

Theoretical Vs. Practical Model Building

Crossing the Practical Application Divide

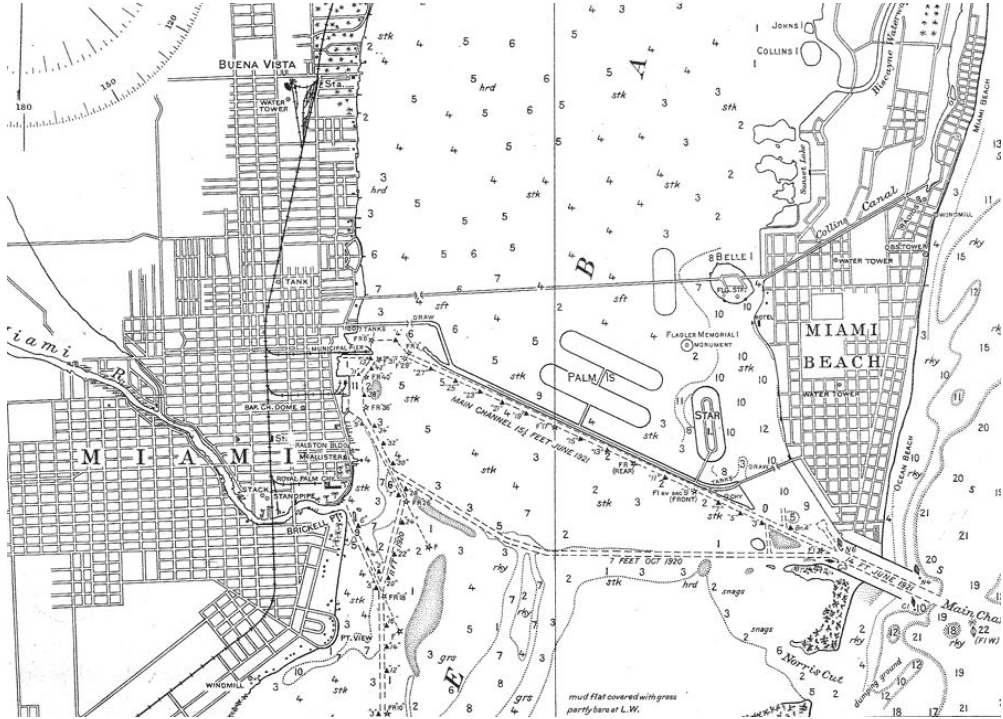
Otakar G. Hubschmann

TransRe Head of Applied Data

Don't Worry. It's not that Kind of Talk



What's the Ground Truth?



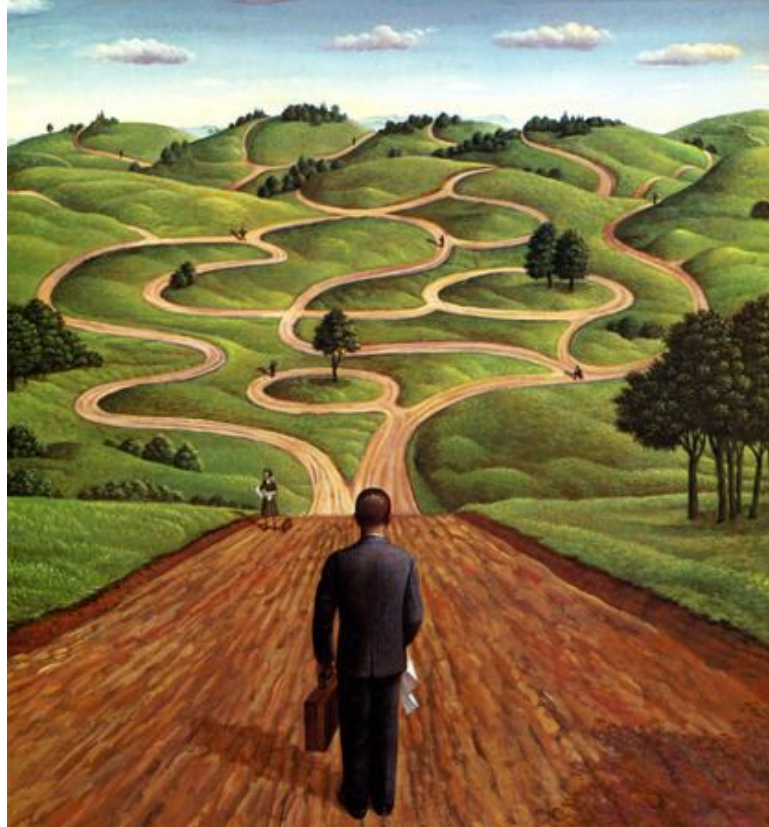
The Idealized Version of the Ground Truth- Ideas Yay!!!



