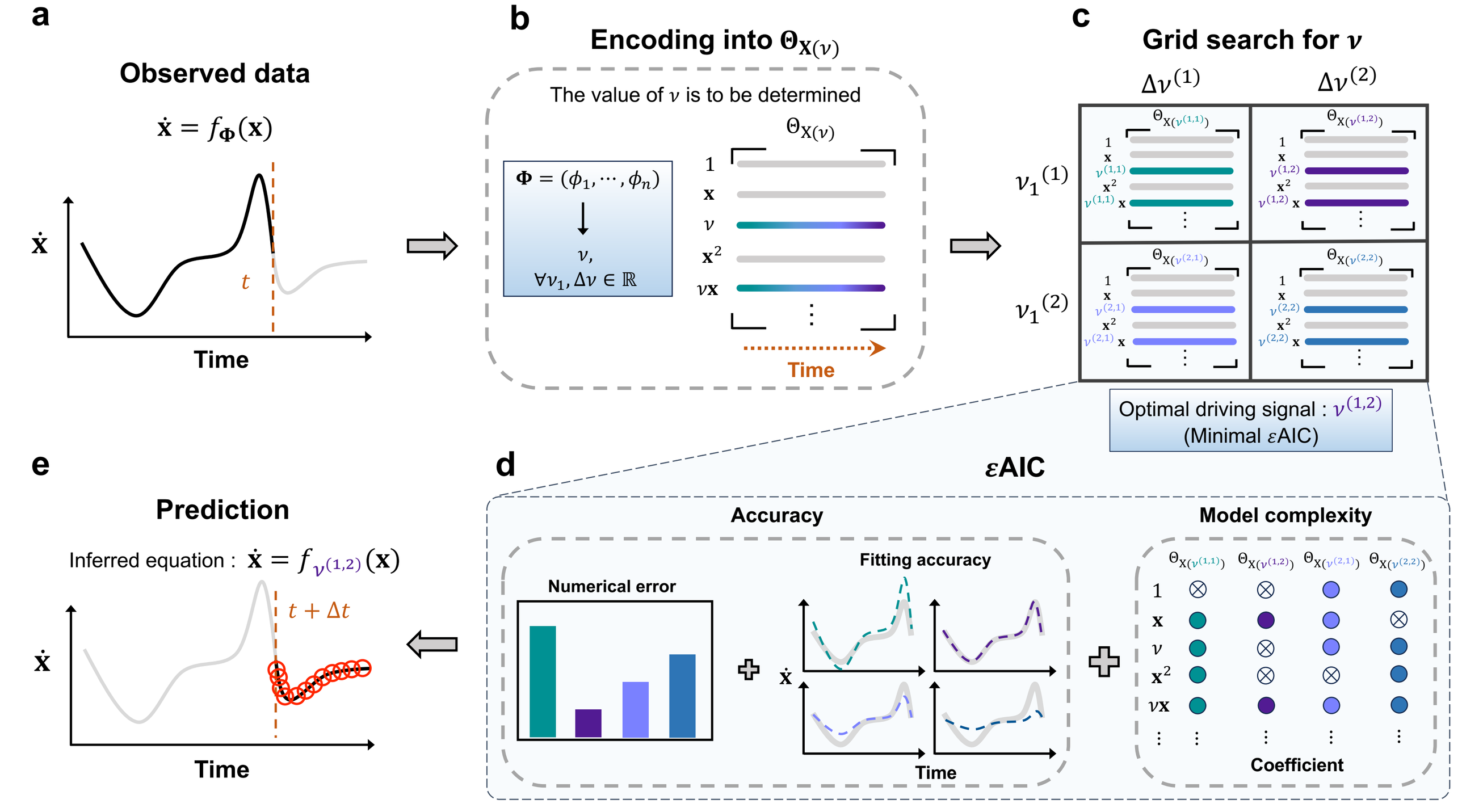
a
Observed data
$\dot{\mathbf{x}} = f_{\mathbf{\Phi}}(\mathbf{x})$
$\dot{\mathbf{x}}$
t
Time
b
Encoding into $\Theta_{\mathbf{X}(\nu)}$
The value of ν is to be determined
$\mathbf{\Phi} = (\phi_1, \cdots, \phi_n)$
ν,
$\forall \nu_1, \Delta\nu \in \mathbb{R}$
$\Theta_{\mathbf{X}(\nu)}$
1
$\mathbf{x}$
ν
$\mathbf{x}^2$
$\nu\mathbf{x}$
Time
c
Grid search for ν
$\Delta\nu^{(1)}$
$\Delta\nu^{(2)}$
$\nu_1^{(1)}$
$\nu_1^{(2)}$
$\Theta_{\mathbf{X}(\nu^{(1,1)})}$
$\Theta_{\mathbf{X}(\nu^{(1,2)})}$
$\Theta_{\mathbf{X}(\nu^{(2,1)})}$
$\Theta_{\mathbf{X}(\nu^{(2,2)})}$
Optimal driving signal : $\nu^{(1,2)}$
(Minimal εAIC)
d
εAIC
Accuracy
Numerical error
Fitting accuracy
$\dot{\mathbf{x}}$
Time
Model complexity
Coefficient
e
Prediction
Inferred equation : $\dot{\mathbf{x}} = f_{\nu^{(1,2)}}(\mathbf{x})$
$t + \Delta t$
$\dot{\mathbf{x}}$
Time