Code Hibernation and Survivability

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Clojure/SYNC

2018

Hibernation?

Timescale of years to decades

Original author inaccessible

'Reviver' not a domain expert

No VMs/Containers

Hibernation?

Human-Scale solution

Comprehensibility

Simplicty

Context

Survivability?

Let's replace our archived data
with inputs and programs

(NOoooooo!)

First Model

s

First Model

Resilience/Fragility

$$R = 1 / F$$

Industrial Engineering?

Defect Rate?

Drift defined as D

Statistical model like the Poisson Distribution?

Industrial Engineering?

$$R \approx 1 / D$$

Magnitude of impact

$$R \approx 1 / M \cdot D$$

Magnitude of impact (Papers We Love)

Bound?

'Mathematical Limits to Software Estimation'

JP Lewis, Stanford

Applies Kolmogorov Complexity to Estimation

Worst case - completely replace the dependency every time something changes

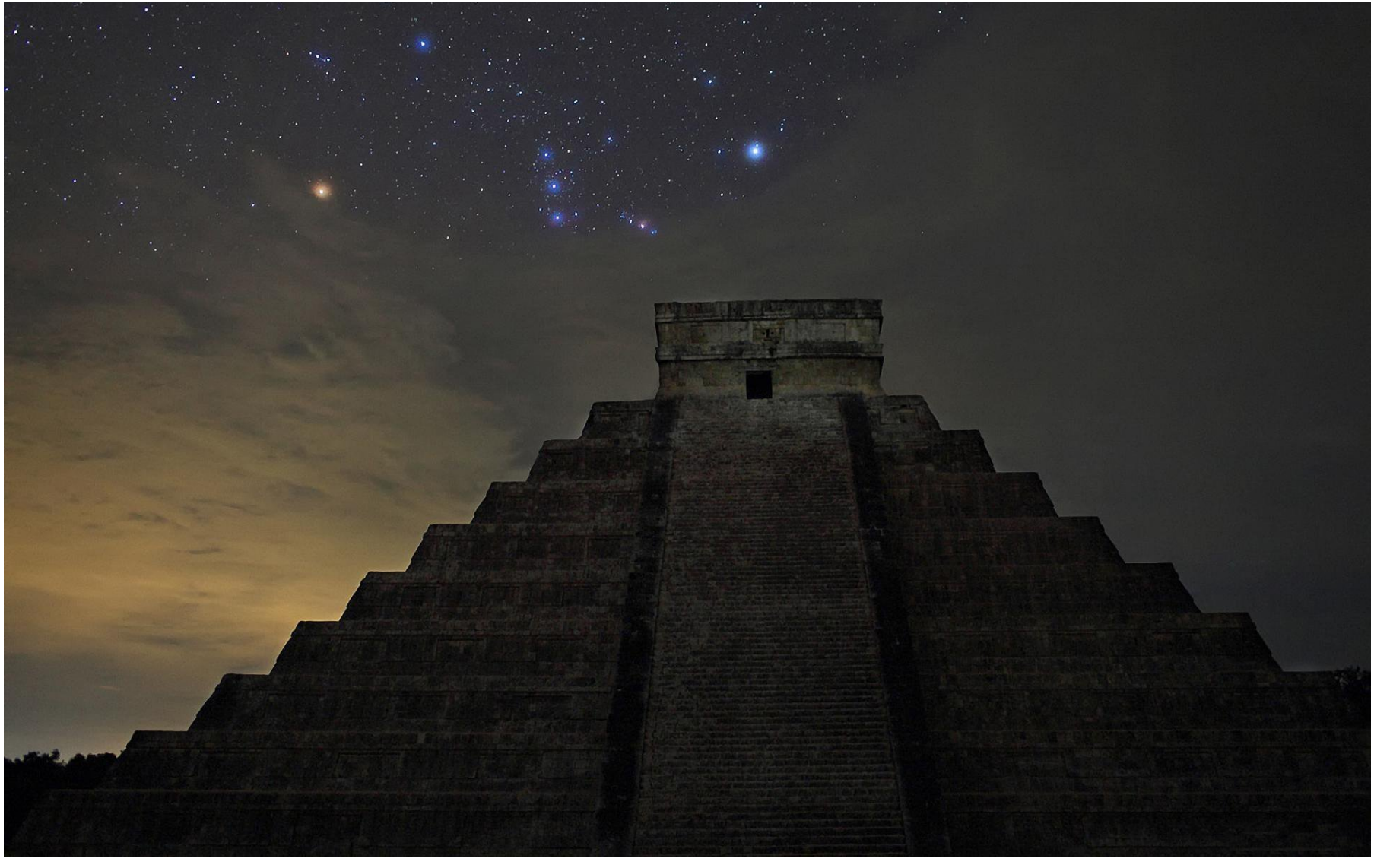
Linearly independent set of dependencies

$$R \approx 1 / \sum_{i=1}^{n} M_i D_i$$

(Linear? Yeah, Right!)

