

Talking About Numbers

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DSC 96



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[Main page](#)

[Contents](#)

[Featured content](#)

[Current events](#)

[Random article](#)

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[Article](#)

[Talk](#)

[Read](#)

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Data science

From Wikipedia, the free encyclopedia

Not to be confused with [information science](#).

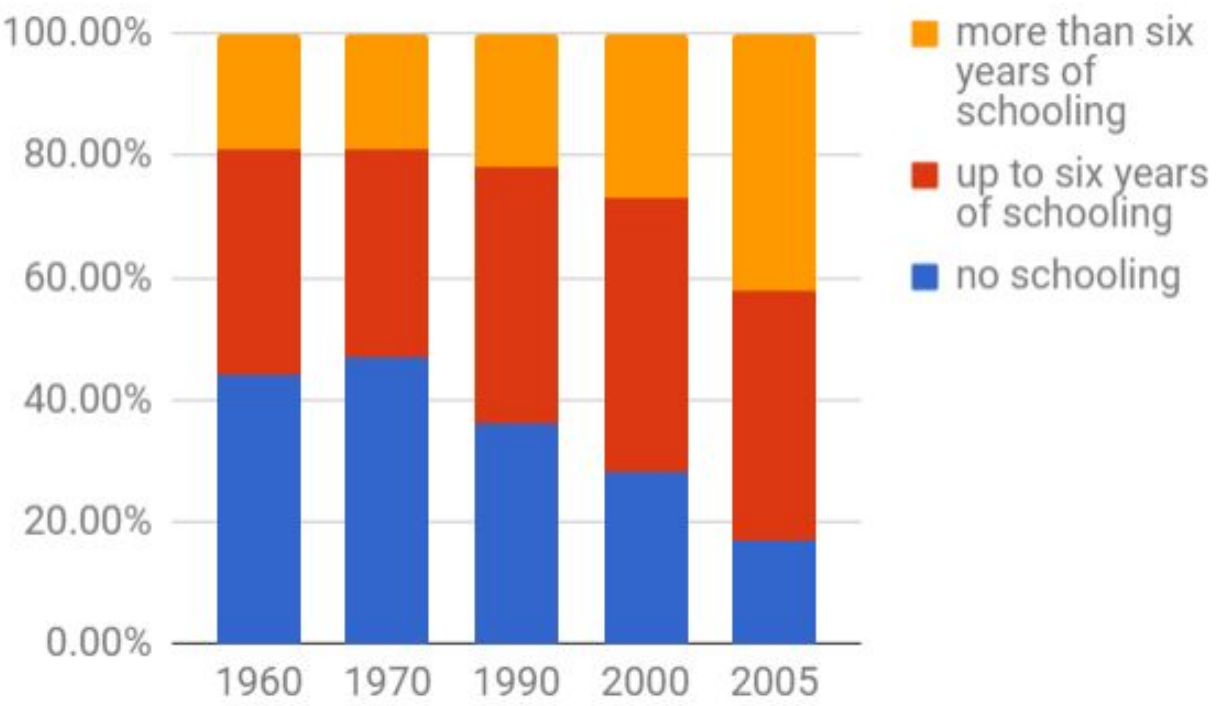
Data science is an interdisciplinary field that uses scientific methods, processes, algorithms and systems to extract [knowledge](#) and insights from [data](#) in various forms, both structured and unstructured,^{[1][2]} similar to [data mining](#).

Doing the analysis right.

