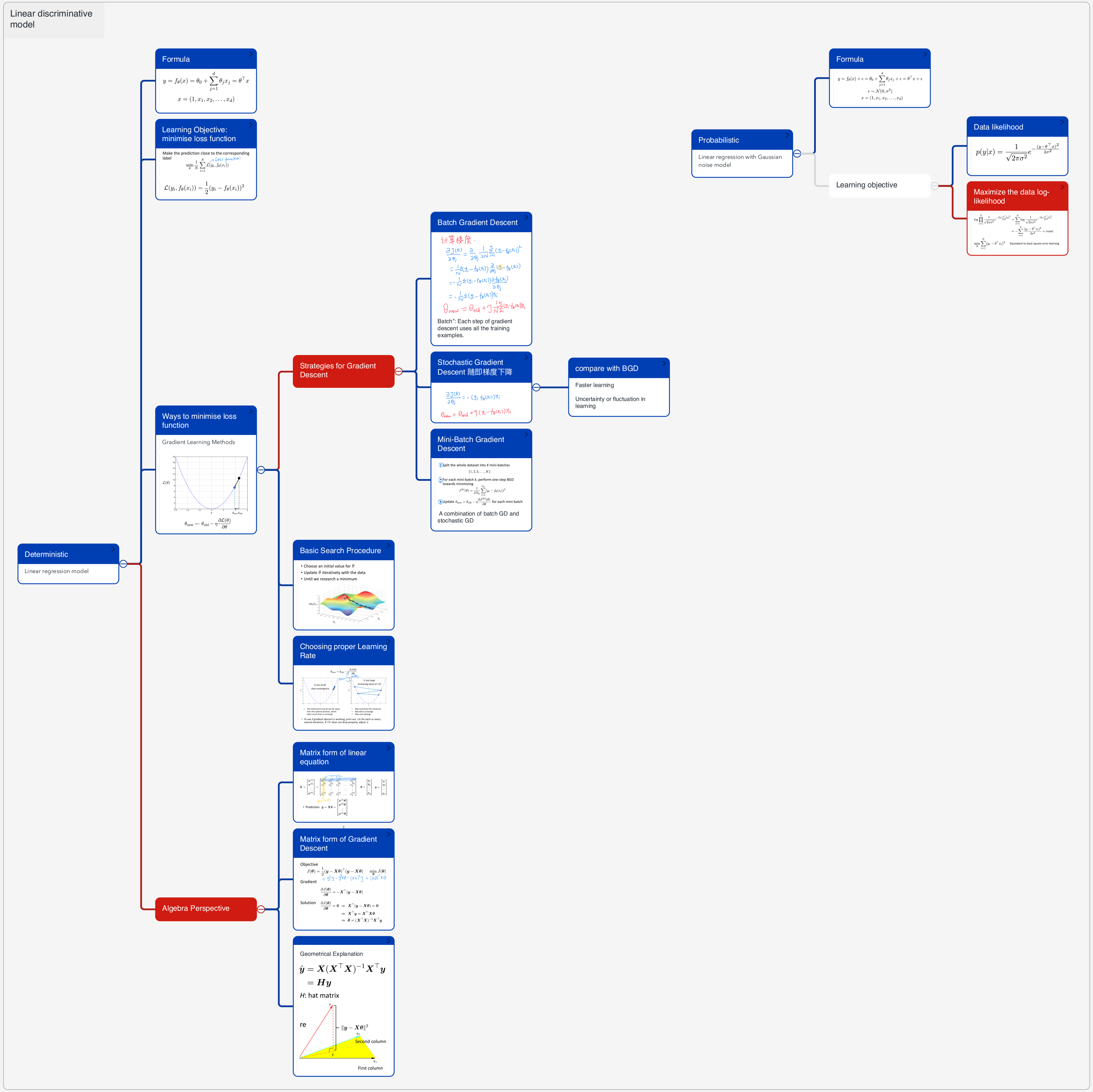

Linear discriminative model
Deterministic
Linear regression model
Formula
Learning Objective: minimise loss function
Make the prediction close to the corresponding label
Ways to minimise loss function
Gradient Learning Methods
Strategies for Gradient Descent
Batch Gradient Descent
计算梯度:
Batch": Each step of gradient descent uses all the training examples.
Stochastic Gradient Descent 随即梯度下降
compare with BGD
Faster learning
Uncertainty or fluctuation in learning
Mini-Batch Gradient Descent
A combination of batch GD and stochastic GD
Basic Search Procedure
Choose an initial value for θ
Update θ iteratively with the data
Until we research a minimum
Choosing proper Learning Rate
Algebra Perspective
Matrix form of linear equation
Matrix form of Gradient Descent
Objective
Gradient
Solution
Geometrical Explanation
H: hat matrix
Second column
First column
Probabilistic
Linear regression with Gaussian noise model
Formula
Learning objective
Data likelihood
Maximize the data log-likelihood