Prediction: Week 12

Your projects (and your games)

Forum updates

STATISTICAL Algorithmic Prediction*

Derek's Day

Breakout discussions of algorithmic prediction

Next…

*today's class is helping refine predictionx.org/algorithmic-forecasting

Your projects…

Help with Final Videos

London Vallery

Apr 19 at 8:06pm

All Sections

Hello all!

As we approach the end of the semester and begin working on video presentations for your final projects, please know that you can always reach out to me (London) or Elliott if you run into any issues or need someone to bounce ideas off of. We'd be able to provide any technical, structural, or conceptual support you may need. Shoot either one of us an email and we can send back feedback or find a time to chat.

Looking forward to all of your wonderful work,

London

London's Contact: londonvallery@college.harvard.edu

Elliott's Contact: elliotthyman@college.harvard.edu

(and your games)

Forum update 1—short assignment for Thursday

The Prediction Project

The Past and Present of the Future

HOME ABOUT MATERIALS COURSES TALKS WRITINGS PRESS FORUM

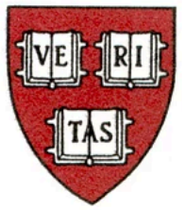
Search the forum, and mo...

Prof. Alyssa Goodman · PredictionX Team 7m · Edited: 1m

Harvard students comment on "Uncertain Risks"

Comment

Following Post



In the Fall of 2020, my colleague, Prof. Immaculata De Vivo of the Harvard School of Public Health, and I wrote an essay about the public perception of **risk** and **uncertainty**, especially with regard to COVID-19. In this post, we are gathering comments from students in the Spring 2021 edition of "GenEd 1112: **The Past and Present of the Future,"** an undergraduate course I teach at Harvard. Students were asked to read the essay, and then comment here on which part(s) of the discussion they expect would be most illuminating for non-quantitatively-inclined readers --and/or to suggest another framing of the issues discussed that would be more effective.

4 views

0 comments

Similar Posts

Students will be posting here!

Forum update 2 — a note from Jill Tarter

“To answer the question about hard science vs. science fiction as basis for studying astrophysics - you need the tools. you need to comprehend what and how we think we know about the cosmos in order to consider what's the next step that's needed. However, the great thing about being a scientist is that you never need to grow up, you never need to stop asking 'why?'. You never need to stop reading science fiction to stretch your horizons. And once you have a tool kit for understanding, you can use it on any problem that comes along and catches your interest, no matter what subject.”

Jill Tarter email to GenEd 1112 students, via Alyssa Goodman, April 2021

Algorithmic Prediction

Data-Driven Estimation

Regression & Extrapolation

Bayesian Statistical Reasoning

AI/Machine Learning

Analytic Calculation

Simulation

recall Week 8…

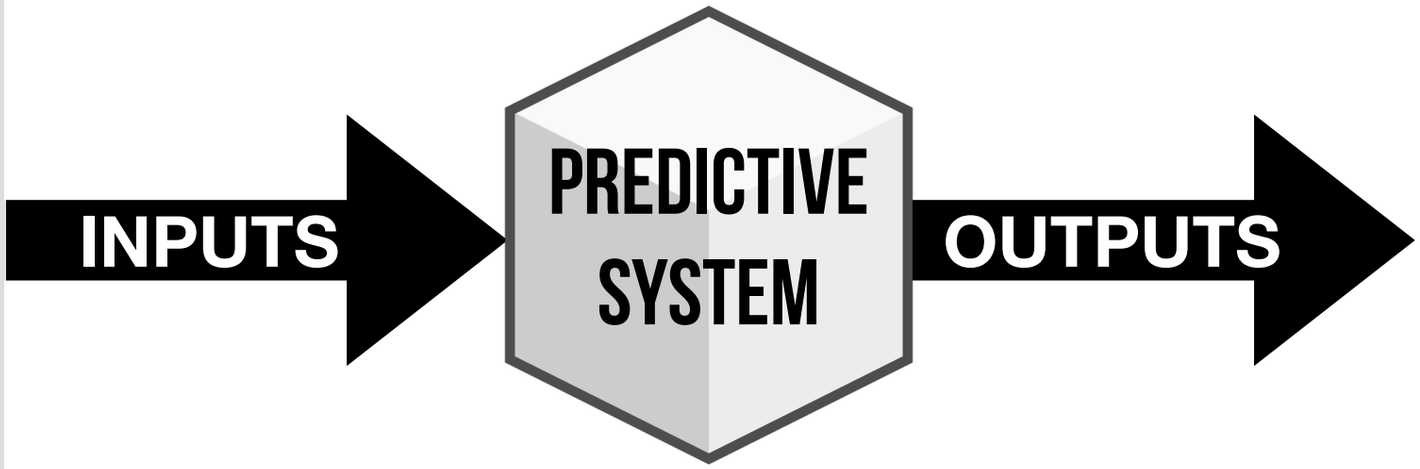
"Models:" Mental, **STATISTICAL**, **SIMULATION**, and Physical

#RANDOM

#RANDOMIZED

#HUMAN

#NON-RANDOM



"HUMAN"

STATISTICAL

SIMULATION

COMBINATIONS

Only "SIMULATIONS" can have truly deterministic rules (but not all do)

om/mental-models/, https://www.bbc.com/news/av/health-30996506/3d-printed-heart-helps-to-save-girl-s-life