Great Pyramid of Giza, built 3rd millenium BC (?)

Symbols carved onto stone pillars at Gobekli Tepe between 10th - 8th millennium BCE



Chichén Itzá, Mexico, built sometime between 600 A.D. to the 1200s

'City of Workers', 3rd millenium BCE

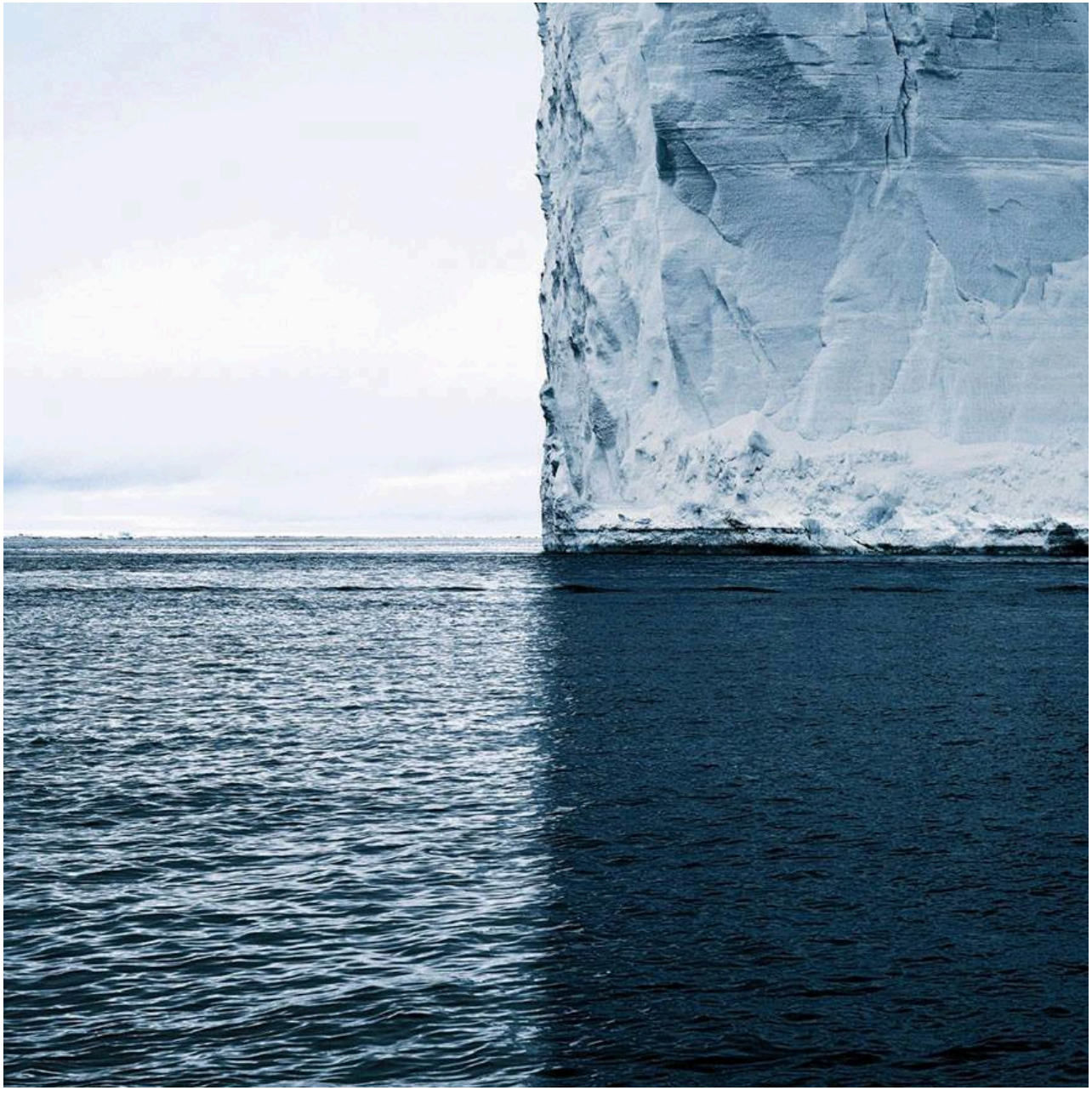
Monumental statues called moai on Easter Island,
13th-16th century

