Twitter Thread by Tivadar Danka

Tivadar Danka
@TivadarDanka

I hand-picked 7+1 free online courses that'll teach you all the math you need in machine learning.

Use these to build substantial math knowledge from zero:

First, if you are starting with mathematics, begin with the Khan Academy lectures.

These are fantastic resources for the future as well. If you are stuck at any stage, chances are Khan Academy will help you.

https://t.co/gXtJU54108

If you are comfortable with high school mathematics and want to go deeper, check out this course by @TreforBazett.

It's humbly titled Discrete Math, but it's much more than that. It's a fantastic introduction to mathematics and mathematical thinking.

https://t.co/egedmpi8rp

@TreforBazett Are you familiar with the fundamentals of mathematical thinking? Great! You can begin to study the advanced topics.

The most important fields of math for engineers are
- linear algebra,
- calculus,
- probability theory and statistics.

@TreforBazett 1. Linear algebra

First encounter with linear algebra? Start with "Introduction to Linear Algebra" course by Gilbert Strang, taught at MIT.

https://t.co/yAvBFrmI4g

@TreforBazett Once you master the basics, the following course will help you reach the pinnacle of linear algebra.

It's titled "Matrix Methods in Data Analysis, Signal Processing, and Machine Learning", again taught by the great Gilbert Strang.

https://t.co/aHZGC5eWNk

@TreforBazett 2. Calculus

To master differentiation and integration, start with the "Single Variable Calculus" course at MIT.

https://t.co/srbZaadoZD

@TreforBazett The next step is multivariable calculus.

Single-variable calculus introduces the ideas. Multivariable calculus builds the tools we use every day.

This course is taught by Denis Auroux at MIT.

https://t.co/gYXgHzMh18

@TreforBazett 3. Probability theory and statistics

Understanding probabilistic thinking is essential for any data scientist out there.

Trust me when I say this, you CAN'T do your job without it.

@TreforBazett The fundamentals are clearly and concisely covered by the "Probabilistic Systems Analysis and Applied Probability" course by John Tsitsiklis, once more from MIT.

(I know, that's a lot of courses from MIT. This is not an accident.)

https://t.co/O9Eriz0oM9

@TreforBazett Want to understand the principles of making decisions from data? Check out "Statistics for Applications", taught by Philippe Rigollet.

https://t.co/WaKwiTE7E2

@TreforBazett There are 7+1 courses here.

You can use them to complement your other classes or even for self-study.

Don't expect to push through them in a matter of days. These topics take years of study and practice to master.

@TreforBazett If you have found value in this thread, share it with your friends and follow me!

Understanding math will make you a better engineer. I want to help you with that. https://t.co/gRozDi79Tq

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> — Tivadar Danka (@TivadarDanka) July 15, 2022