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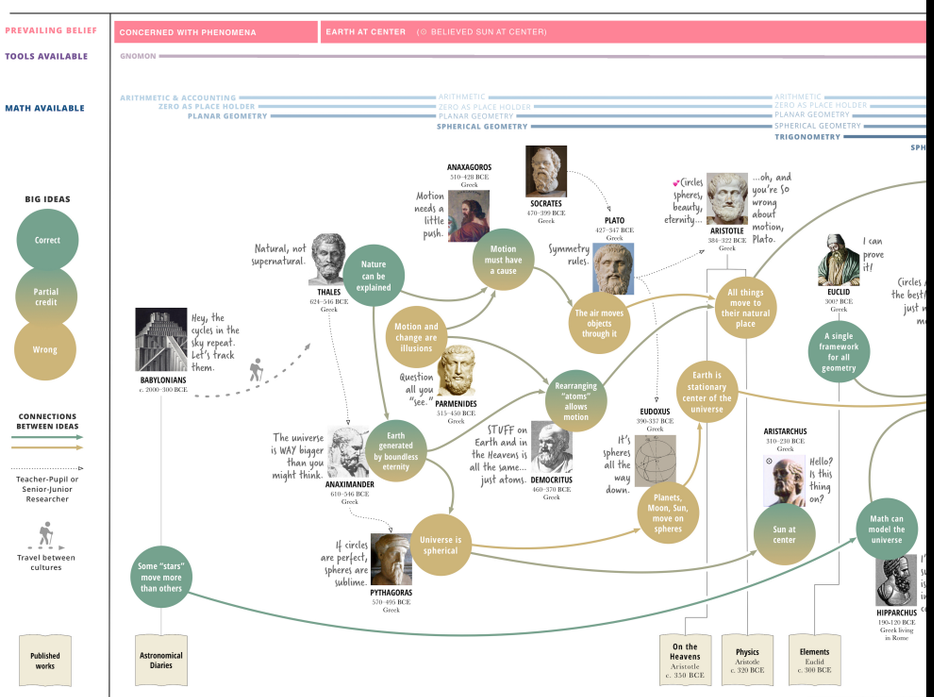
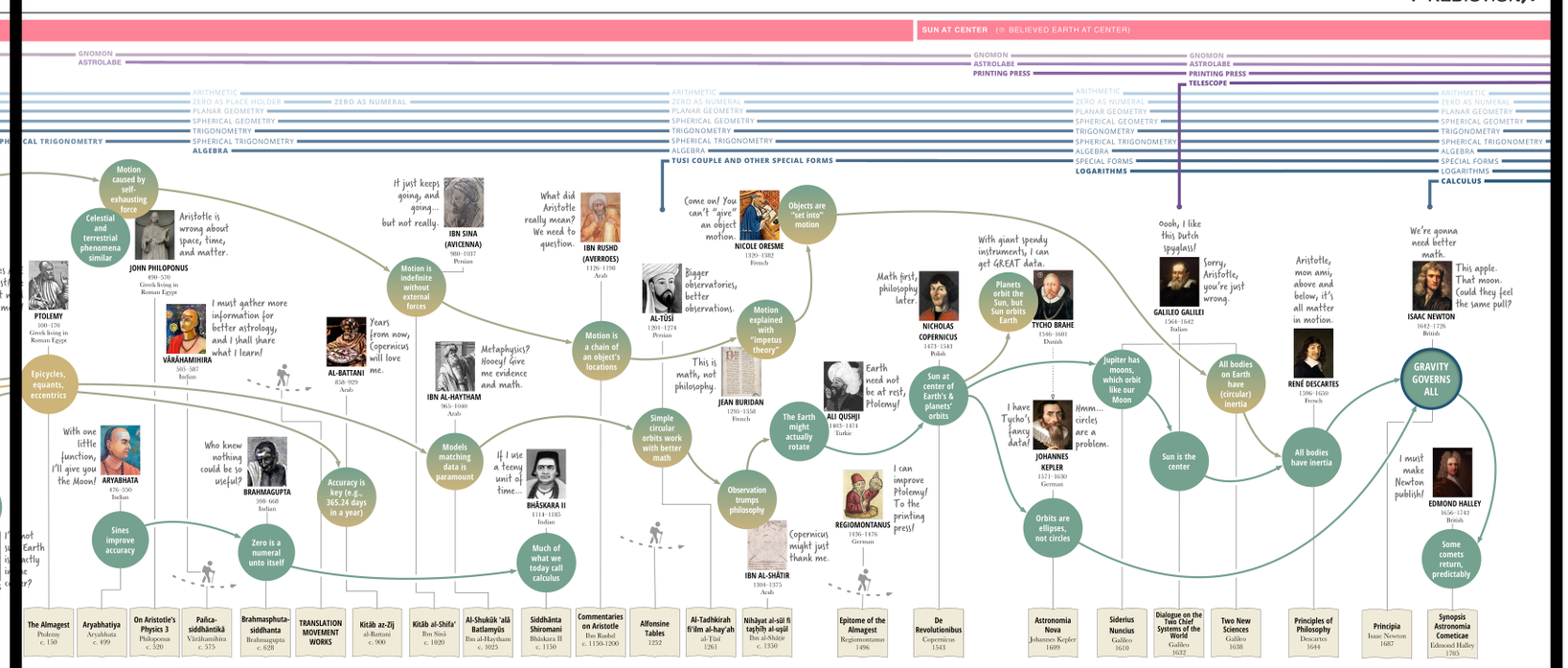
Simulation

