



## Tutorial RL Bootcamp Salzburg

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# Details of the problem I

## Initially we start with a fully observable linear, time-invariant system

The dynamics is of the form:  $s_{t+1} = \mathbf{R}\dot{a}_t + s_t$ , where

$$\mathbf{R} = \begin{pmatrix} a_{11} & 0 & 0 & \cdots & 0 \\ a_{21} & a_{22} & 0 & \cdots & 0 \\ a_{31} & a_{32} & a_{33} & \cdots & 0 \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & a_{n3} & \cdots & a_{nn} \end{pmatrix}.$$

 This stems from the downstream causality. This property can be used, when solving such a system.

 For the moment we consider the system without respecting the special shape of the dynamics.





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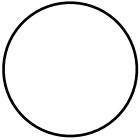
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 $s_{t+1} = \mathbf{R}\dot{a}_t + s_t$ 

$$\mathbf{a} = \begin{pmatrix} a_{11} & 0 & 0 & \cdots & 0 \\ a_{21} & a_{22} & 0 & \cdots & 0 \\ a_{31} & a_{32} & a_{33} & \cdots & 0 \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & a_{n3} & \cdots & a_{nn} \end{pmatrix}$$



















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