Implementing a neural network for music genre classification
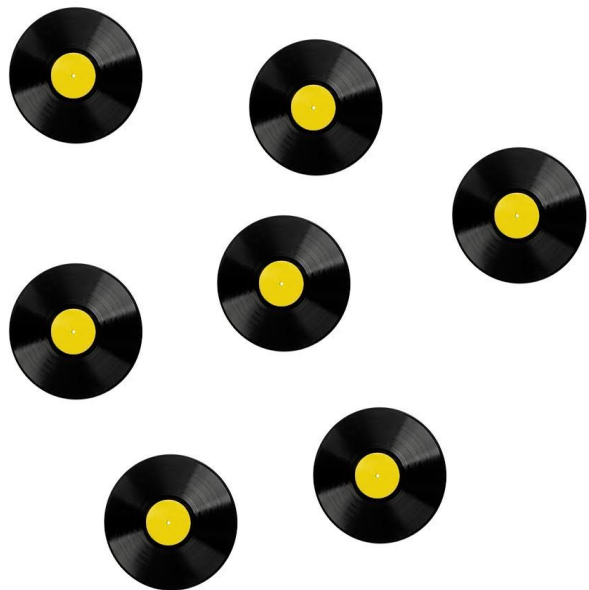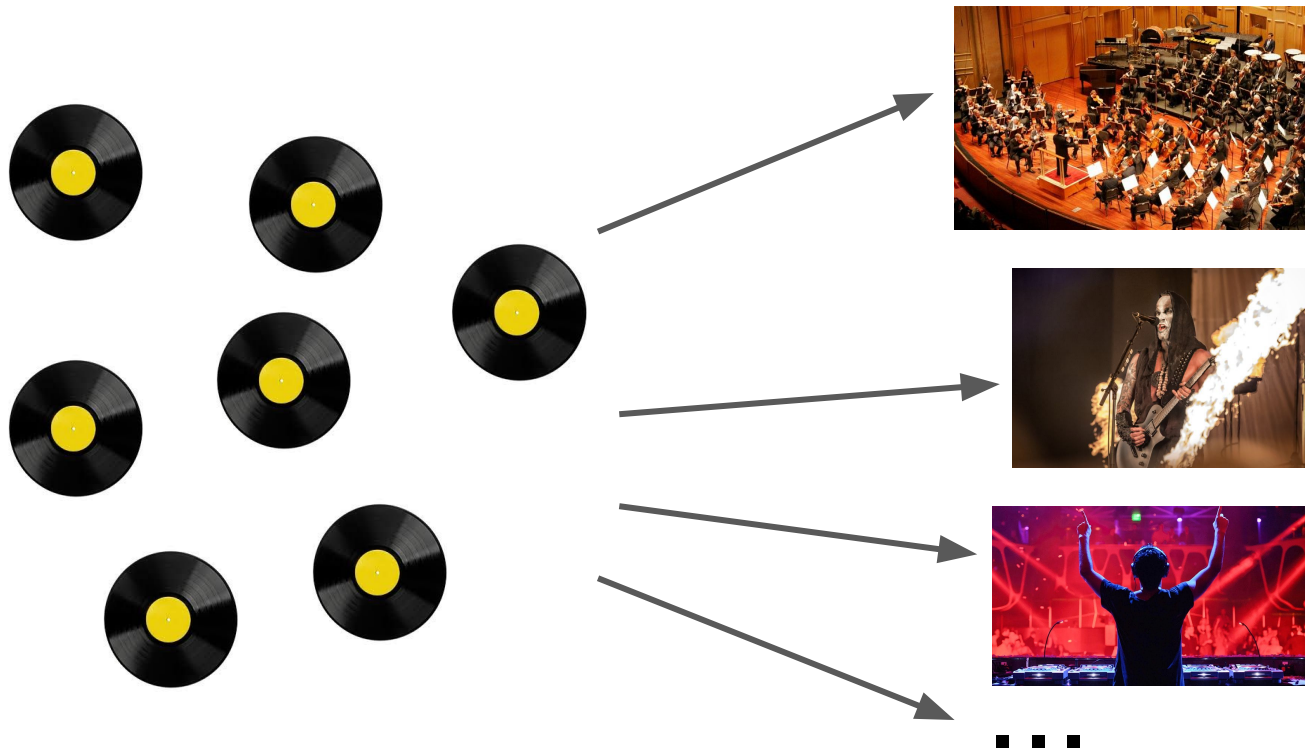
Valerio Velardo
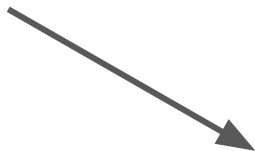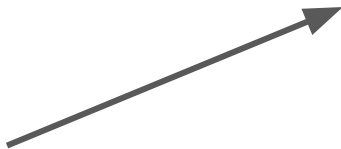
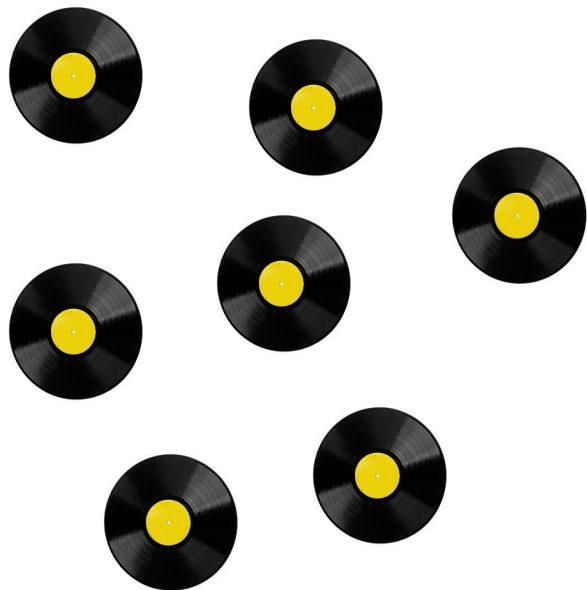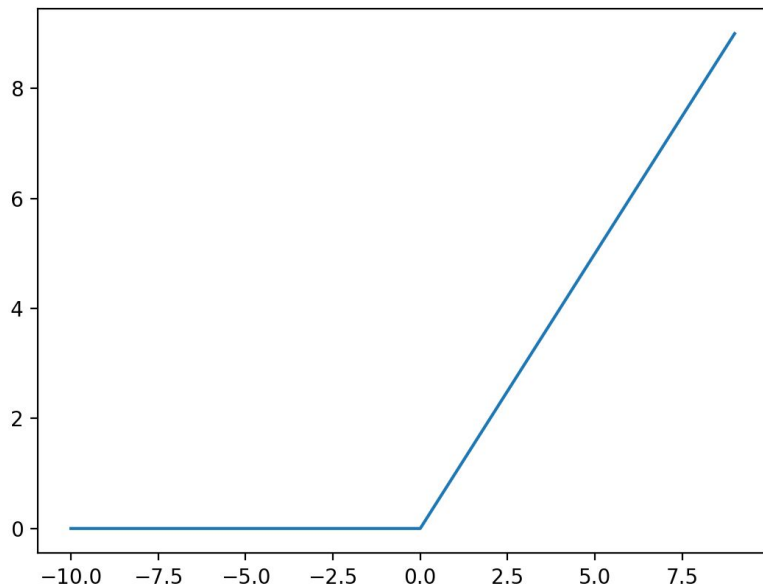# Multiclass classification

Multiclass classification

Binary classification

Rectified Linear Unit (ReLU)

$$ReLU(h) = \begin{cases} 0, & if \;\; h < 0 \\ h, & if \;\; h \geq 0 \end{cases}$$

Rectified Linear Unit (ReLU)

- Better convergence

- Reduced likelihood of *vanishing gradient*

Types of batching

- Stochastic
  - Calculate gradient on 1 sample
  - Quick, but inaccurate

Types of batching

- Stochastic
  - Calculate gradient on 1 sample
  - Quick, but inaccurate

- Full batch
  - Compute gradient on the whole training set
  - Slow, memory intensive, accurate

Types of batching

- Stochastic
  - Calculate gradient on 1 sample
  - Quick, but inaccurate

- Full batch
  - Compute gradient on the whole training set
  - Slow, memory intensive, accurate

- Mini-batch
  - Compute gradient on a subset of data set (16 - 128 samples)
  - Best of the 2 worlds