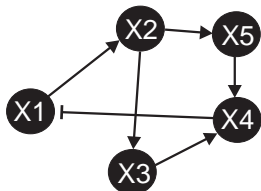


Static GRN Models



Step 1

construct manually

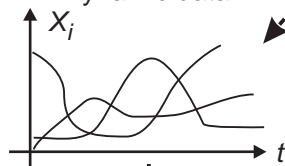
construct from literature

Dynamic GRN Models (reference models)

$$\dot{X}_1 = f(X_1, X_2, \dots, p_{11}, p_{12}, \dots)$$

$$\dot{X}_2 = f(X_1, X_2, \dots, p_{21}, p_{22}, \dots)$$

Dynamic data



Step 2

*Data from yeast biological network
(Cantone et al. 2009)*

execute/simulate models

reverse-engineer models

Step 3

Dynamic GRN Models

$$\dot{X}_1 = f(X_1, X_2, \dots, p_{11}, p_{12}, \dots)$$

$$\dot{X}_2 = f(X_1, X_2, \dots, p_{21}, p_{22}, \dots)$$

Step 4

- Predictive power on training data, P_{ver}
- Inferential power, P_{inf} (model parameters)
- Qualitative evaluation (GRN features)

verify models

Step 5

- Predictive power on unseen data, P_{val}

validate models