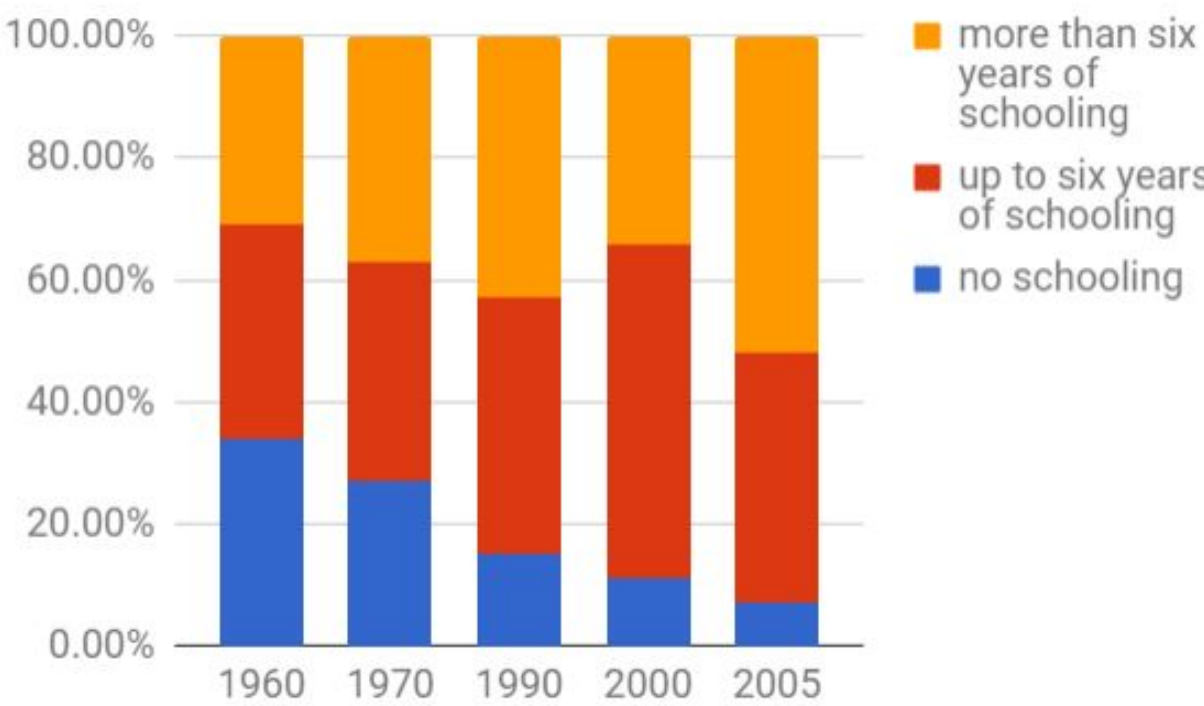
vs.

The right answer.

Female Educational Attainment



Male Educational Attainment



What percentage of men in 1970 had more than six years of schooling?

☐ 0-10%

☐ 10-20%

☐ 20-30%

☐ 30-40%

☐ 40-50%

☐ 50-60%

☐ 60-70%

☐ 70-80%

☐ 80-90%

☐ 90-100%

If the consumer of your analysis draws the wrong conclusion, you lied to them.

1. Understand your audience
2. Simplify
3. Create a data-driven culture

The proposed filter can alternatively be applied to modal localization with vertical aperture for the sake of comparison.

- ▶ In this application, if $f(\mathbf{x}|\mathbf{s}^k[n])$ is forced to be Gaussian, so that $\lambda_m = 0 \ \forall m > 2$, the proposed filter reduces to the optimal uncertain field processor (OUFP).
- ▶ If $f(\mathbf{x}|\mathbf{s}^k[n])$ is further reduced to be a delta function (known environment), the result is matched field processing (MFP).

$$f(\mathbf{s}|\mathbf{x}) = \eta f(\mathbf{s}) \int \exp\left(\frac{-(\mathbf{x} - \mathbf{r}(\mathbf{s}, \mathbf{s}_e))^H \mathbf{I}(\mathbf{x} - \mathbf{r}(\mathbf{s}, \mathbf{s}_e))}{2\sigma_n^2}\right) f(\mathbf{s}_e) d\mathbf{s}_e$$

