Congratulations! You passed!

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

Go to next item

AutoML

Total points 9

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

- (•) Yes
- ( ) No

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? **1 / 1 point**

- [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 Space

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

- [x] Search Strategy

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

- [ ] Training and Validation of the Architecture

3. What does the search space in Neural Architecture Search (NAS) allow for? **1 / 1 point**

- [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.
- [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.

4. In the chain-structured Neural Network Architecture, the space is parametrized by: **1 / 1 point**

- [x] Hyperparameters associated with the operation.

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

- [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.

- [ ] The multiple branches with additional layers types and skip connections.

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

- [ ] AutoML is the process of automating architecture engineering and finding the design of machine learning models.
- [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 with minimal experience in machine learning- to produce simple, optimum solutions readily.

- [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 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.

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

- [ ] Big and Small
- [ ] Long and Short
- [x] Macro and Micro

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

- [ ] Complex and Simple

7. In measuring AutoML efficacy, several strategies have been proposed to reduce performance cost estimation, including: **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] Lower fidelity estimates

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

- [x] Weight Inheritance/ Network Morphisms

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

- [ ] Reinforcement learning

8. The **lower fidelity estimates** are a performance estimation strategy that allows for... **1 / 1 point**

- [x] Training on a subset of the data.

Correct
Correct! It also reduces training times.

- [x] Training with less filters per layer

Correct
Way to go! It uses fewer filters per layer and fewer cells.

- [x] Training on lower-resolution

Correct
That's it! It reduces the computational cost as a result.

- [ ] 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.

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