INDECISION – FUN VS. FORMAL

Fun
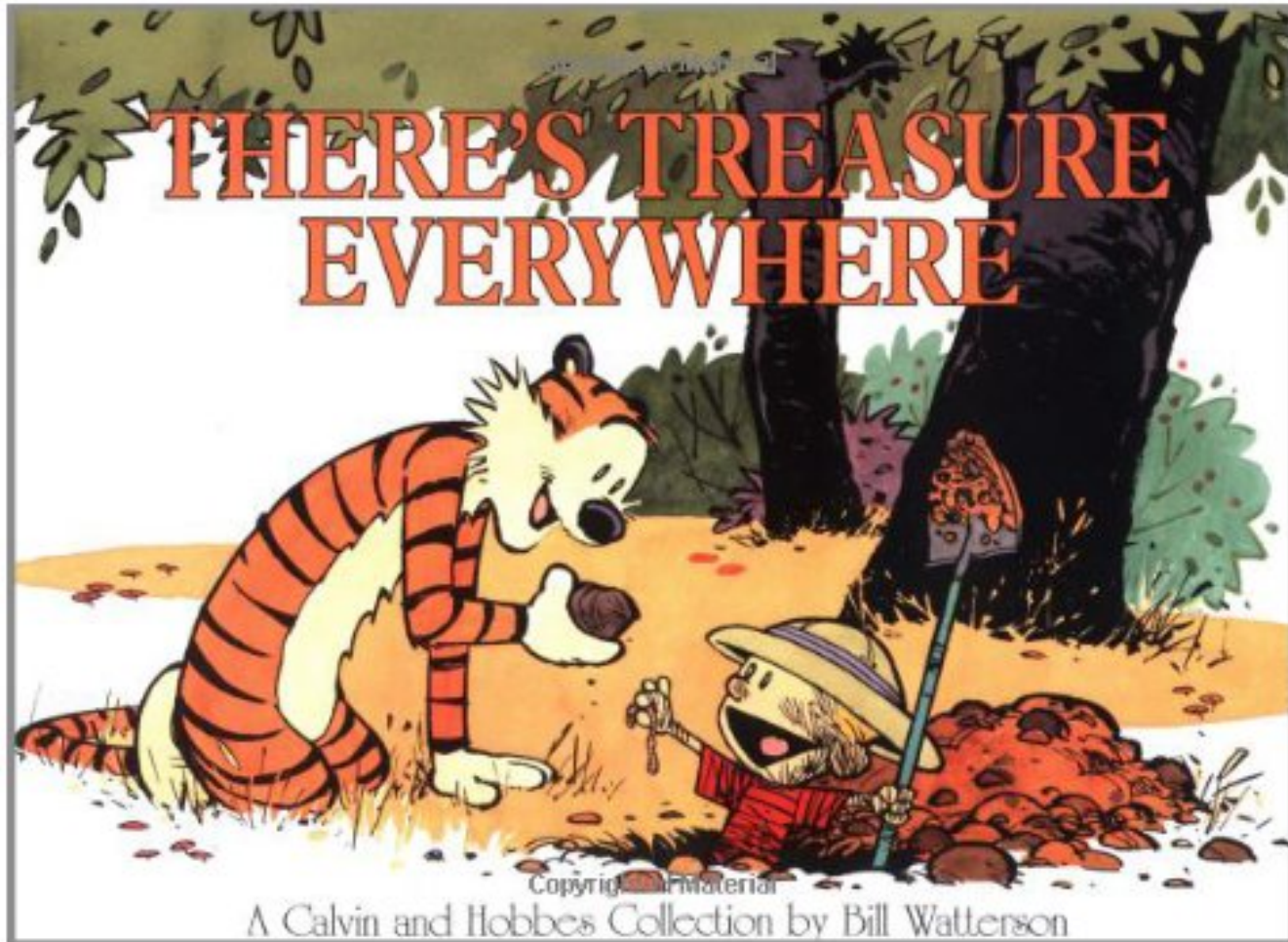
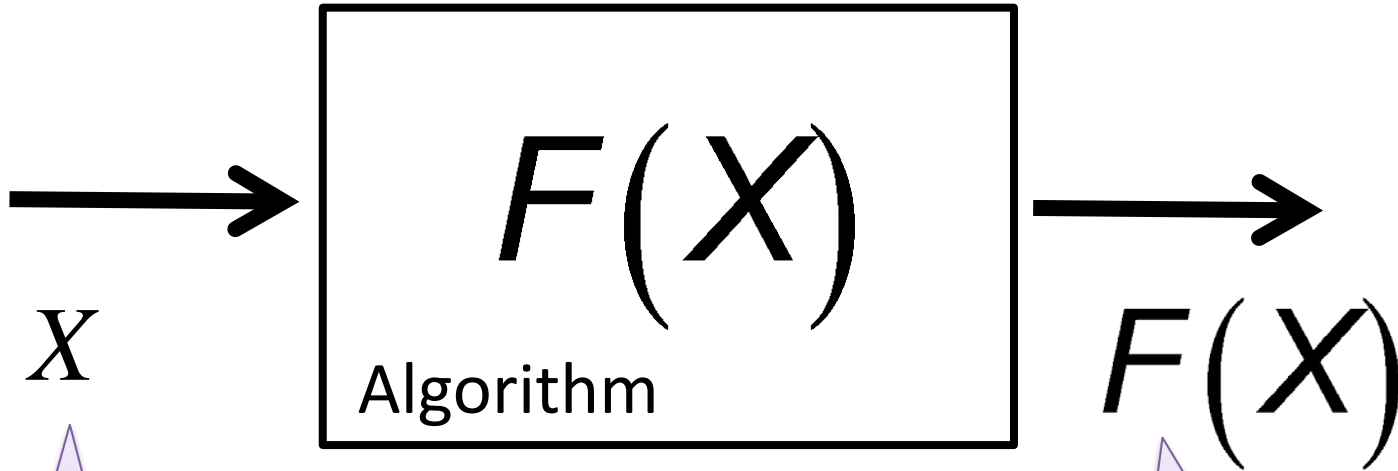Is found data truly treasure?

