Congratulations! You passed!

Grade received 100% **To pass** 80% or higher

Go to next item

1. Can Neural Architecture Search (NAS) be seen as a subfield of AutoML? **1 / 1 point**

- ○ No
- ◉ Yes

Correct

Exactly! NAS can be seen as a subfield of AutoML and has significant overlap with hyperparameter optimization and meta-learning.

2. Which of the following are dimensions of the Neural Architecture Search (NAS) technique? (Select all that apply)

1 / 1 point

- [x] Search Space

Correct
Right! The search space defines the range of architectures that can be represented.

- [ ] Training and Validation of the Architecture
- [x] Performance Estimation Strategy

Correct
You got it! The objective of NAS is typically to find an architecture with the highest predictive performance.

- [x] Search Strategy

Correct
Keep it up! The search strategy details how to explore the search space.

3. What does the search space allow in Neural Architecture Search (NAS)? (Select all that apply)

1 / 1 point

- [x] Reducing the size of the search space incorporating prior knowledge about well-suited properties.

  Correct
  That's right! This task can simplify the search space.

- [x] Restricting unbounded search spaces to have a maximum depth.

  Correct
  Great job! It gives rise to search spaces with (potentially many) conditional dimensions.

- [x] Defining which neural architectures we might discover in principle.

  Correct
  You're right on track!. The search space defines which architectures can be represented.

- [ ] Defining how we explore the search space.

4. In the chain-structured Neural Network Architecture (NNA), space is parametrized by (Select all that apply): **1 / 1 point**

- [x] Hyperparameters associated with the operation.

Correct
Well done! Search space is related to the number of units for fully connected networks.

- [ ] The multiple branches with additional layers types and skip connections.
- [x] A number of n sequentially fully-connected layers.

Correct
Spot on! A chain-structured NNA can be written as a sequence of n layers.

- [x] The operation every layer can execute.

Correct
Excellent!. Among the most common operations are pooling, convolution, and more advanced layers.

5. What are the main features of **Automated Machine Learning** (AutoML)? (Select all that apply) **1 / 1 point**

- [x] AutoML technologies democratize AI with customized state-of-the-art machine learning.

  Correct
  That's true! AutoML seeks to make state-of-the-art machine learning approaches accessible to data scientists with limited machine learning expertise.

- [ ] AutoML is the process of automating architecture engineering and finding the design of machine learning models.
- [x] AutoML aims to automate the decision-making in a data-driven and objective way.

  Correct
  Correct! AutoML determines the approach that works best for a certain application.

- [x] AutoML aims to automate the end-to-end process of machine learning to produce simpler and faster solutions.

  Correct
  Indeed! AutoML enables developers -even those with minimal experience in machine learning- to readily produce simple, optimal solutions.

6. What are the two main types of search spaces? **1 / 1 point**

- (●) Macro and Micro
- ( ) Big and Small
- ( ) Complex and Simple
- ( ) Long and Short

Correct
Good job! Although their names are kind of backwards, that's what they're called.

7. In measuring AutoML efficacy, several strategies have been proposed to reduce performance cost estimation, including (Select all that apply): **1 / 1 point**

- [x] Learning Curve Extrapolation

Correct
Nicely done! Extrapolation is a sensitive and valid choice based on the assumption that the learning curve can be reliably predicted.

- [x] Weight Inheritance/ Network Morphisms

Correct
Nailed it! Using network morphism, the weights of novel architectures are initialized based on the weights in previously trained architectures.

- [ ] Reinforcement learning
- [x] Lower fidelity estimates

Correct
Yes! Lower fidelity estimates try to reduce the training time by reframing the problem.

8. The **lower fidelity estimates** are a performance estimation strategy that allows (Select all that apply): **1 / 1 point**

- [x] Training on lower-resolution

  Correct
  That's it! The lower fidelity reduces the computational cost as a result.

- [x] Training with less filters per layer

  Correct
  Way to go! The lower fidelity estimates strategy uses fewer filters per layer and fewer cells.

- [x] Training on a subset of the data

  Correct
  Correct! It also reduces training times.

- [ ] Training for a few epochs

9. Can **network morphism** modify an architecture while leaving the network's function unchanged? **1 / 1 point**

- ○ No
- ◉ Yes

Correct
Exactly! This property increases the network’s capacity retaining a high performance as a result.