Twitter Thread by Sanju Sinha

Sanju Sinha
@Sanjusinha7

A lot of Machine Learning (ML) I learned during my Ph.D. was from youtube. I didn't have a guide to do this effectively and thus here it is:

A complete guide to studying ML from youtube: 13 best and most recent ML courses available on YouTube. ■■■■■■

We will start with "Stanford CS229: Machine Learning" by Andrew Ng to start and learn the following ML concepts:

Linear & Logistic Regression,
Naive Bayes, SVMs, Kernels
Decision Trees, Introduction to Neural Networks
Debugging ML Models.
https://t.co/cMLzvsdIcT

A series of mini-lectures (~5 mins) covering various introductory topics in ML by Cassie Kozyrkov, covering:

Explainability in AI, Precession vs. Recall, Statistical Significance, Clustering and K-means, and finally, Ensemble models.
https://t.co/LiujYMWFbT

Beyond an AI genius, Andrej Karpathy is a brilliant teacher. His creative teaching methods make this intro to Neural Networks (NN): Zero to Hero makes one of the best ways to get introduced to NN. https://t.co/WaYzmyHYKU

"MIT: Deep Learning for Art, Aesthetics, and Creativity " covers the application of deep learning for art, aesthetics, and creativity, including Neural Abstractions, Efficient GANs, and explorations in AI for Creativity. https://t.co/cANOWM1M2B

(Striking again) Andrew Ng's "Stanford CS230: Deep Learning (2018)" covers:

The foundations of deep learning, how to build different neural networks (CNNs, RNNs, LSTMs, etc...), how to lead machine learning projects and finally - AI and Healthcare. https://t.co/F1jBHejS5k

Applied Machine Learning teaches some of the most widely used techniques in ML, including:

Optimization and Calculus, Overfitting and Underfitting, Regularization, Monte Carlo Estimation, and Maximum Likelihood Learning. https://t.co/2znEMgrJvf

The first part of 'Practical Deep Learning for Coders' teaches you how to:

Build & deploy deep learning models for vision & NLP. Use PyTorch, plus popular libraries like fastai. https://t.co/xTg00k7wrt

The 2-hour second part of 'Practical Deep Learning for Coders' takes a deep dive into a recent hot ML topic - Diffusion Models. https://t.co/82AHonifNK

ML with graphs teaches some of the latest graph techniques in machine learning:

PageRank, Matrix Factorizing, Node Embeddings, Graph Neural Networks, Knowledge Graphs, and finally, Deep Generative Models for Graphs.
https://t.co/hkgfoFoB9O

This course focuses on the probability and maths behind ML, covering:

Reasoning about uncertainty, Continuous Variables, Sampling, and Markov Chain Monte Carlo. https://t.co/Z76gVxeI3d

This 12-part Deep Unsupervised Learning aims to teach the latest and most widely used techniques in deep unsupervised learning:

Autoregressive Models, Latent Variable Models, & Self-supervised learning.
https://t.co/ywkSKC5r5w

'Foundation Models' is a recent course (June 2022) that aims to teach about foundation models like GPT-3, CLIP, Flamingo, and cross-language generalization. https://t.co/owLqaDXAwj

8 out of 10 ML breakthroughs you recently heard of are likely based on transformers. "Stanford CS25 - Transformers United" aims to introduce us to the following:

Transformers, its applications in Language (GPT-3), vision & universal compute engines. https://t.co/nkTtSCG854

I will add here as I find more.

I tweet resources for big data research in healthcare. Follow me @Sanjusinha7 if that is of interest. See below for other such resources.

A list of almost all the big data resources available in cancer research. https://t.co/RjGMw2sxD4

Methods & data available to you are your thinking tools. While I learned the methods in my classes, I wish I knew various data available to me.

10 resources to learn almost all the big data resources available in cancer research. \U0001f9f5\U0001f447

— Sanju Sinha (@Sanjusinha7) September 16, 2022

28 common issues you will likely face while using ML for biomedicine and how to address them. https://t.co/1kqZ03zmJd

I curated a list of 28 common issues one faces while using machine learning for biomedicine research and using different kinds of omics data. I also provided guides on how to best overcome them. \U0001f349\U0001f9f5\U0001f447 pic.twitter.com/TFhwTOZsij

— Sanju Sinha (@Sanjusinha7) November 2, 2022

11 computational resources to study immune system https://t.co/drV8IQSDJY

Our understanding of the immune system is quickly growing.

11 resources (videos and papers) covering the fundamentals and computational tools available to study the immune system. \U0001f9f5\U0001f447\U0001f52c\U0001f912

— Sanju Sinha (@Sanjusinha7) October 1, 2022

12 resources to best analyze Spatial Transcriptomics. https://t.co/3WAb4z8HRL

Best computational practices to analyze Spatial Transcriptomics (ST) are yet non-trivial.

14 Resources, including videos, papers, data repo, tutorial, & a podcast, covering our current understanding of preprocessing & downstream analysis of Spatial Transcriptomics. \U0001f30c\U0001f9ec \U0001f9f5\U0001f447

— Sanju Sinha (@Sanjusinha7) October 7, 2022

10 educational resources for anyone interested in building skills to analyze big data in healthcare. https://t.co/U1NbzVZMlN

Using big data in healthcare. Here are 10 educational resources for anyone interested in building skills to analyze big data in healthcare.

Ranging from introductory to advanced, this includes courses, youtube channels, papers & online books.\U0001f9f5\U0001f951\U0001f447

— Sanju Sinha (@Sanjusinha7) October 14, 2022

20 open grand challenges to understand the relationship btw cancer and aging better.
https://t.co/IUqnLLlmuW

Interested in aging and cancer. I did a year of literature survey on this.

Here is my list of 20 key open questions and challenges to better understand the interplay between aging and cancer. A thread \U0001f9f5\U0001f447 pic.twitter.com/gd6NX1VJM7

— Sanju Sinha (@Sanjusinha7) September 29, 2022

I am developing a drug discovery startup based on a recent computational technology I co-developed (See below).

I would love to chat if you would like to collaborate on this or a potential investor. DM/email sanju@terpmail.umd.edu https://t.co/ketww3SwSY

Drug target identification is at the heart of drug development, and we\u2019ve been working to change how it\u2019s been done.

We present DeepTarget: a new computational tool to characterize a drug\u2019s mechanism of action in-depth beyond its primary target. \U0001f9f0\U0001f9f5\U0001f447 https://t.co/MuNTjsiniI pic.twitter.com/8g20uUotxp

— Eytan Ruppin, MD, PhD (@NCIEytanRuppin) October 20, 2022