Formal

$$F(X)$$
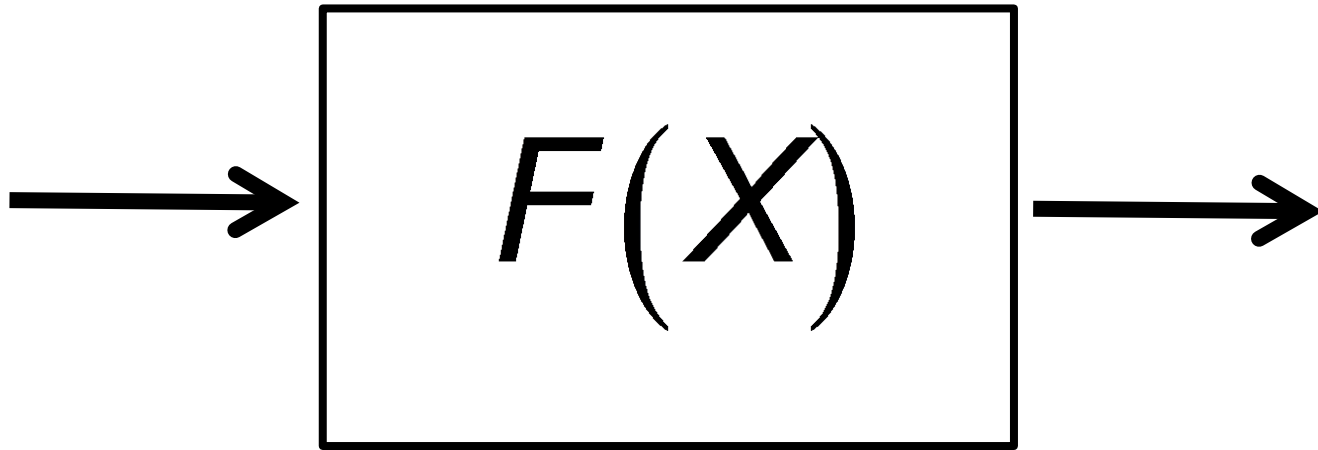
Formal

Name This Researcher

Name This Researcher

Robert M. Haralick (S'62–M'69–SM'76–F'84) was born in Brooklyn, NY, on September 30, 1943. He received the B.A. degree in mathematics from the University of Kansas, Lawrence, in 1964, the B.S. degree in electrical engineering in 1966, the M.S. degree in electrical eingineering in 1967, and the Ph.D. degree from the University of Kansas in 1969.
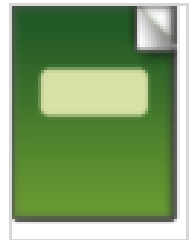
Throwing Down the Gauntlet
(21 Years Ago)