The Real Ground Truth- Nobody Cares



Act 1- Why can't I reproduce that research paper? The beginning



I Don't Believe You Dr. Smart Person



nature > special

MENU ▾

nature
International journal of science

Special | 18 October 2018

Challenges in irreproducible research

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Science moves forward by corroboration – when researchers verify others' results, people waste less time pursuing false leads. No research paper can ever be consi

FACT CHECK

The titans of AI are getting their work double-checked by students

By [Dave Gershgorn](#) • November 4, 2017



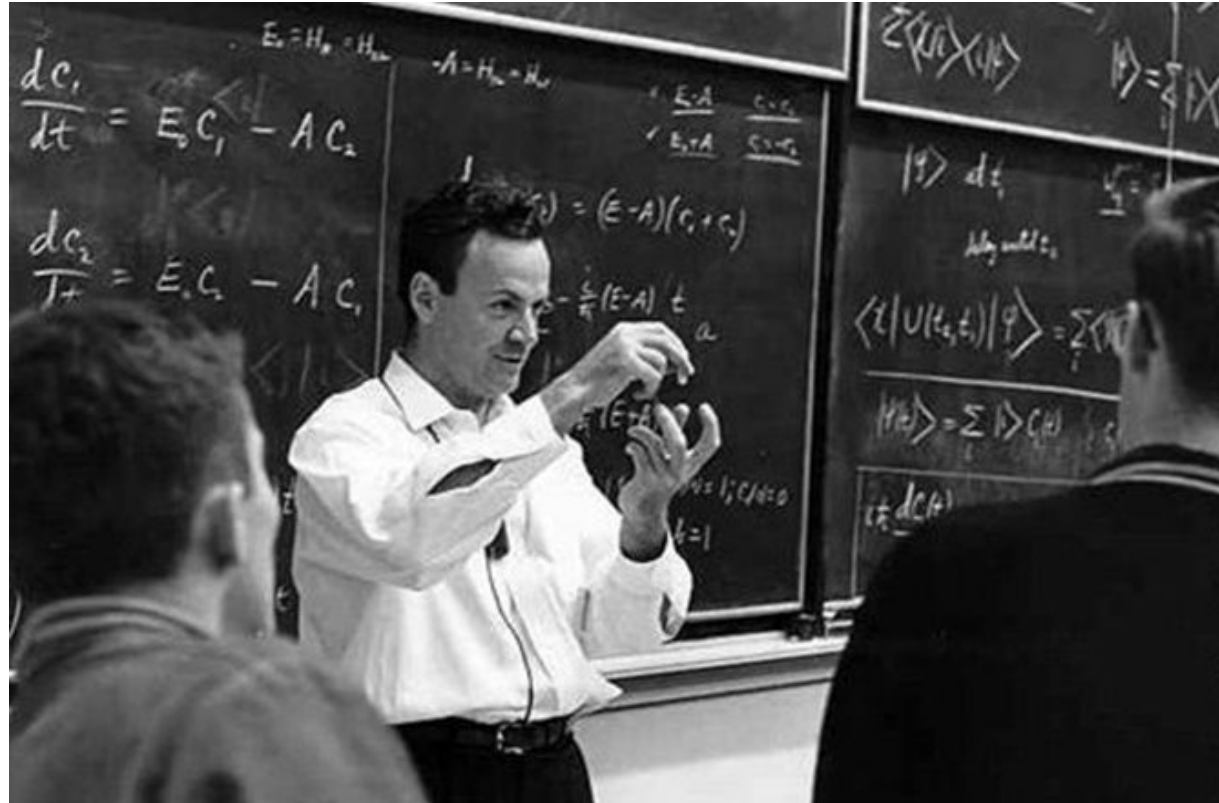
Misalignment



**Act 2- I swear my model worked in the backtest- a.k.a.
why doesn't what you want to happen, happen?**



“The first principle is that you must not fool yourself – and you are the easiest person to fool” -Richard Feynman