The Path to Newton



(Mostly)

Analytic Calculation



Algorithmic Prediction

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Simulation

Simulation


File
Speed
Options
Disasters
Windows
Newspaper
Jul 2256 <Darwin City> $61,909
Query Tool

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STATISTICAL Algorithmic Prediction

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Simulation

Bayesian Statistical Reasoning

$$P(H|E)$$

BAYES' THEOREM

STATISTICAL Algorithmic Prediction

Data-Driven Estimation

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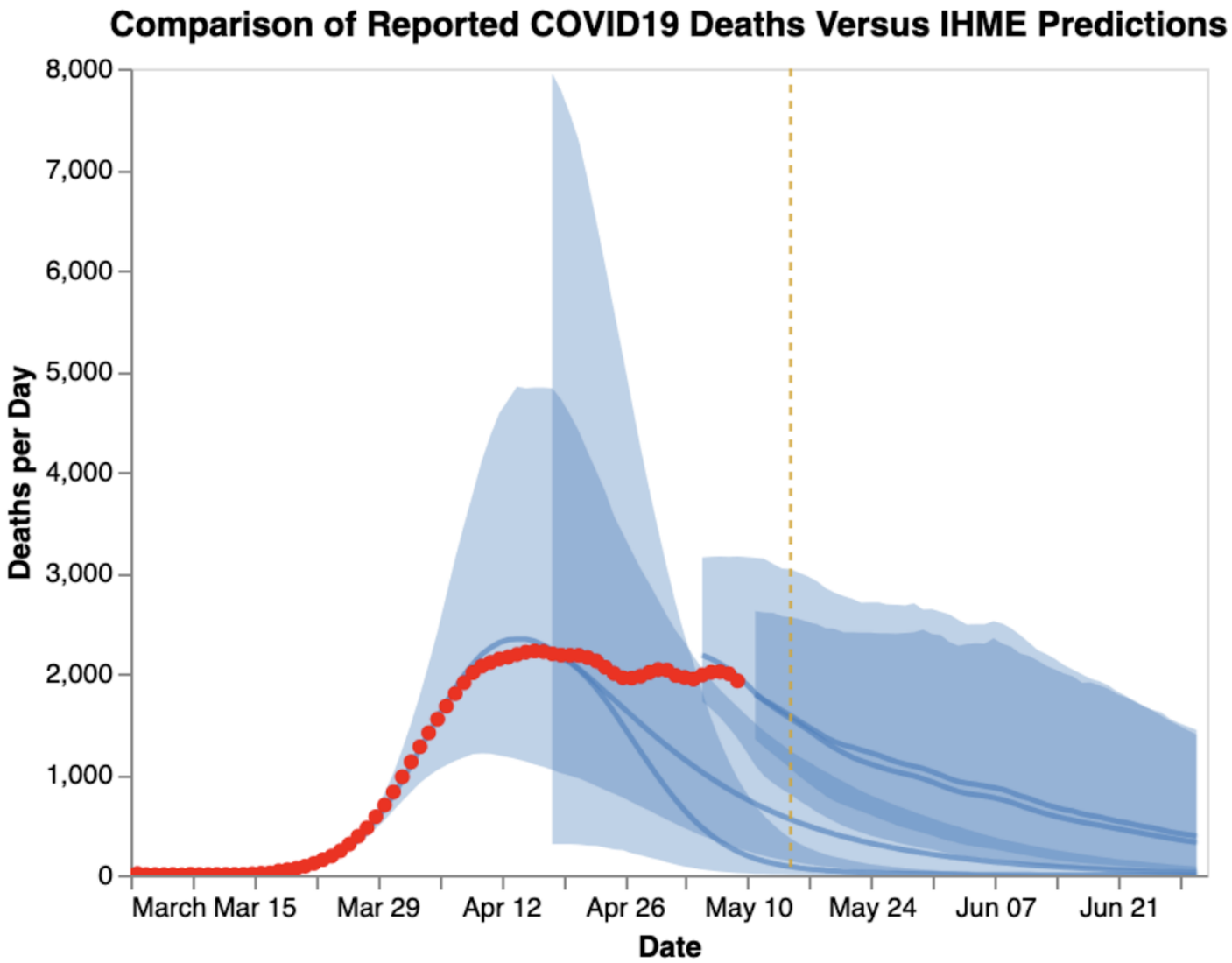
Simulation