Dialogue

Performance Characterization in Computer Vision

R.M. Haralick

Goal: A <u>full</u> analytical model – inputs to ouputs
(perhaps a touch overstated, but not a lot)
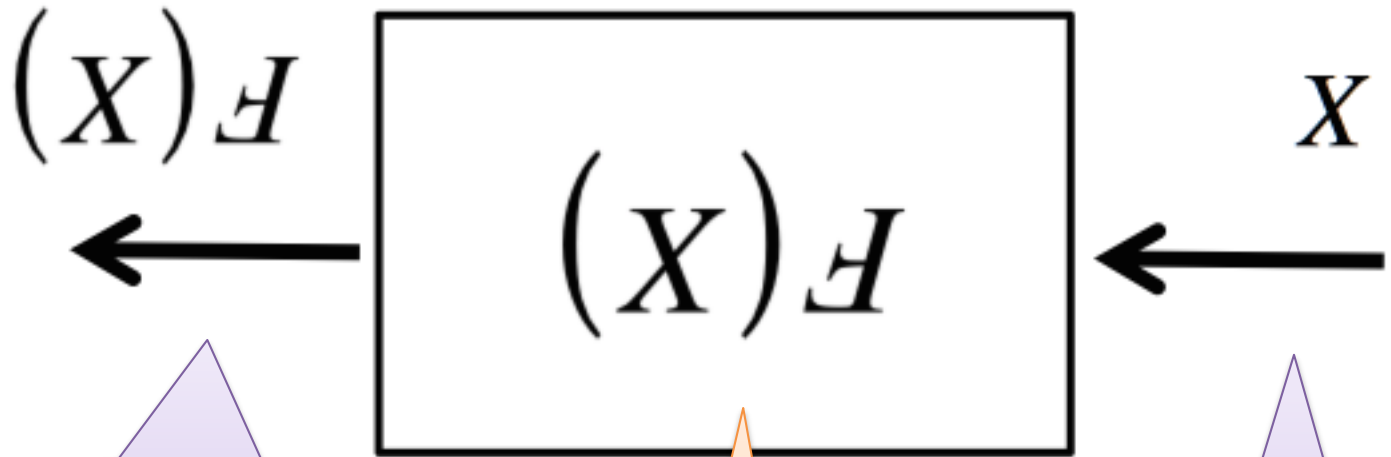
Oncoming Gauntlet - Duck

ELSEVIER

Reply

Response to "Performance Characterization in Computer Vision"

B.A. Draper, J.R. Beveridge

Response: A <u>full</u> analytical model is not feasible.
The space of inputs ill-defined in open world problems

