

Artificial Neural Networks for Public Health



Artificial neural networks are being explored for their potential to **analyze vast amounts of public health data to predict disease outbreaks, identify at-risk populations, and optimize resource allocation.**

This course is divided into **six units**, totaling 16 hours of instruction. **Unit 1** provides a historical background for artificial neural networks and introduces the core principles behind them. **Unit 2** dives into optimization techniques specifically used in machine learning. **Units 3 and 4** focus on multi-layer perceptrons, a fundamental type of neural network, exploring how to train and interpret them. **Units 5 and 6** cover the broader architecture of artificial neural networks, including the emerging Transformer architecture and its applications in healthcare.

Prerequisites

This course is open to :

PhD students (cohorte DPH)

PhD students from BPH teams (IETO, SISTM, ERIAS)



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Artificial Neural Networks for Public Health

PROGRAM

-Unit 1 :

Historical introduction and overview of the main principles (2h)

-Unit 2 :

Optimization in machine learning (3h)

-Unit 3 :

Multi-layer perception (2h)

-Unit 4 :

Fitting and interpreting artificial neural networks (4h)

-Unit 5 :

Architecture of artificial neural networks (3h)

-Unit 6:

Transformers Architecture and Health applications (2h)

Teaching method : Lecture course

Duration : 16 hours training divided in 2 days

Training Objectives

This course is designed to equip students with a comprehensive understanding of the theoretical foundations behind deep learning techniques (**enabling them to grasp all notions supporting deep learning techniques**) and empower them to apply these techniques to real-world health-related challenges (**be able to use them in health-related applications**).

Registration deadline :

Date :

Schedule :

Place :