QF632-2025-W10

Number of participants: 16

1. In Bayesian Optimization, what role does the kernel function play?

3 correct answers
out of 11 respondents

	It calculates the loss of the model.	27%	3 votes
	It optimizes the hyperparameters of the model.	45%	5 votes
✓	It determines the similarity between points in the input space.	27%	3 votes
	It initializes the parameters of the model.	0%	0 votes

2. Why is Bayesian Optimization often used for hyperparameter tuning in machine learning?

12 correct answers
out of 14 respondents

	It provides exact solutions for the optimal hyperparameters.	0%	0 votes
✓	It efficiently explores the search space and exploits the found knowledge to find near-optimal solutions.	86%	12 votes
	It reduces the likelihood of overfitting in the model.	7%	1 vote
	It guarantees convergence to the global optimum.	7%	1 vote

3. The Expected Improvement acquisition function in Bayesian Optimization quantifies what?

3 correct answers
out of 11 respondents

	The probability of improvement at a new query point.	45%	5 votes
	The variance of the objective function at a new query point.	0%	0 votes
	The likelihood of finding the global optimum at a new query point.	27%	3 votes
✓	The expected decrease in objective function value at a new query point.	27%	3 votes

4. How might Bayesian Optimization be utilized in portfolio optimization?

11 correct answers
out of 12 respondents

	To predict the stock prices for the next trading day.	8%	1 vote
	To calculate the historical volatility of a portfolio.	0%	0 votes
✓	To find the asset allocation that maximizes the Sharpe ratio.	92%	11 votes
	To determine the market capitalization of assets in a portfolio.	0%	0 votes

5. The choice of kernel in a Gaussian Process impacts the Bayesian Optimization process. What aspect does it particularly influence?

7 correct answers
out of 12 respondents

	The convergence rate of the optimization algorithm.	25%	3 votes
	The generalization error of the model.	17%	2 votes
✓	The representation of correlations between points in the input space.	58%	7 votes
	The computational complexity of training the model.	0%	0 votes