Alas – Today We Often …
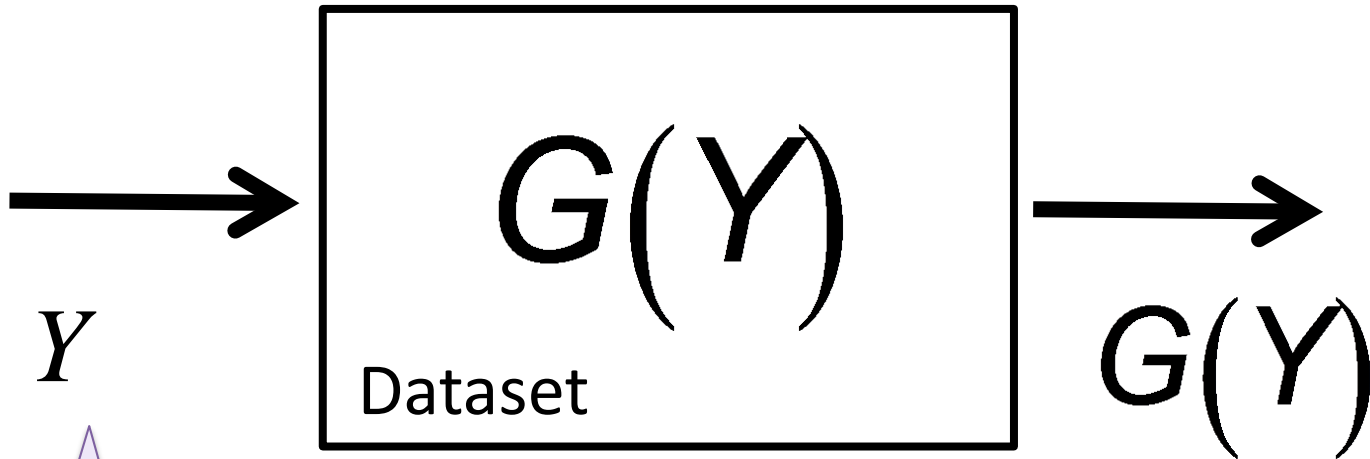
This View Shown Right-side Up

Y → | $G(Y)$
 Dataset | → $G(Y)$

Set of Algorithms

Algorithm	Score
SVM-Snoopy	63.0
GSM-Calvin	69.0
Mine	73.0

Who jumps highest protocol

Finally .. the Real Question

What are we trying to accomplish?

Here is a true story from ~2003 - slightly abbreviated:

Ross to Geof*: *When is 73.0 versus 69.0 significant?*

Geof to Ross: *Wouldn't you rather know what contributes to changes in performance?*

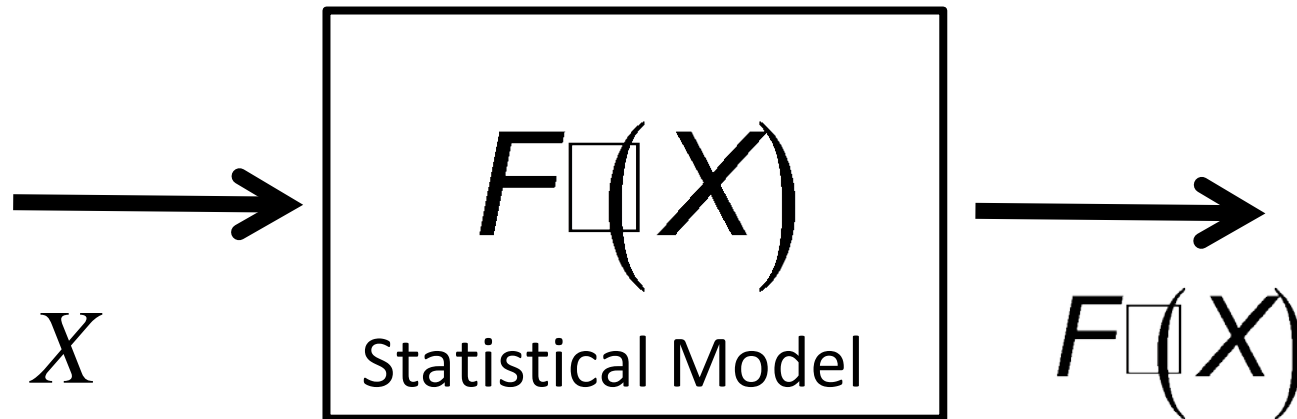Ross to Geof: *Hmm, I hadn't thought to ask, yes I would.*

*Geof Givens is the statistician who has worked as part of the CSU evaluation team for the past ten years.

Beyond "Who Jumps Highest"

Run algorithm(s) on data & record outcome

Now build a statistical model linking domain covariates to algorithm performance

$$X \longrightarrow \boxed{\begin{array}{c} F_{\square}(X) \\ \text{Statistical Model} \end{array}} \longrightarrow F_{\square}(X)$$

Perils & Promise of Found Data

- Fundamentally, I am agnostic
  - Found or Collected, both could work …
- But
  - Found or collected,
  - getting beyond "Who jumped higher" is important!
- Example
  - FG 2015 Video Person Recognition Evaluation
  - What matter most for performanc?
    - Setting (Sensor + Location + Action)