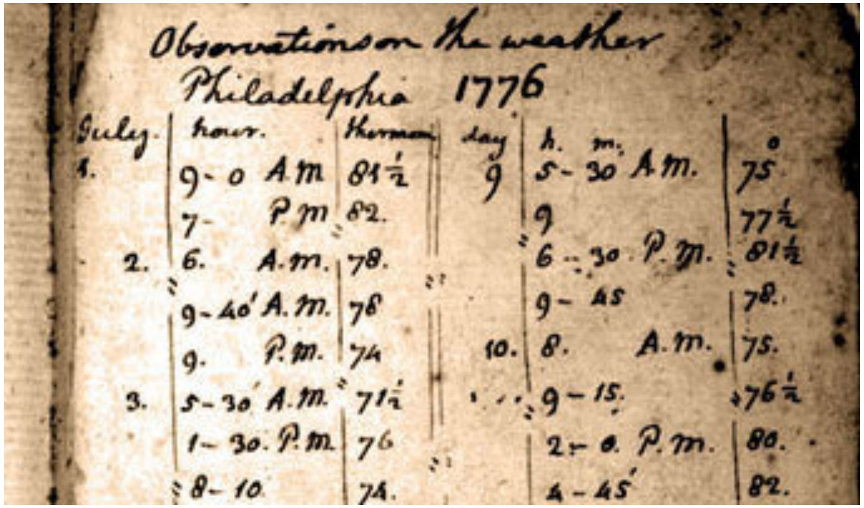
A civilization is defined by its monuments

Confidence in our institutional knowledge is a cultural blind spot

Never understimate the ingenuity inspired by necessity,

Baishampayan Ghose (BG!!)





Observations on the weather
Philadelphia 1776

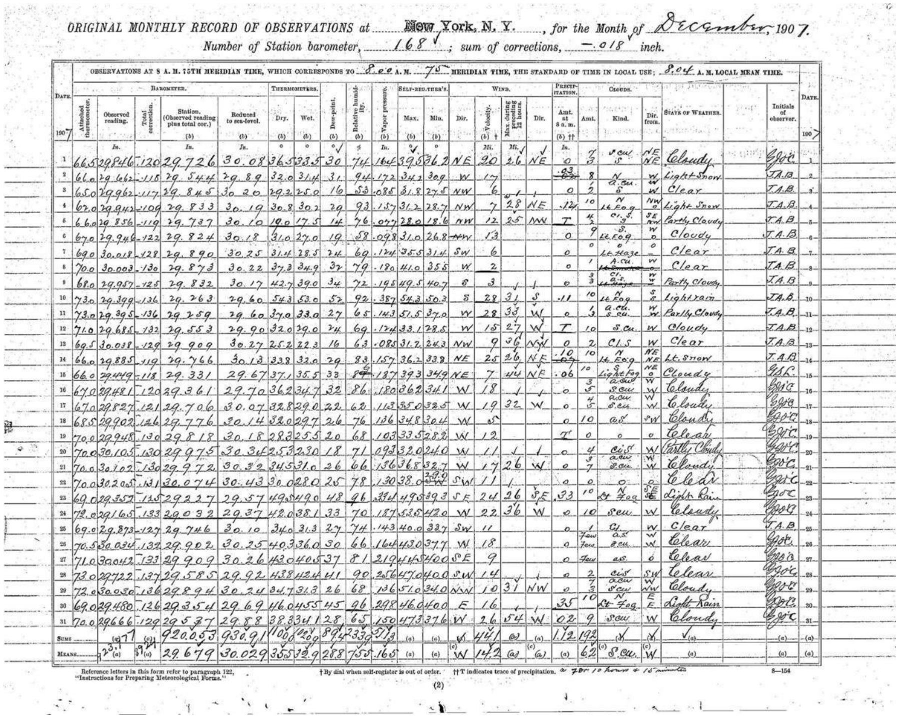
July.	hour.	Thermom	day	h. m.	°
1.	9-0 A.m	81½	9	5-30 A.m.	75
	7- P.m	82.		9	77½
2.	6. A.m.	78.		6-30 P.m.	81½
	9-40' A.m.	78		9-45	78.
	9. P.m.	74	10.	8. A.m.	75.
3.	5-30' A.m.	71½		9-15.	76½
	1-30. P.m.	76		2-0. P.m.	80.
	8-10	74.		4-45	82.

Collective recognition of the prevasive impact

Data collection was a necessity and a passion

Telegraph

Systematic collection of what they knew was relevant at the time



ORIGINAL MONTHLY RECORD OF OBSERVATIONS at New York, N. Y., for the Month of December, 1907.
Number of Station barometer, 168; sum of corrections, -.018 inch.

Wait What?

(We have it easy!)

Already have a huge corpus of data

We are connecting the dots on how pervasive classes of problems are in practice

We created the problem and have far greater control over the problem space

Creating a historical record

Go with the simplest taxonomy

Systematically add
a 'dependency' annotation to all relevant checkins

Motivation at organizational scale

First test of our Model!

Motivation at organizational scale

Risk assessments are ultimately evaluated (typically) by their financial impact

Code debt:

$$\$_{deps} \approx \sum_{i} M_i D_i$$

M is the historical man-hours

D is a domain expert assessment of likelyhood

What else?

Build an Archive

Adapt git/source control system to accomidate anonomyized data

Carve up other domains with a simple systematic taxonomy.

Code Archeology

Many Thanks!