You are not alone_

$$C = SN(d_1) - N(d_2)Ke^{-rt}$$

C = Call premium

S = Current stock price

t = Time until option exercise

K = Option striking price

r = Risk-free interest rate

N = Cumulative standard normal distribution

e = Exponential term

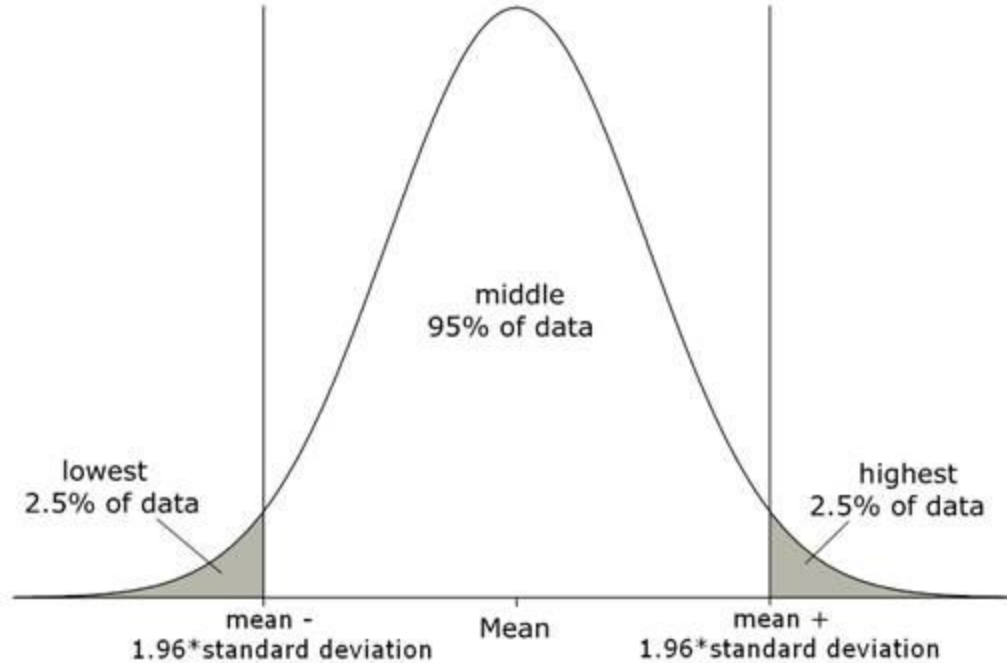
s = St. Deviation

ln = Natural Log

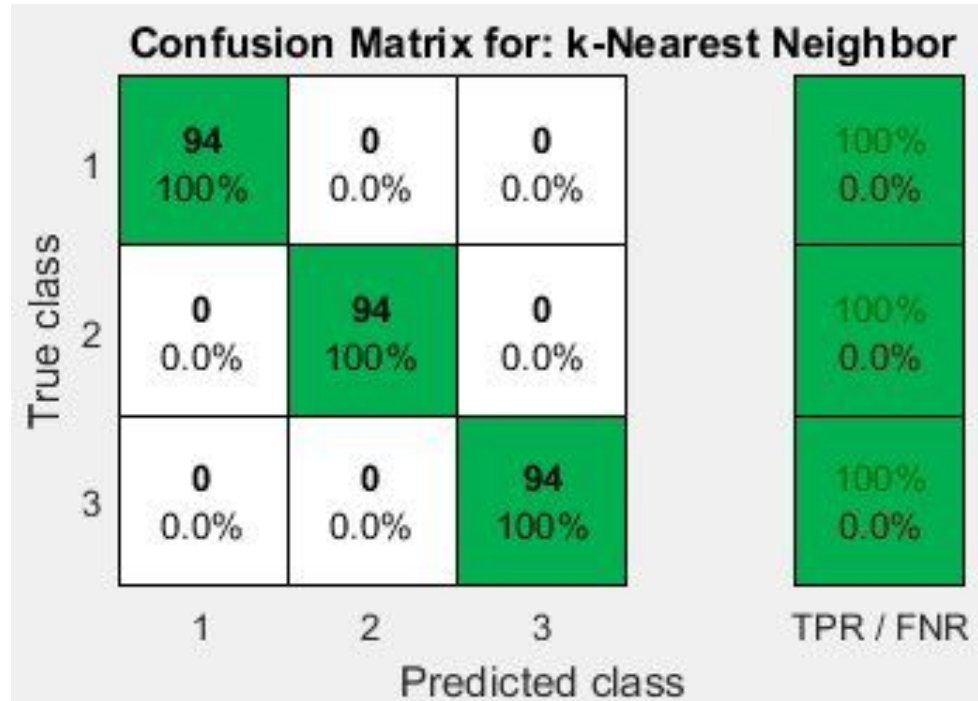
$$d_1 = \frac{\ln(S/K) + (r + s^2/2)t}{s \cdot \sqrt{t}}$$

$$d_2 = d_1 - s \cdot \sqrt{t}$$

What are You Doing Again?-Model Change Creep



