Lecture 19: State-space models - Filtering

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What is filtering?

What is filtering?

dynamical system
evolves over time

Time

→

not directly
observable

(State) → (State) → (State) →

↓ ↓ ↓

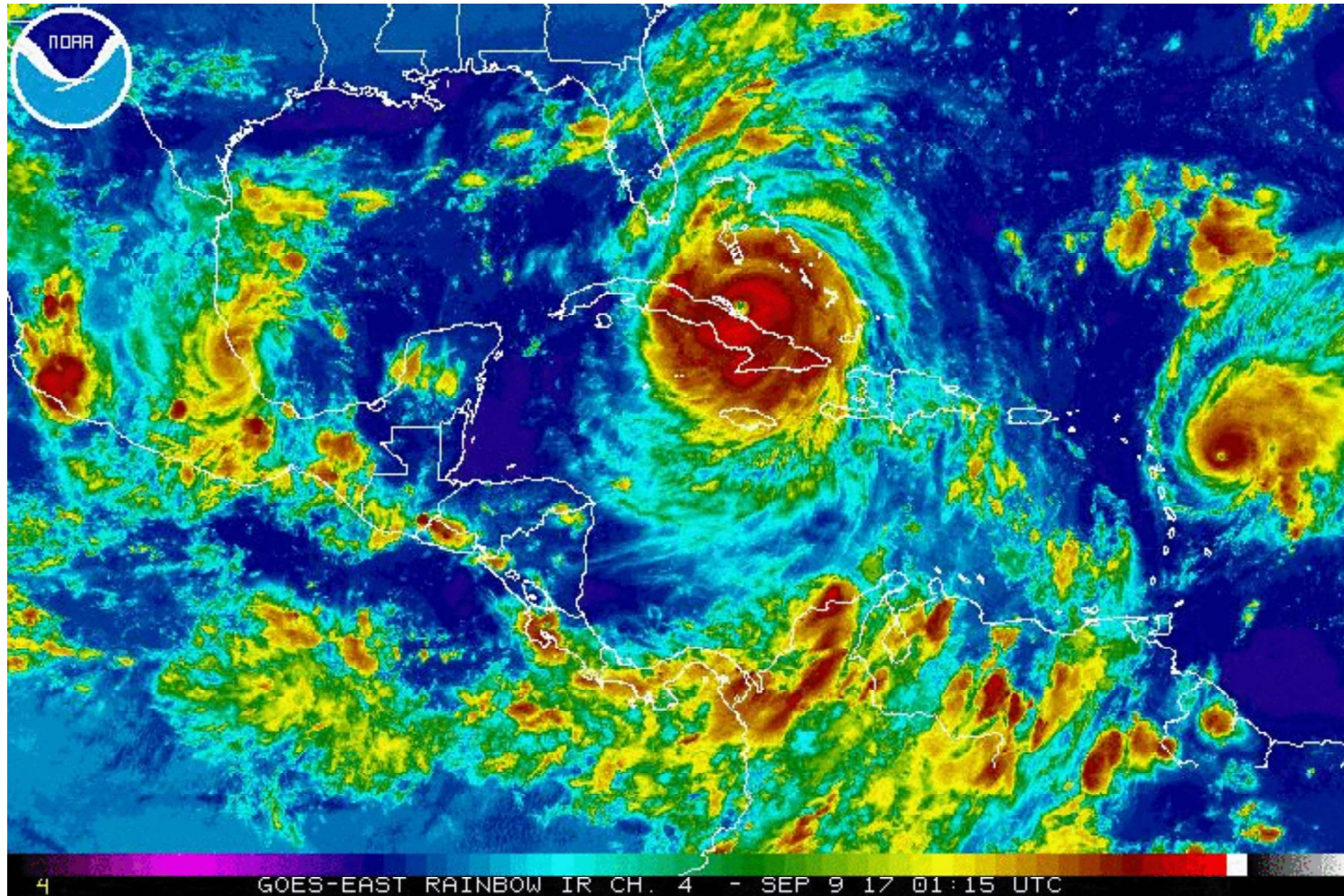(Noisy observation) (Noisy observation) (Noisy observation)
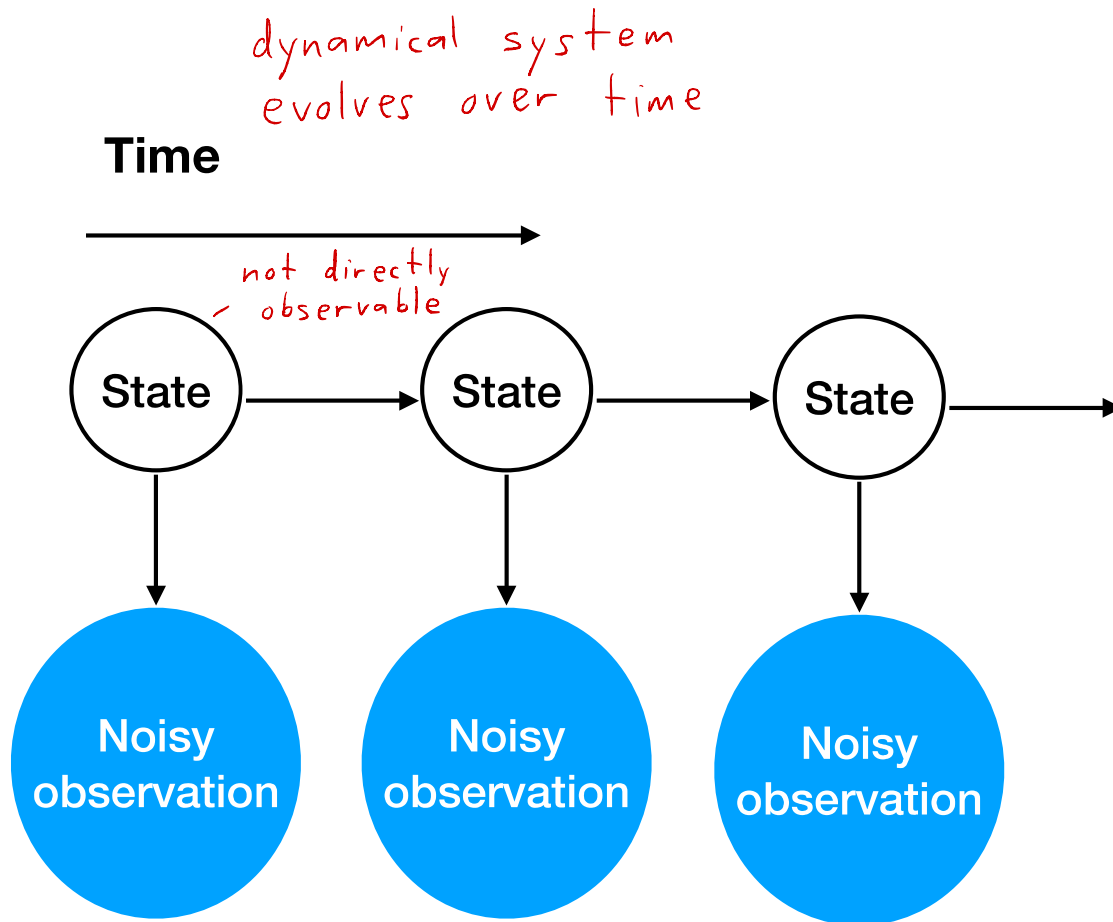
Questions:

