



# DATA SCIENCE AS CREATIVE PROBLEM SOLVING

A short talk at CADGME 14  
(2020)

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# A Bit of US Education History (blessedly brief)

- 19<sup>th</sup> Century CE introduces the conflict that still occurs in discussions about Maths curriculum
  - Primacy of Concepts or Skills
- Ends with Committee of Ten (1892)
  - Creating, among other things, the Secondary Maths curriculum

# GEOMETRY SANDWICH

Algebra2



Geometry



Algebra1

# 20<sup>th</sup> Century Continues the Evolution



Mid-Century  
“Sputnik-Scare”  
drove an emphasis  
in Analysis

Calculus becomes  
the goal of all  
Maths learning in  
Secondary Schools

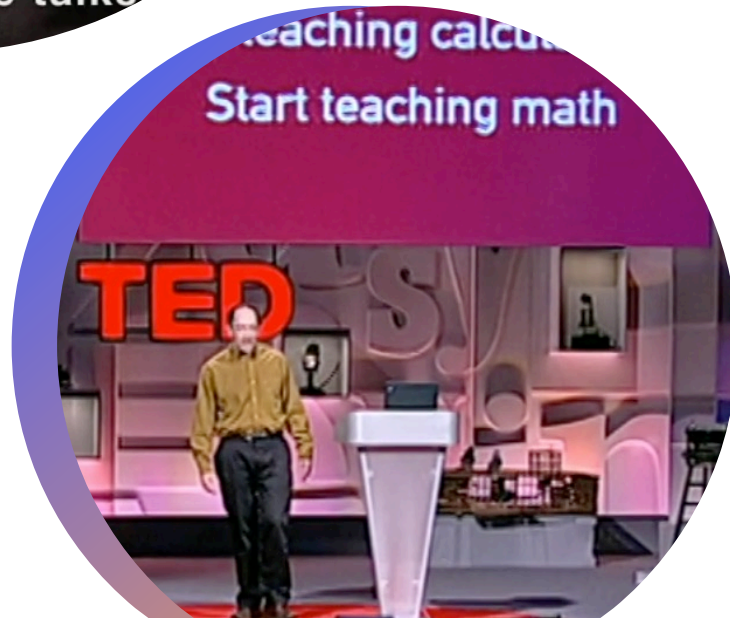


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# 21<sup>st</sup> Century Brings Some New Tools & New Thinking

