**Entender los conceptos**

1) Fotos apuntes y graficos

2) https://en.wikipedia.org/wiki/Pitch\_(music)

3) <https://en.wikipedia.org/wiki/Pitch_detection_algorithm>

3.1) <https://en.wikipedia.org/wiki/Pitch_class>

**Machine learning polifonico**

1.1) <https://www.lunaverus.com/cnn>

1.2) https://www.lunaverus.com/documentation

1.3)<https://medium.com/manash-en-blog/building-a-dead-simple-word-recognition-engine-using-convnet-in-keras-25e72c19c12b>

**Entendiendo los algoritmos eléctricos para entender los modelos de ml**

4) https://ccrma.stanford.edu/~pdelac/154/m154paper.htm

**Perceptual pitch detection**

5) http://www.eecs.qmul.ac.uk/~eniale/teaching/ise575/a/presentations/6.4-stein.pdf

**Ejemplos papers con machine learning muy bien explicado**

6) http://cs229.stanford.edu/proj2010/Deshpande-MusicalPitchIdentification.pdf

7) https://www.academia.edu/7560072/Musical\_Pitch\_Detection\_Using\_Machine\_Learning\_Algorithms

8) <https://medium.com/@mheavers/machine-learning-in-sound-music-6f0715320d49>

**Ejemplos de arquitecturas de CNN que podríamos reutilizar**

<https://rua.ua.es/dspace/bitstream/10045/76991/1/Automatic_music_transcription_using_neural_networks_MINGUEZ_CARRETERO_MANUEL.pdf>

<https://es.slideshare.net/bzamecnik/audio-chord-recognition-using-deep-neural-networks>

**Proyectos ya existentes**

https://magenta.tensorflow.org/

<https://www.lunaverus.com/documentation>

<https://wiki.python.org/moin/PythonInMusic>

<https://scorecloud.com/>

<https://www.lunaverus.com/>

<https://essentia.upf.edu/documentation.html>

**Datasets Generales**

<https://magenta.tensorflow.org/datasets>

<https://gist.github.com/alexanderlerch/e3516bffc08ea77b429c419051ab793a>

<http://www.audiocontentanalysis.org/data-sets/>

**Datasets de Pitch**

[**https://magenta.tensorflow.org/datasets/nsynth**](https://magenta.tensorflow.org/datasets/nsynth)

[**https://homes.cs.washington.edu/~thickstn/musicnet.html**](https://homes.cs.washington.edu/~thickstn/musicnet.html)

[**https://labrosa.ee.columbia.edu/projects/melody/**](https://labrosa.ee.columbia.edu/projects/melody/)

[**https://zenodo.org/record/3685367**](https://zenodo.org/record/3685367)

[**https://www.upf.edu/web/mtg/good-sounds?\_\_cf\_chl\_captcha\_tk\_\_=5725edba769d6a12081ca71ad4c422e98909cbfd-1592861752-0-AXncI8qBW4Ak9wFOR8hIxeWG5CfdBjvH10SXHCRz\_Np7skgVZvZPguT9F7rROGzISUVTL04MyI9RQy0wh6fzFTGPWZmP1xabqpi8WJEUbS2CW6APSfkv\_1QfrOmI8770tiVAlQhvAfWXCUKl464M2h07DIgkfpSlAmfnAQ7yrFj9k7F9QLO2xdBRz1uVtCBxN2p5JJcY0G\_cc\_pWjemGPt5G0RESMZsTkOAEFtmK86m-TCDb0HAzna1dQbOOGqIzPs2clm5xvDEbzttuppWlTq\_kqfArit-oRhu8-hSfWL0OnBrjxPGSS6x5HXnBndHexEljoGV6nformbU76pgJyUvDwZT1WtbLR8lWCQLW1Cz2aKjJfxIURCsLz-L1xUDq1J42UO3Bt7SVUqH0dkYOXNjGbaGFy1bHfgBRi11vfavo\_cpjO2ZGahUNq2wvLSXlZb0aT6dFRLrog\_Per4aLRJ4jPibe-dFROwQdMSdhq8wqabh\_RpdqTpj\_ShhUTVplPdPpyDemTeRXanx2jbuf9XM**](https://www.upf.edu/web/mtg/good-sounds?__cf_chl_captcha_tk__=5725edba769d6a12081ca71ad4c422e98909cbfd-1592861752-0-AXncI8qBW4Ak9wFOR8hIxeWG5CfdBjvH10SXHCRz_Np7skgVZvZPguT9F7rROGzISUVTL04MyI9RQy0wh6fzFTGPWZmP1xabqpi8WJEUbS2CW6APSfkv_1QfrOmI8770tiVAlQhvAfWXCUKl464M2h07DIgkfpSlAmfnAQ7yrFj9k7F9QLO2xdBRz1uVtCBxN2p5JJcY0G_cc_pWjemGPt5G0RESMZsTkOAEFtmK86m-TCDb0HAzna1dQbOOGqIzPs2clm5xvDEbzttuppWlTq_kqfArit-oRhu8-hSfWL0OnBrjxPGSS6x5HXnBndHexEljoGV6nformbU76pgJyUvDwZT1WtbLR8lWCQLW1Cz2aKjJfxIURCsLz-L1xUDq1J42UO3Bt7SVUqH0dkYOXNjGbaGFy1bHfgBRi11vfavo_cpjO2ZGahUNq2wvLSXlZb0aT6dFRLrog_Per4aLRJ4jPibe-dFROwQdMSdhq8wqabh_RpdqTpj_ShhUTVplPdPpyDemTeRXanx2jbuf9XM)