- What is the best you can say about the hidden system state given the observations?

- Can you predict the future state?
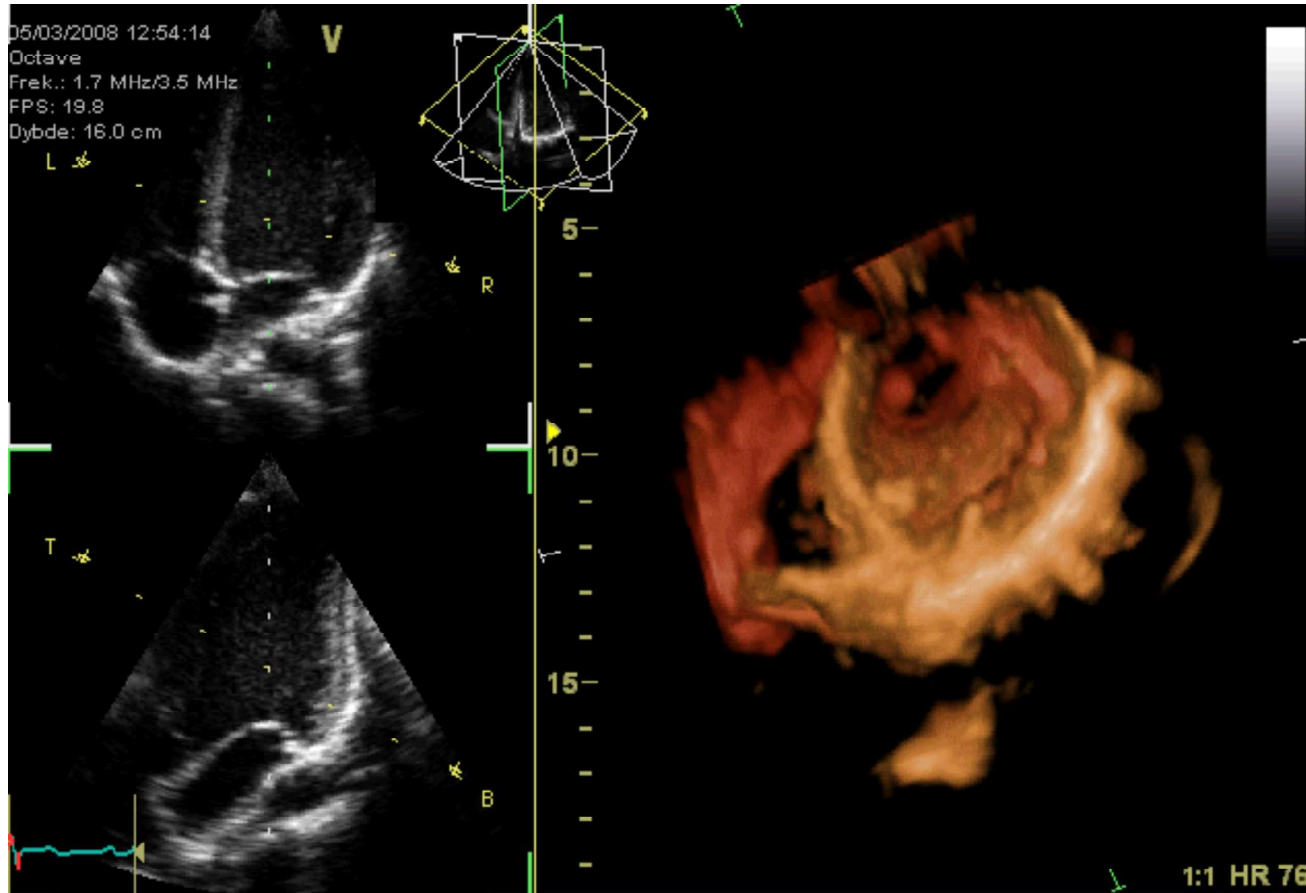
- What is the best control to apply?

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Applications of the filtering problem

- Object tracking

- Control of X

- Fault detection

- ... & more

Numerical weather prediction

GOES-EAST RAINBOW IR CH. 4 - SEP 9 17 01:15 UTC

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Biomedical

Kjetil Lenes https://commons.wikimedia.org/wiki/File:Apikal4D.gif