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UPLOADED BY

All

TEAMSITE

All

USER GROUP

All

ACTIVITY IN PAST

Day

Week

Month

Quarter

Year

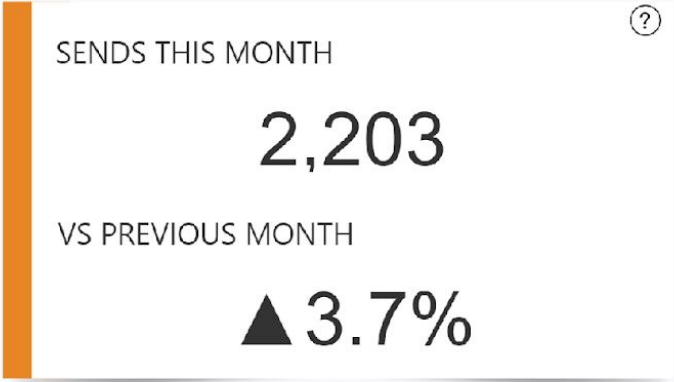
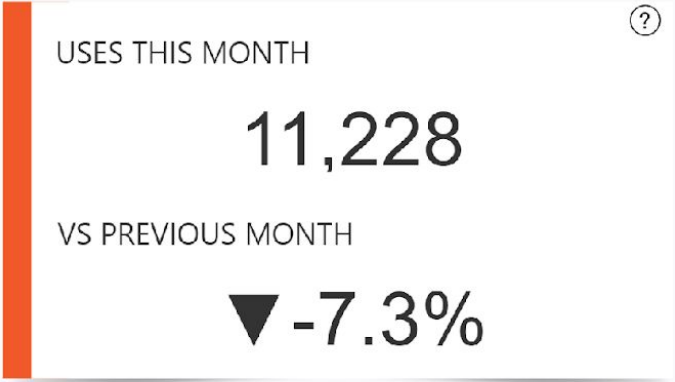
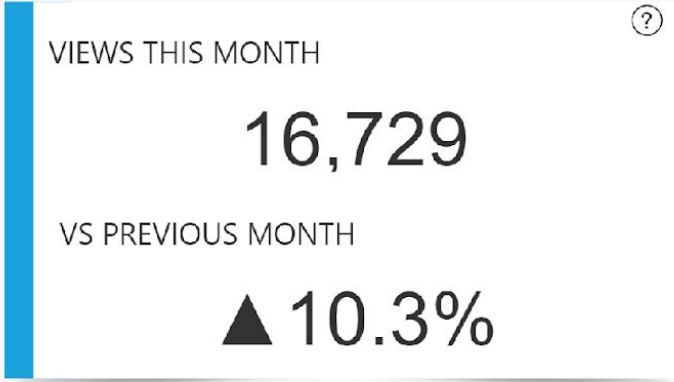
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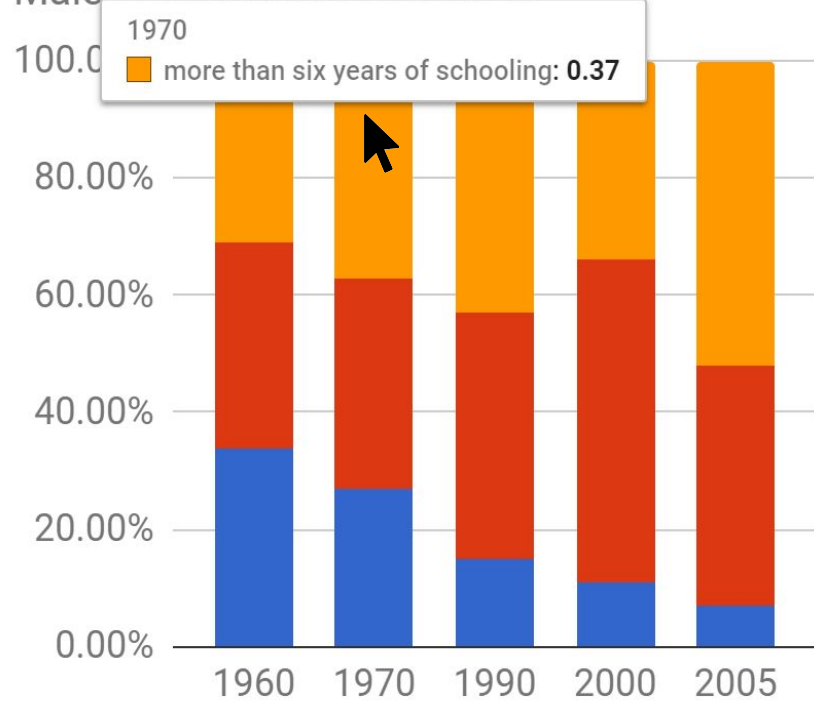
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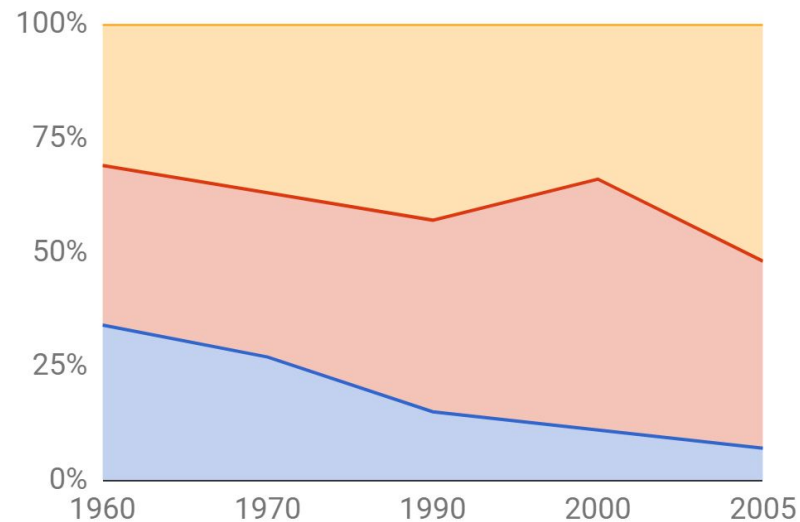
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Male Educational Attainment