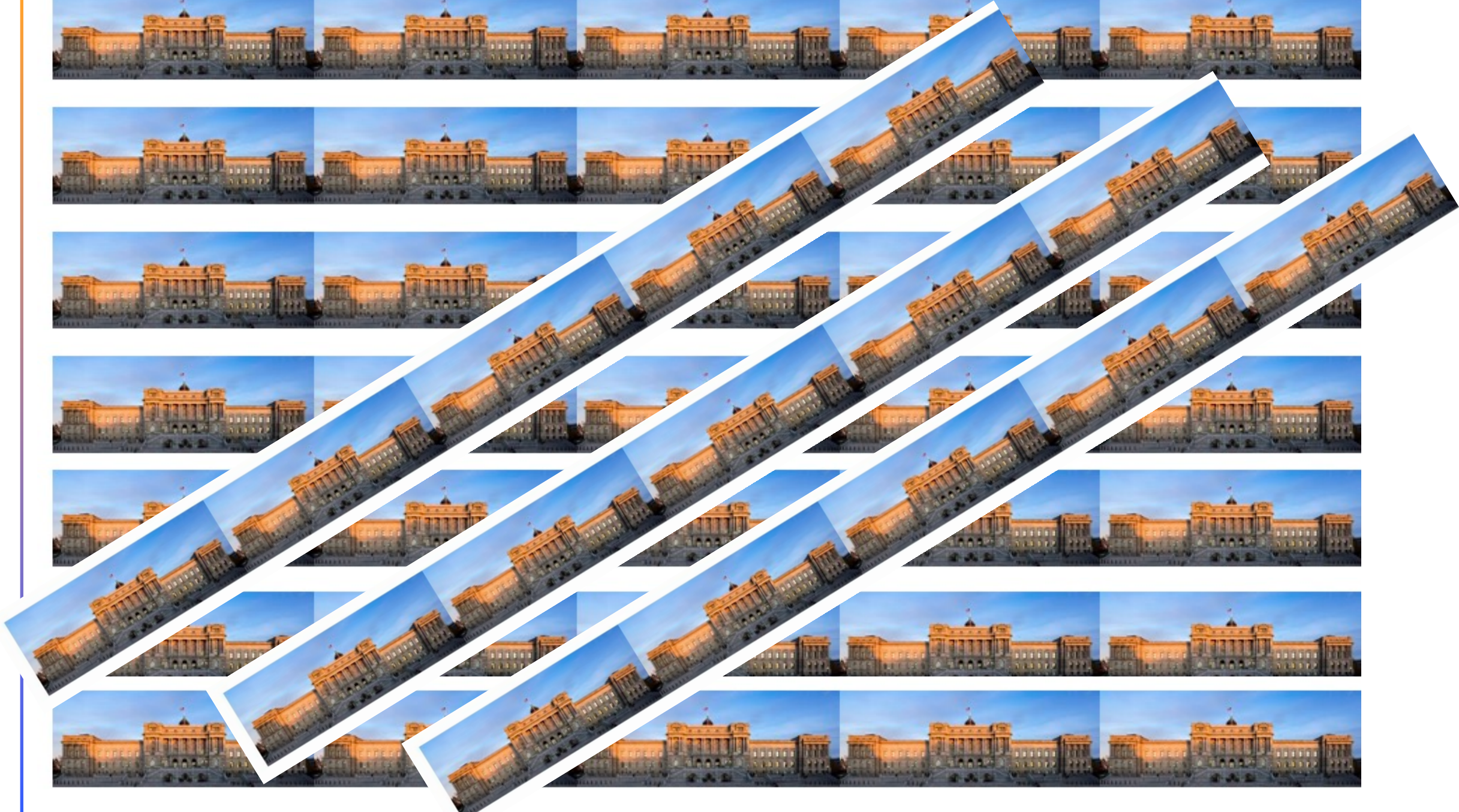
- Two TED talks come to mind:
- Arthur Benjamin 2008
- Conrad Wolfram 2010

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# The US Library of Congress





# HERE'S THE PROBLEM!

The math we teach children is ill-equipped to deal with the mountain of data we generate.





# The Solution is Data Science

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Yes it contains Statistics

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But with an eye on Storytelling and  
Visualization

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Technology Intensive, completely  
digital as analog is utterly impractical

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Types of data can vary, political, economic,  
health, civic, geographic, biological, physics,  
mathematical,

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It is a science, experiments to  
generate models,



# Is this just a dream? No!



Univ. of California Los Angeles and LA Unified School Dist. Have Introduction to Data Science course developed and available



Stanford/youcubed is presently at work writing a course that we will make available free of charge, will use freely accessible, public datasets, free tools, and have a focus on empowering students



**BEST OF ALL, WE ARE AIMING IT AS AN OPTION TO REPLACE THE SECOND YEAR OF ALGEBRA IN THE CURRICULUM!**

# Is this just a dream? No!



*Due for release in Fall '21*

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# References

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<https://www.edweek.org/ew/articles/2018/05/23/calculus-is-the-peak-of-high-school.html#:~:text=Today%2C%20some%20800%2C000%20students%20nationwide,the%20course%20before%2011th%20grade.>
- Library of Congress General Information: <https://www.loc.gov/about/general-information/>
  
- Thanks to Sophia Stier of lilmathgirl.com for the Geometry Sandwich graphic.