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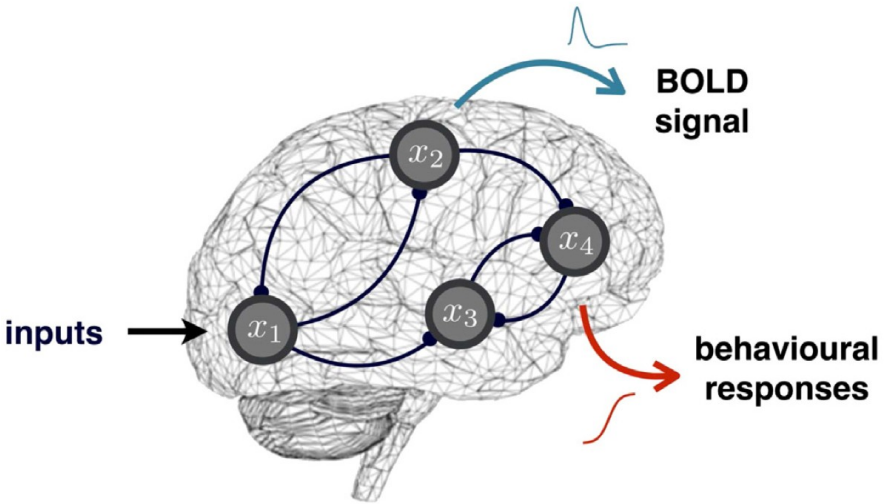
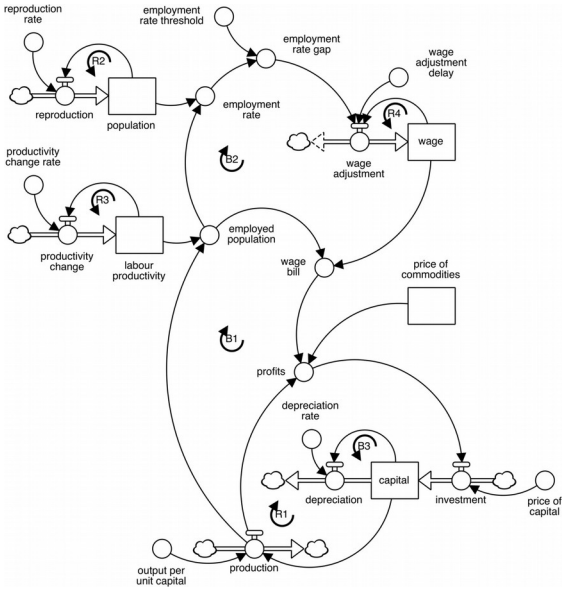
Dynamicly Explainable AI with Dynamic Causal Modeling

William Jones

What is DCM? - Overview





source: The dynamics of financial instability: simplifying Keen's Goodwin–Minsky model https://onlinelibrary.wiley.com/doi/full/10.1002/sdr.1627

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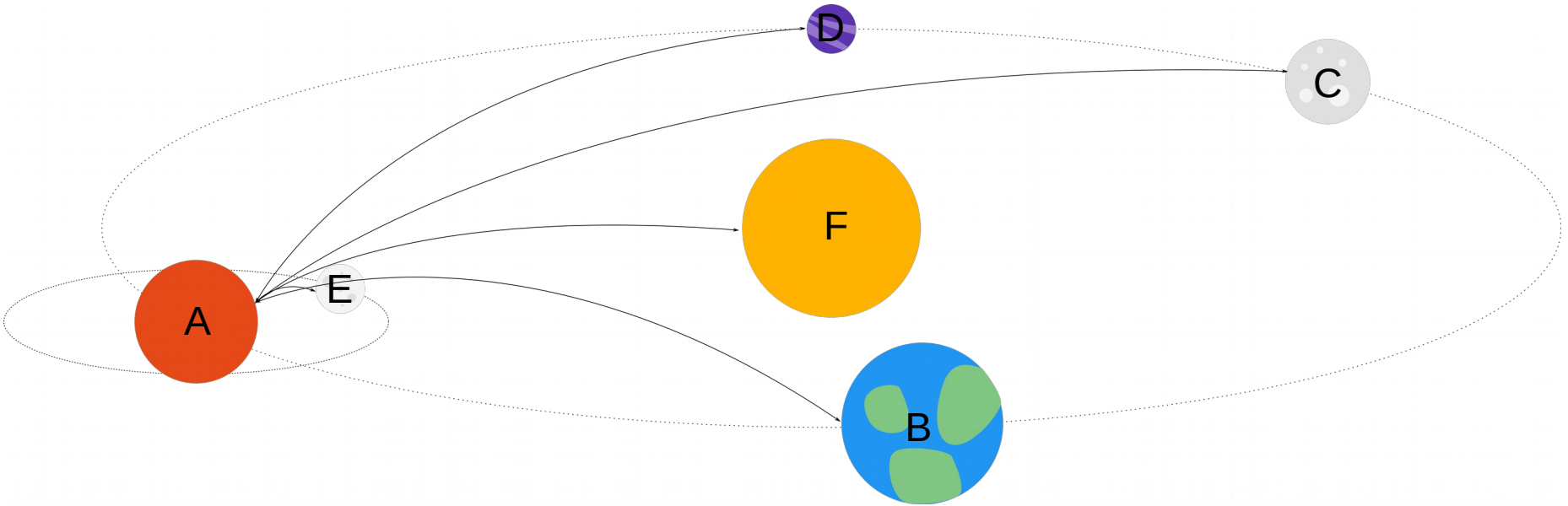
What is DCM? - Overview