Male Educational Attainment



Year	no schooling	up to six years of schooling	more than six years of schooling
1960	34.00%	35.00%	31.00%
1970	27.00%	36.00%	37.00%
1990	15.00%	42.00%	43.00%
2000	11.00%	55.00%	34.00%
2005	7.00%	41.00%	52.00%

Google

What percentage of males had more than six years of education in 197

Google Search

I'm Feeling Lucky

Data-driven culture

- Data
 - Trust
 - Access
- People
 - Literacy
 - Decision making

1. Understand your audience
2. Simplify
3. Create a data-driven culture

Practical Tips

- Answer one question
- Experiment
- Get Feedback
- Iterate

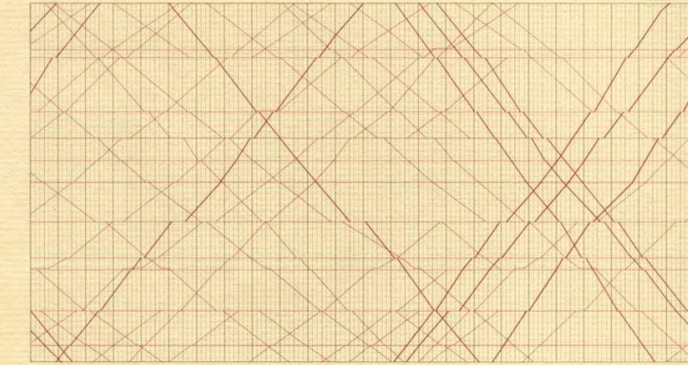
NATIONAL BESTSELLER

INNUMERACY

MATHEMATICAL ILLITERACY
AND ITS CONSEQUENCES

JOHN ALLEN PAULOS

"Our society would be unimaginably different if the average person truly understood the ideas in this marvelous and important little book."
—Douglas Hofstadter



The Visual Display of Quantitative Information

EDWARD R. TUFT

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