Predicting Experimental Chaos with Reservoir Computing

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What’s a Reservoir Computer?

\[ f(t) \rightarrow \text{Reservoir} \rightarrow f(t+\Delta t) \]
What’s a Reservoir Computer?
What did I do?

- Time series of the bromide concentration
- Heuristically choose parameters
- Optimize to minimize error
Long Term Mimicking

• We can make “Climate models” using long data sets

• Cannot predict long term

• Can try to understand behavior
Next Steps

• Another BZ data set

• Velocity of particles in turbulent flow

• Calculate Lyapunov exponents of predictions and compare