You can beat an ML model into Submission



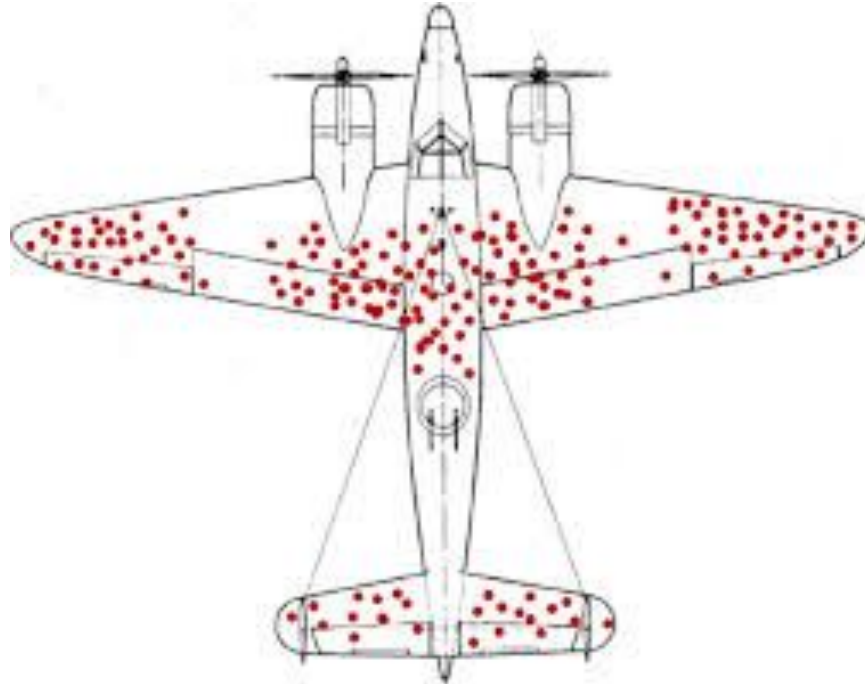
The Real World Has Sharp Edges



Scaling



Survivorship Bias



Pre and Post Trade Decisions

Lookback Bias



ML Hammer Time!



Act 3- It doesn't have to be this hard, does it?



Stay Clean



Reproduce



Modularize Pipelines for Maximum Optionality



Find Your Swiss Army Knife



Penalize Your Models



Let People Help You



When it Works...



Links and Information:



<https://github.com/rakato/TheovPracticalModelBuilding>