Data-Driven Estimation

e.g. IHME early COVID-19 forecasting



predictionx.org/uncertainty-covid19

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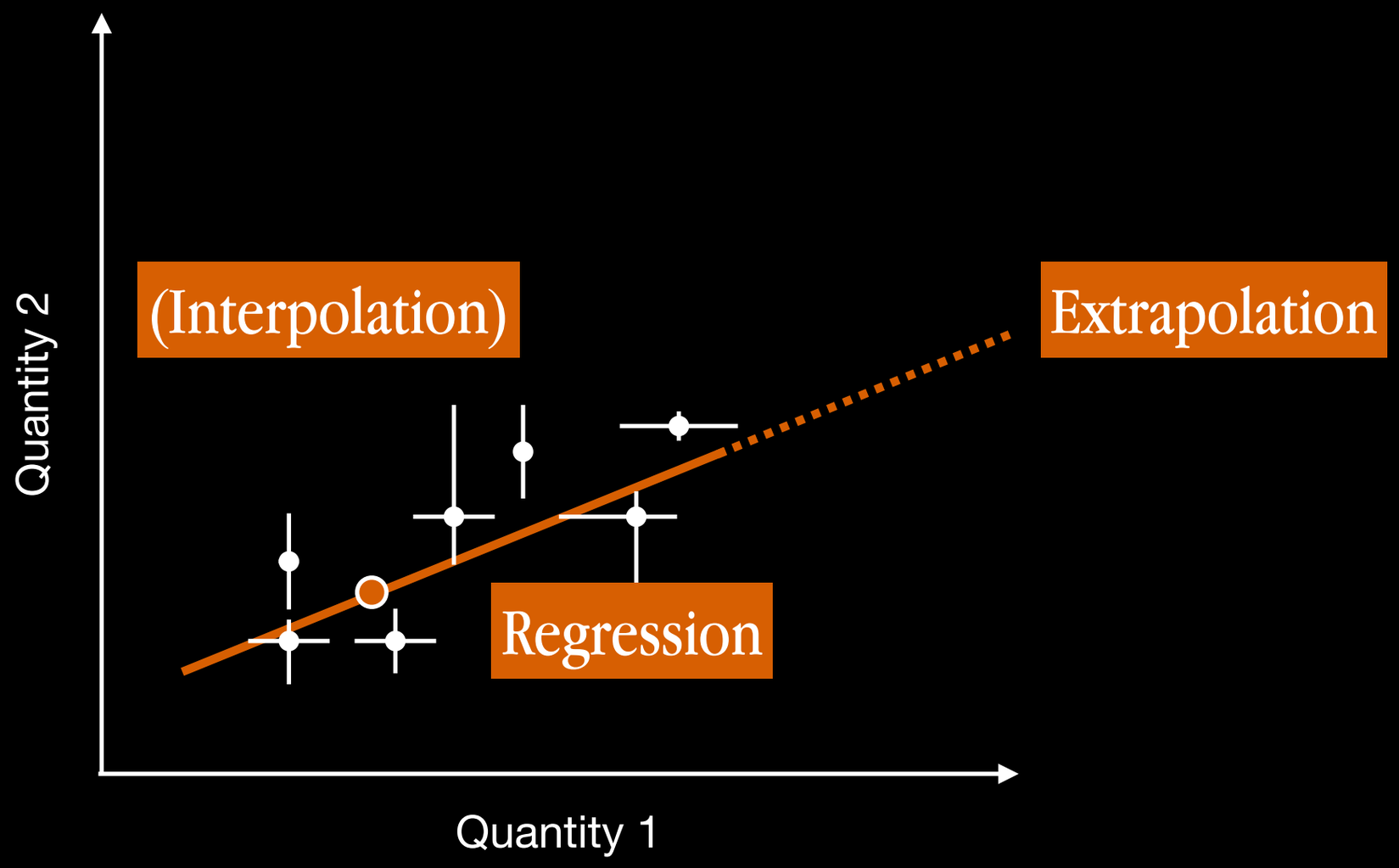
Regression & Extrapolation



STATISTICAL Algorithmic Prediction

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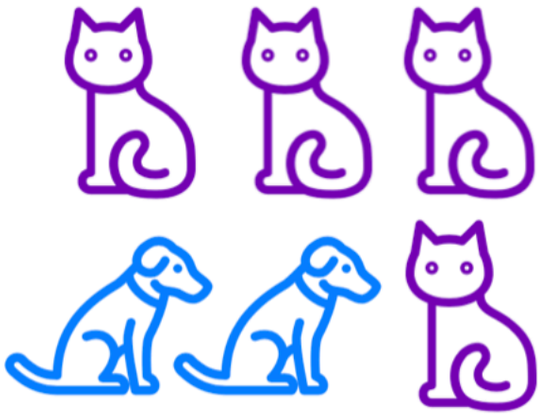
AI/Machine Learning

“training” data



sufficient?
unbiased?

learning algorithm

supervised?
unsupervised?

“predicted” answer

uncertainty?
bias?

