UNIVERSITÀ DEGLI STUDI DI MILANO

DIPARTIMENTO DI INFORMATICA

Project for the IAS course (part A)

Classification of generalized audio

- Download the ESC-50 dataset (https://github.com/karolpiczak/ESC-50) and select **3 classes of your preference** (if that link does not work download it from https://unimi2013-my.sharepoint.com/:u:/g/personal/stavros_ntalampiras_unimi_it/EYuvdl0SXxhBki5He8D502oBqHoS9k1GYCo-g1Wd9i5TVw?e=Cpnccm)

- **Divide** the data into 70% for training and 30% for testing.

- **Extract** all the audio features (time and frequency domain) that we have learnt.

- **Visualize** the feature space in 3D using PCA and report the number of coefficients which offer at least 80% of variance.

- **Train** the *kNN* classifier on the train set to classify the test set. Use three groups of features: a) time, b) frequency and c) altogether.

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- **Plot** the performance for different values for *k* and **discover** the optimum one **for each group of features**.
- For the **best** group of features, **optimize** the window size, e.g. try 30ms, 50ms, 100ms, 500ms.
- **Prepare** a brief report (3-4 pages, Italian/English) to **present** and **comment** the results. Send it at stavros.ntalampiras@unimi.it along with **your code** (mail subject: [IASProject] Surname, Name).
- Feel free to use any **online storing service**, e.g. wetransfer, googledrive, etc. to share your work (if needed).

(there is no need to send me the entire dataset)

The end!

Thank you for attending the course!