- Take our initial understanding of the problem
- Infer a system explaining our data
- Parameterize that system (uncertainty aware)

What is DCM? - Dynamical Systems



State: $s = \{A, B, C, D, E, F\}$

Rule: $\frac{ds}{dt} = f(A, B, C, D, E, F)$

Force on A = $\sum_{s_i \in s} G \frac{m_{s_i} m_a}{r_{s_i, A}^2}$

Solution: $A = g(t)$

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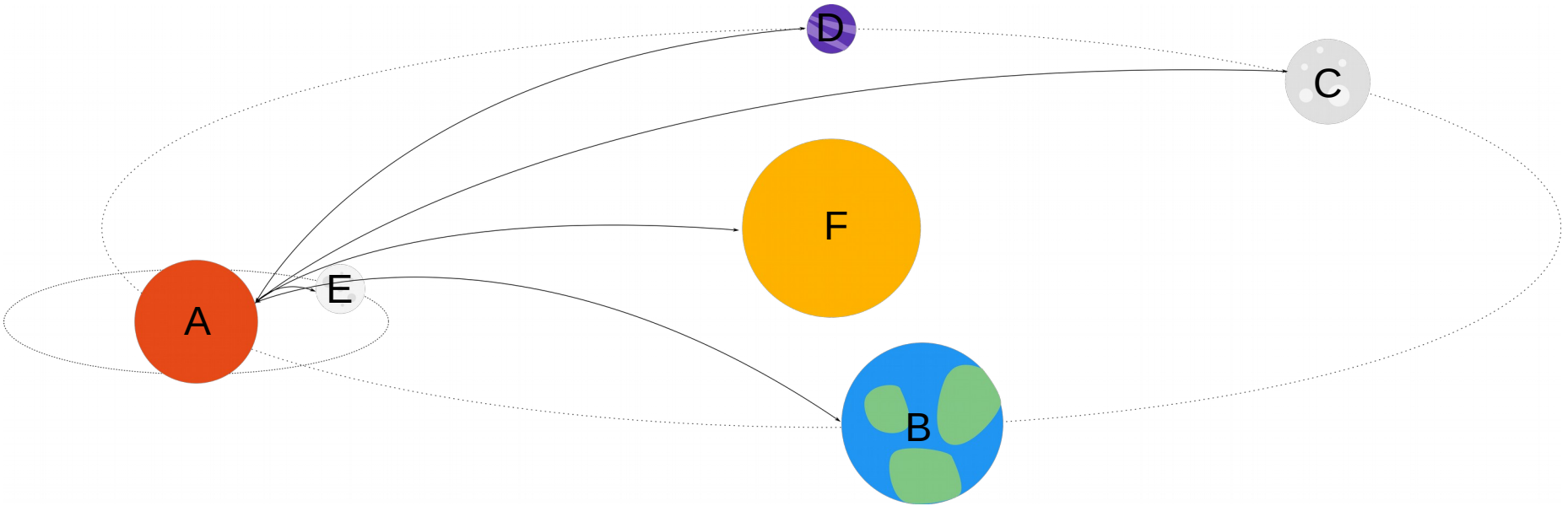
What is DCM? - Dynamical Systems



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Force on A = $\sum_{s_i \in s} G \frac{m_{s_i} m_a}{r_{s_i, A}^2}$