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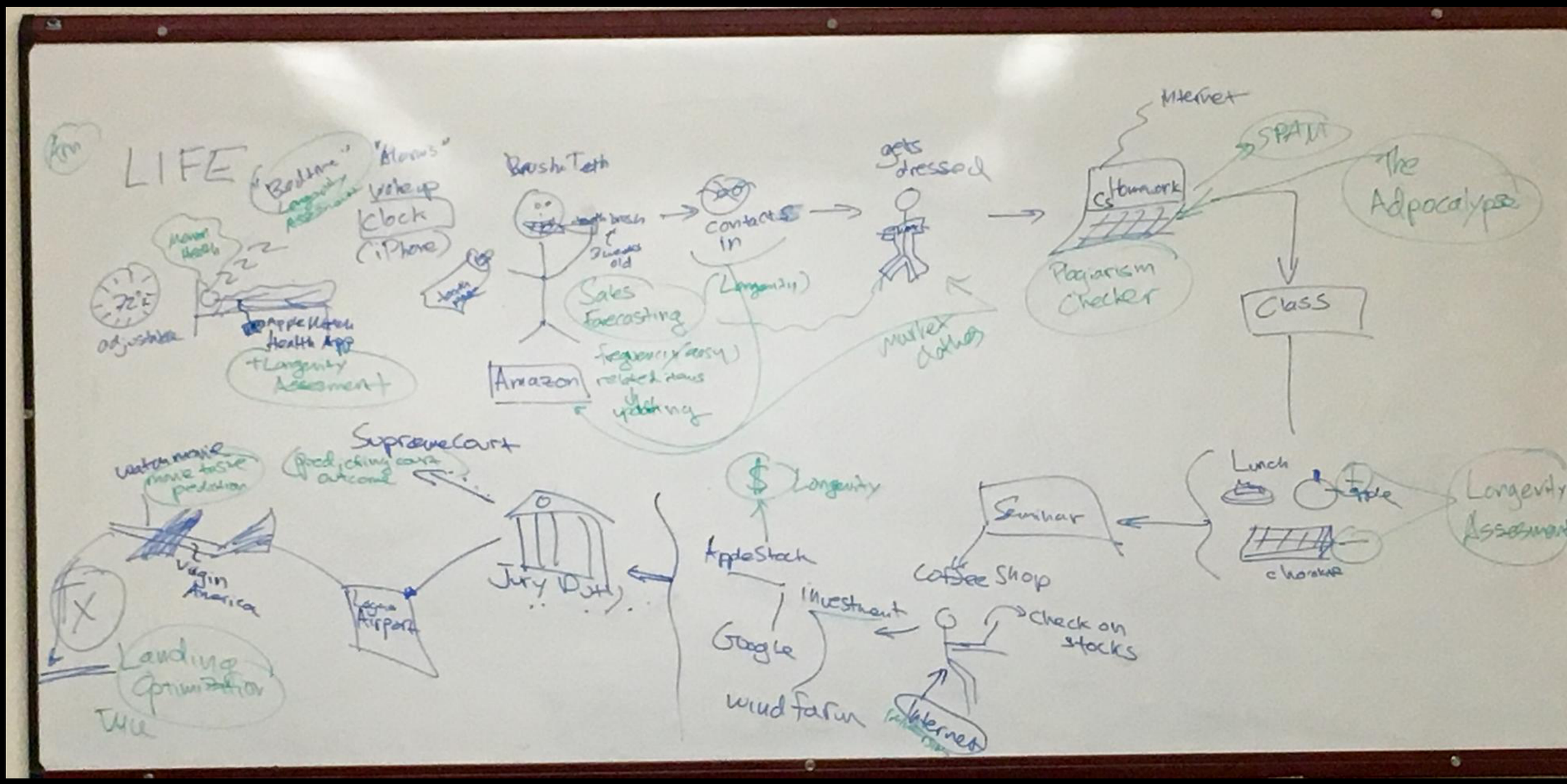
Derek's Day

