



# Perceiving the arrow of time in autoregressive motion

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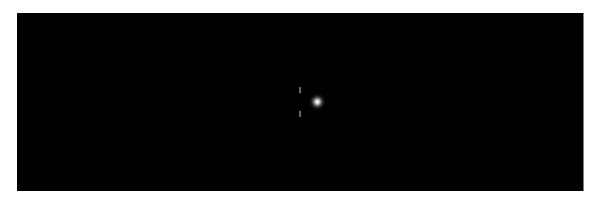


$$X_{t} = \alpha \cdot X_{t-1} + \epsilon_{t} \qquad \epsilon_{t} \not\sim \mathcal{N}$$

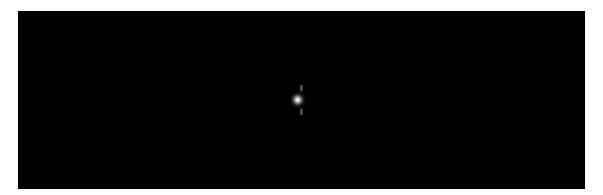




#### Forward Stimulus



#### **Reversed Stimulus**







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- We find that humans are sensitive to subtle temporal asymmetries, and they appear to use the same information or strategy





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- We use a powerful, easy to implement method enabling us to find out whether humans and algorithms process information similarly
- We find that humans are sensitive to subtle temporal asymmetries, and they appear to use the same information or strategy
- We show that humans do not use recent causal inference or Bayesian ideal observer algorithms; instead their behaviour is well approximated by a 4-line-of-code heuristic