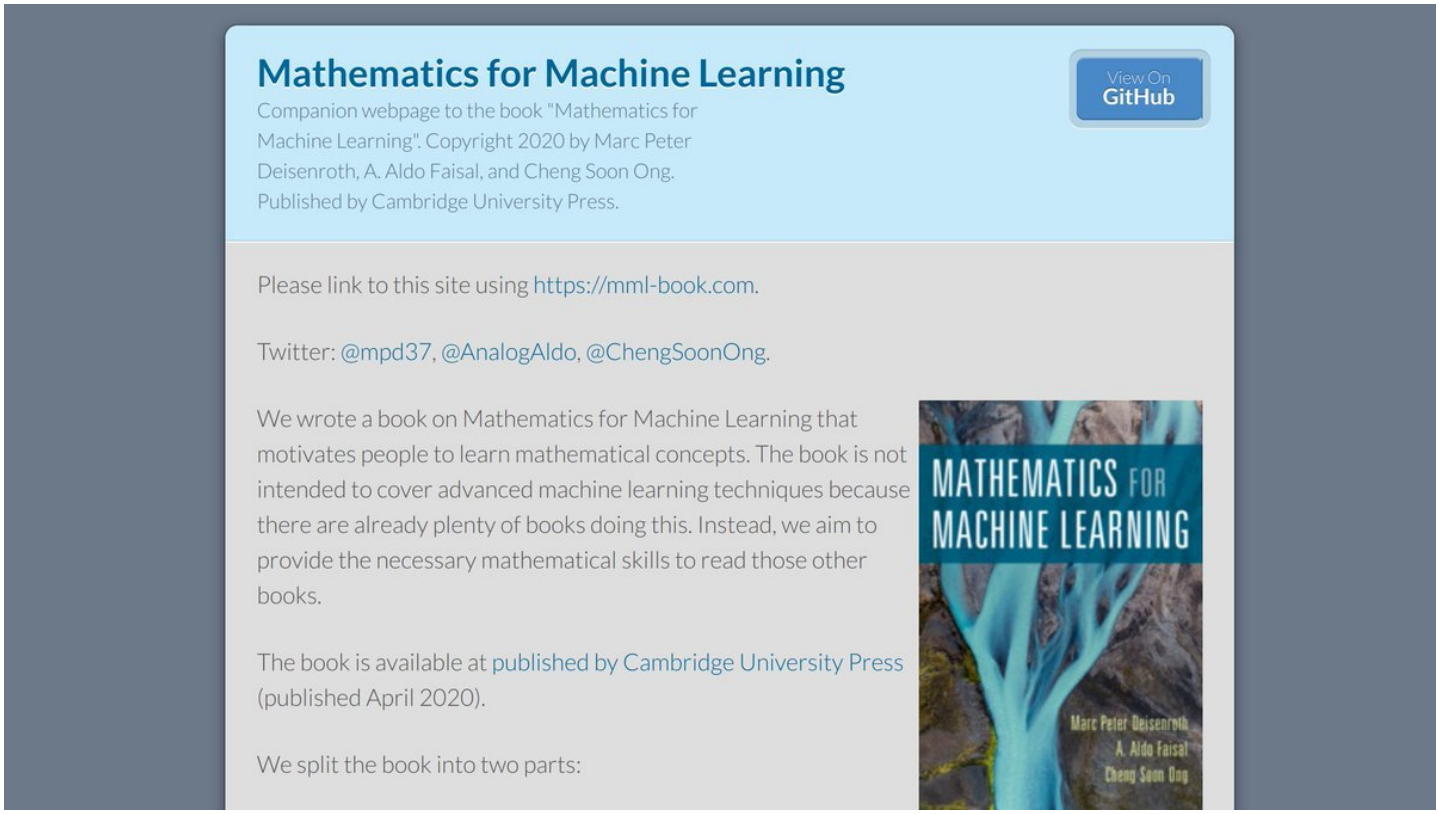

If you found this thread helpful then don't forget to follow me, it takes a ton of effort to write these threads and your support keeps me going. ■■

Good luck in your machine learning journey!

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