Freshman Seminar 27J v.2017



read students' posts online here

Derek's Day

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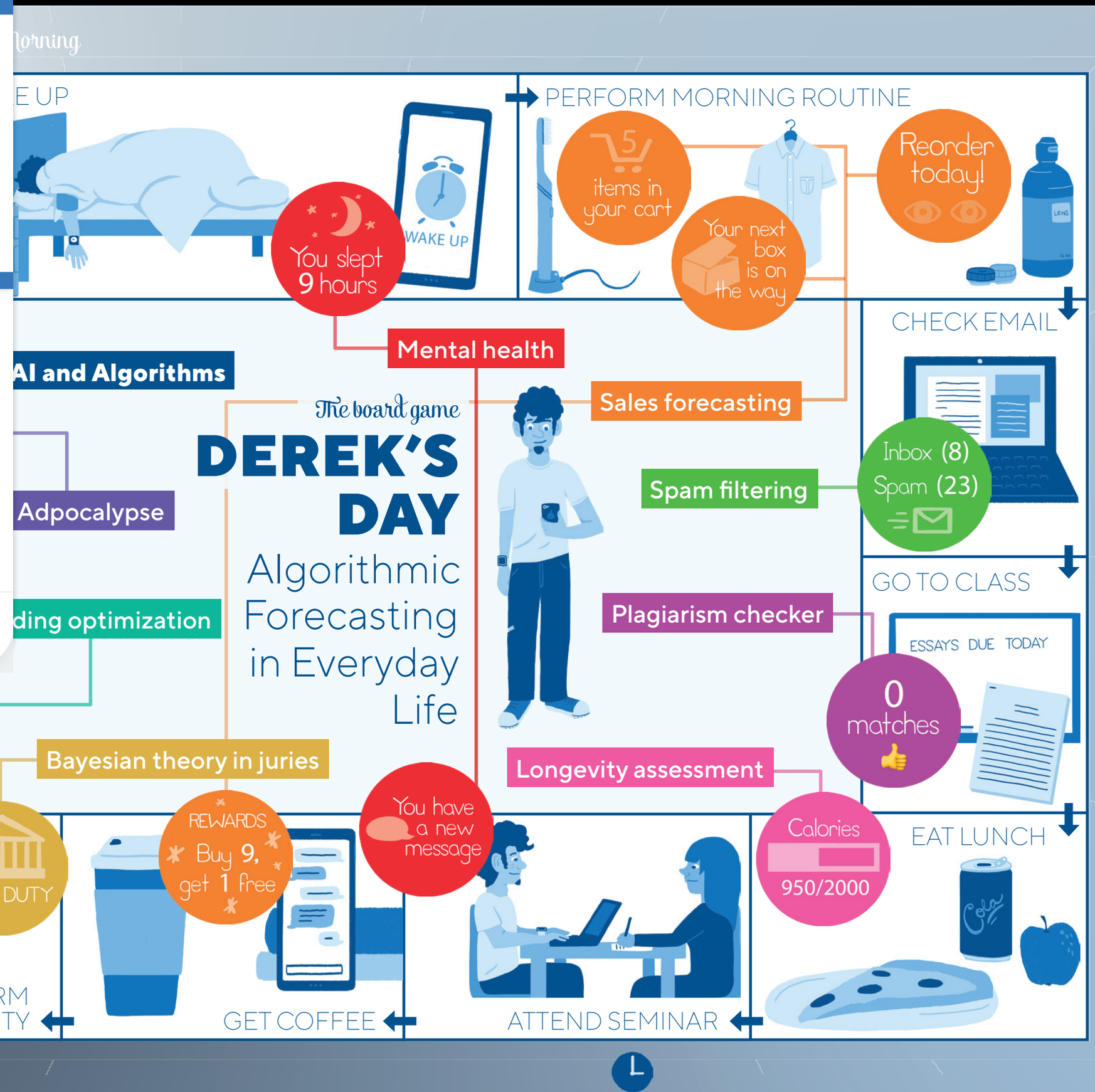
The Past and Present of the Future

Algorithmic Forecasting

This page is under development and will feature the "Derek's Day game" developed based on a the roles played by algorithmic forecasting in Harvard undergraduate's (a)typical day.



Breakout discussions of algorithmic prediction

tinyurl.com/algorithmic-prediction

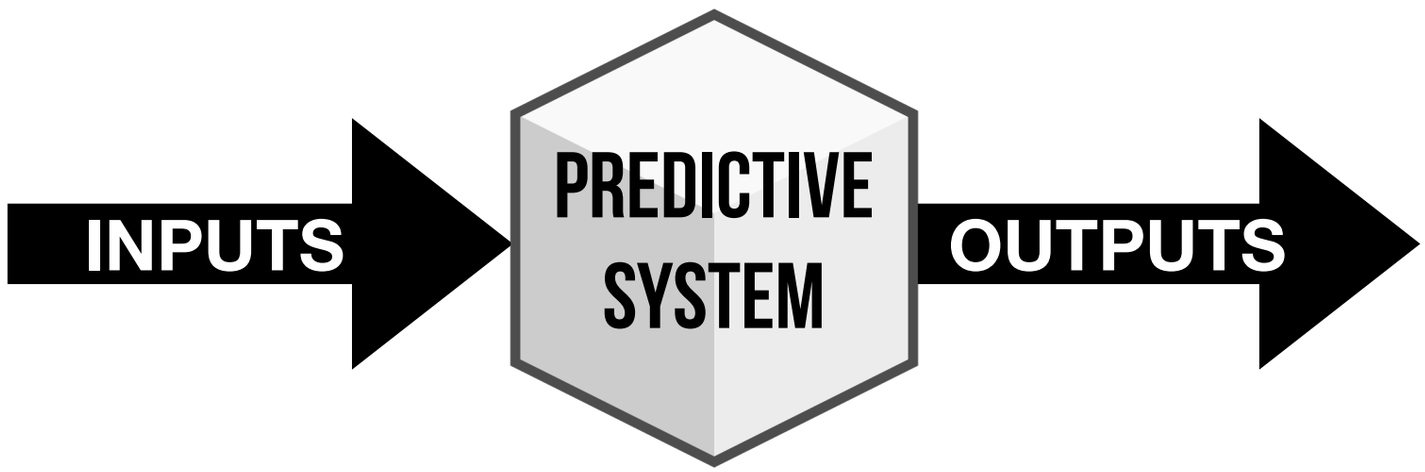
Your charge

1. Discuss several kinds of approaches to algorithmic prediction used in the field assigned to your group.
2. Rank and discuss the utility and appropriateness of the six techniques in the colored boxed here to prediction inputs, systems, and/or outputs in your field.