~~Solution: $A = q(t)$~~

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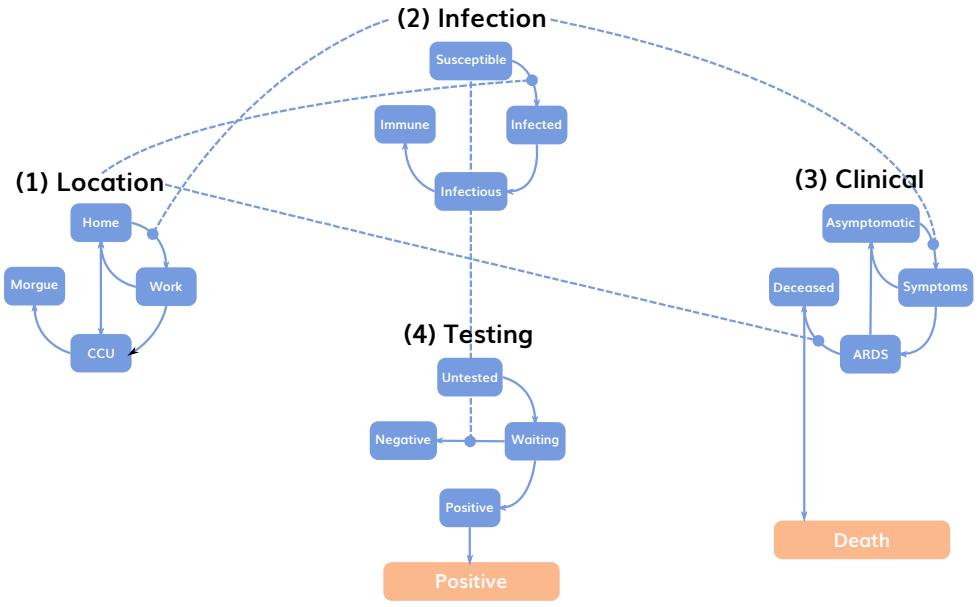
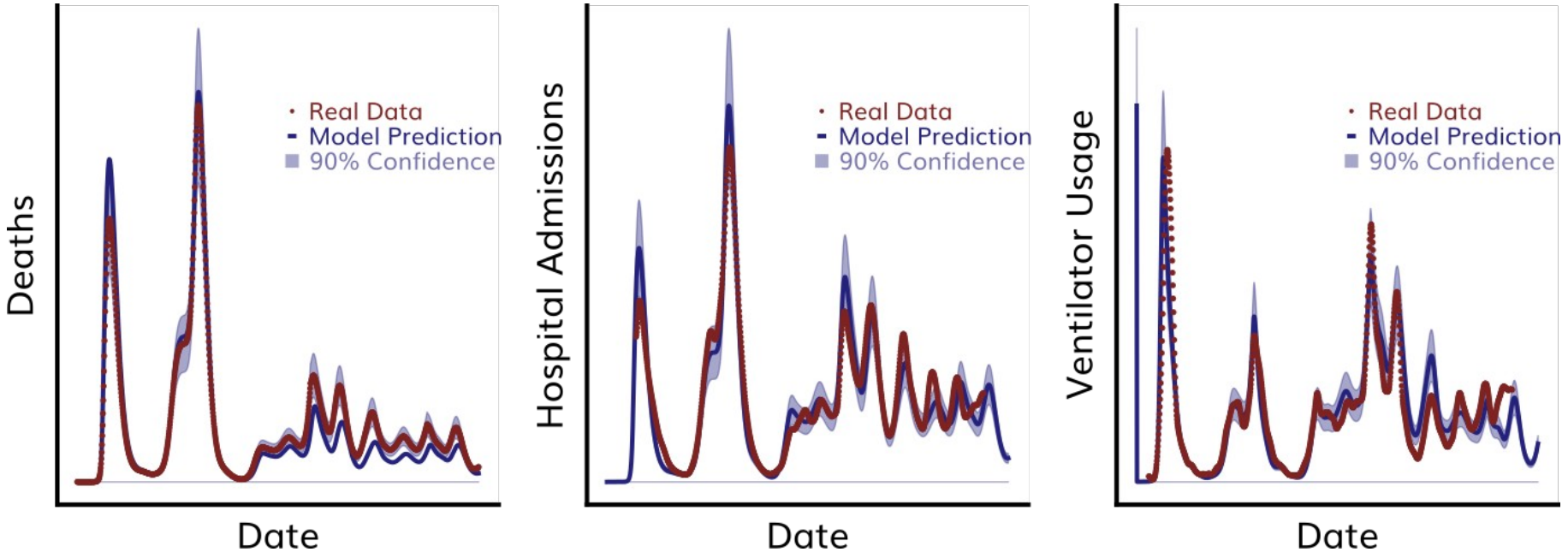

(2) Infection
Susceptible
Immune
Infected
Infectious
(1) Location
Home
Morgue
Work
CCU
(3) Clinical
Asymptomatic
Deceased
Symptoms
ARDS
(4) Testing
Untested
Negative
Waiting
Positive
Positive
Death

Explore Uncertainty



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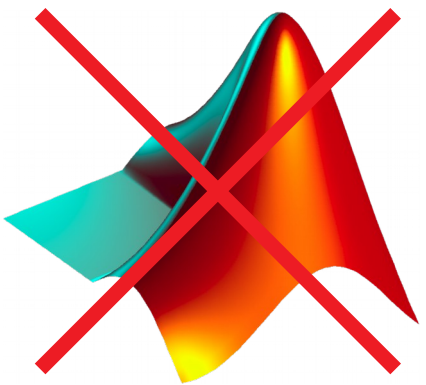

github.com/embecosm/dcEmb

Any questions?