Group : Field

Group 1: Weather
Group 2: Climate
Group 3: “Health” (choose sub-topic(s))
Group 4: “Economics” (choose sub-topic(s))
Group 5: Space travel trajectories

Bayesian Statistical Reasoning | Data-Driven Estimation | Regression & Extrapolation | AI/Machine Learning | Simulation

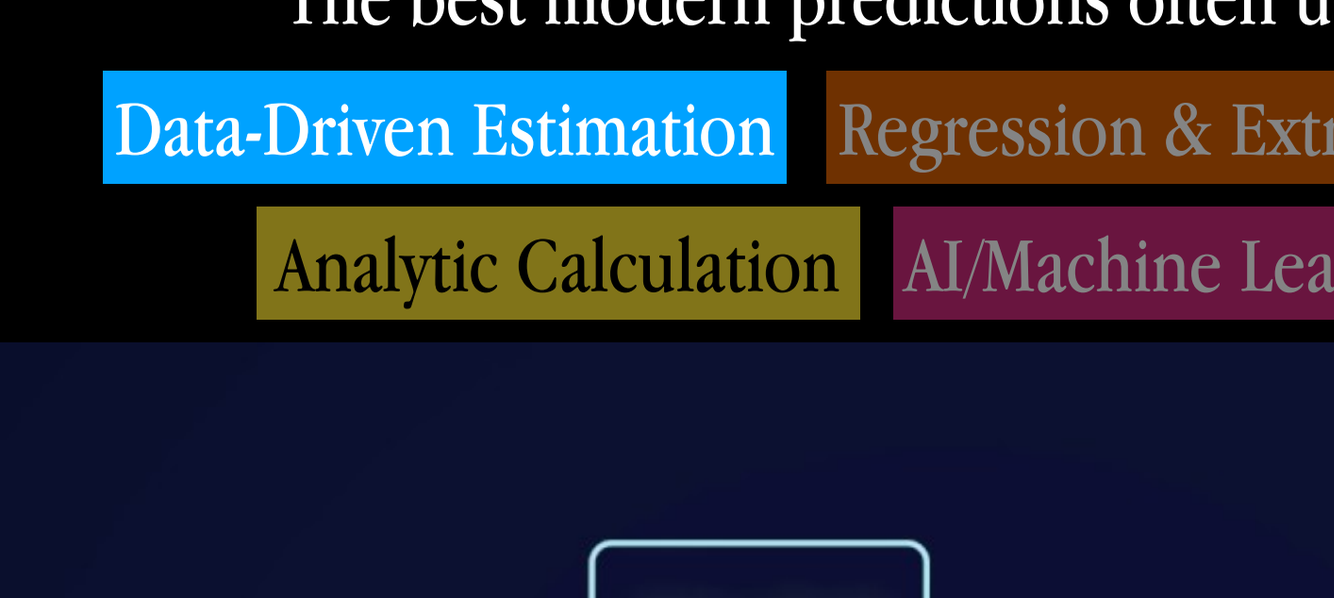


The best modern predictions often use combinations of >1 approach

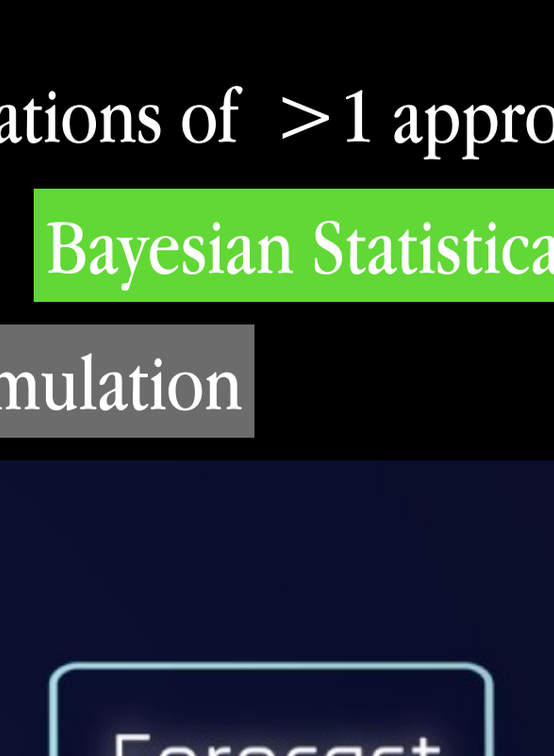
Data-Driven Estimation | Regression & Extrapolation | Bayesian Statistical Reasoning

Analytic Calculation | AI/Machine Learning | Simulation

Model



Forecast



ECMWF

"Ensemble forecasting"

Breakout discussions of algorithmic prediction

tinyurl.com/algorithmic-prediction

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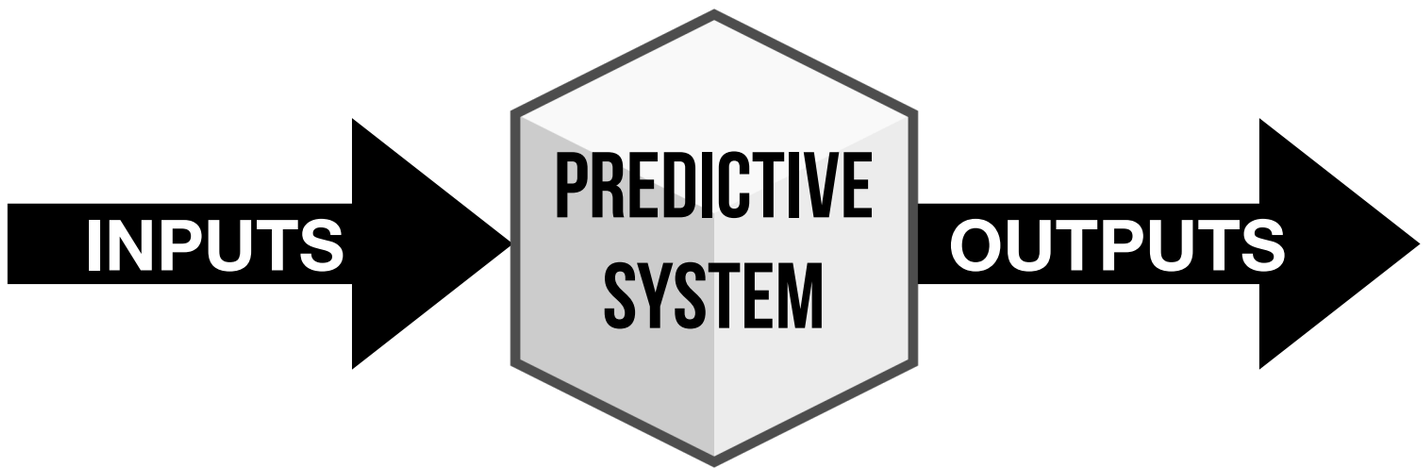
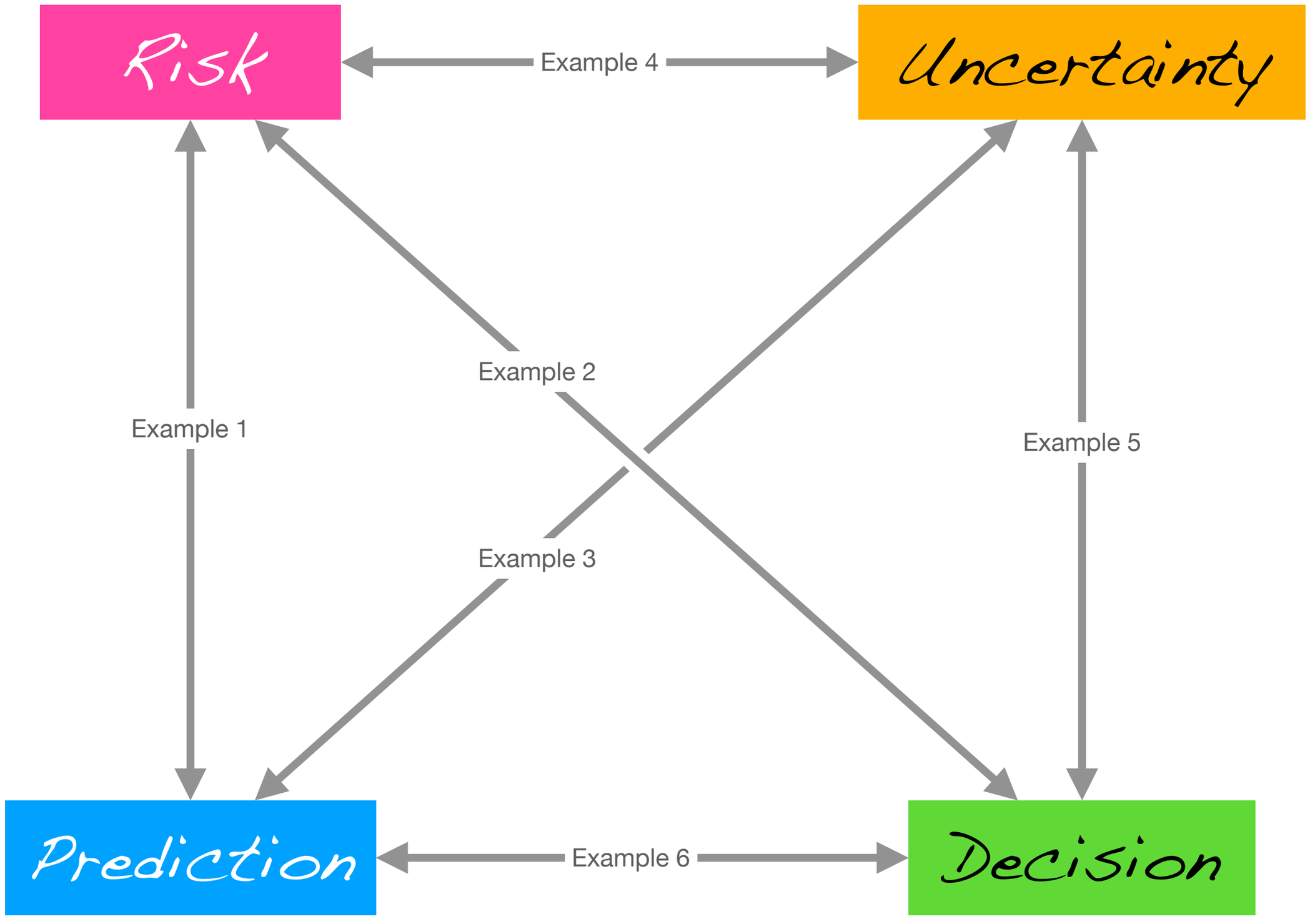
Bayesian Statistical Reasoning | Data-Driven Estimation | Regression & Extrapolation | AI/Machine Learning | Simulation



Next…


Risk
Example 4
Uncertainty
Example 1
Example 2
Example 3
Example 5
Prediction
Example 6
Decision

Bayesian Updating in Decision-Making/Prediction