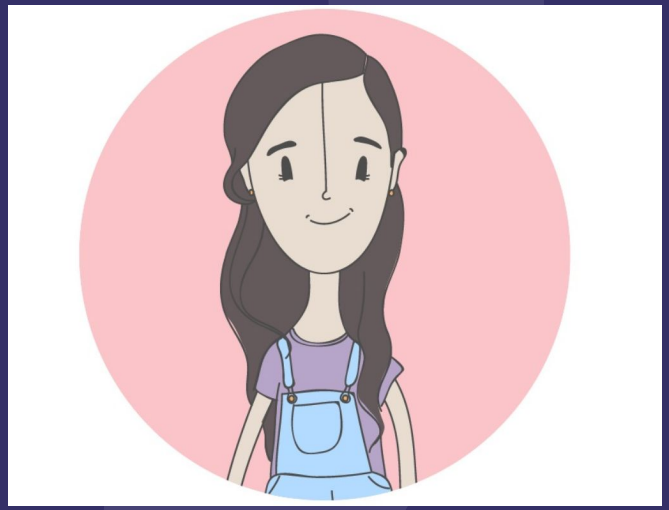
Notas 🎵 y Neuronas

@marisbotero🦄



@marisbotero🦄

Me llamo Maris Botero, juego con datos, cuido plantas y hago dibujitos🍀

Comunidades Tech

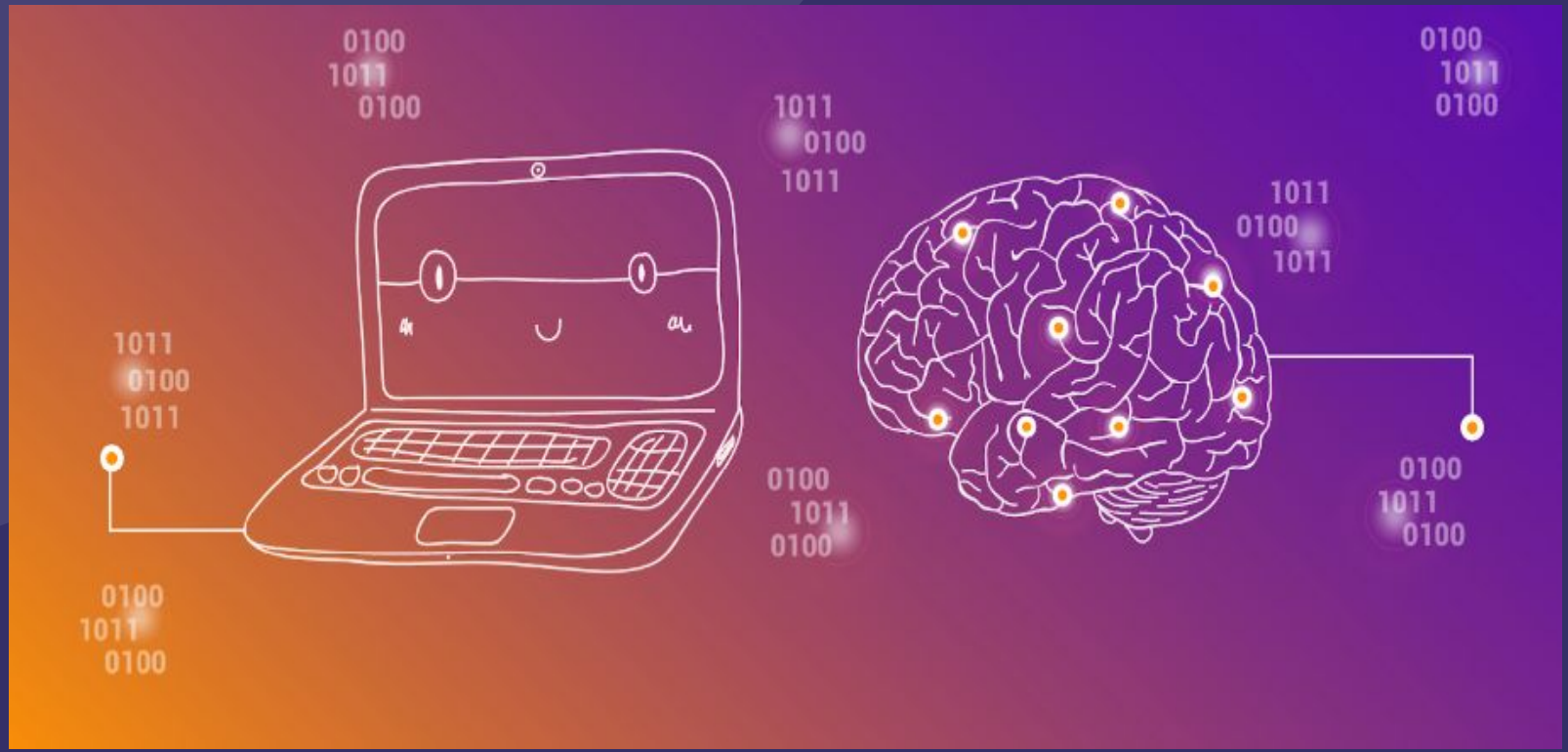
Pyladies Medellín

@pyladiesMed

Data Science Fem

@datasciencefem

DATA SCIENCE FEM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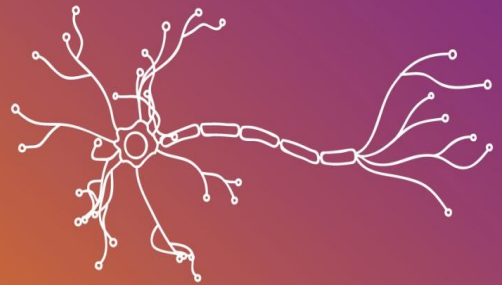
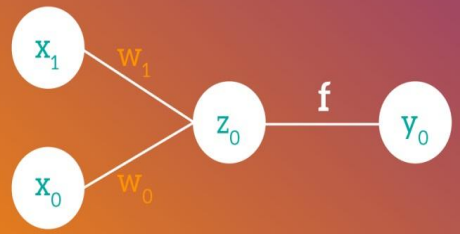
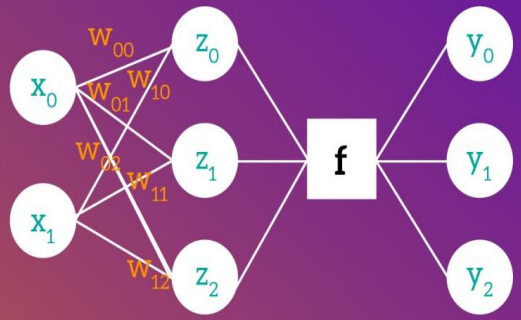
Neural networks

$z = w * x$

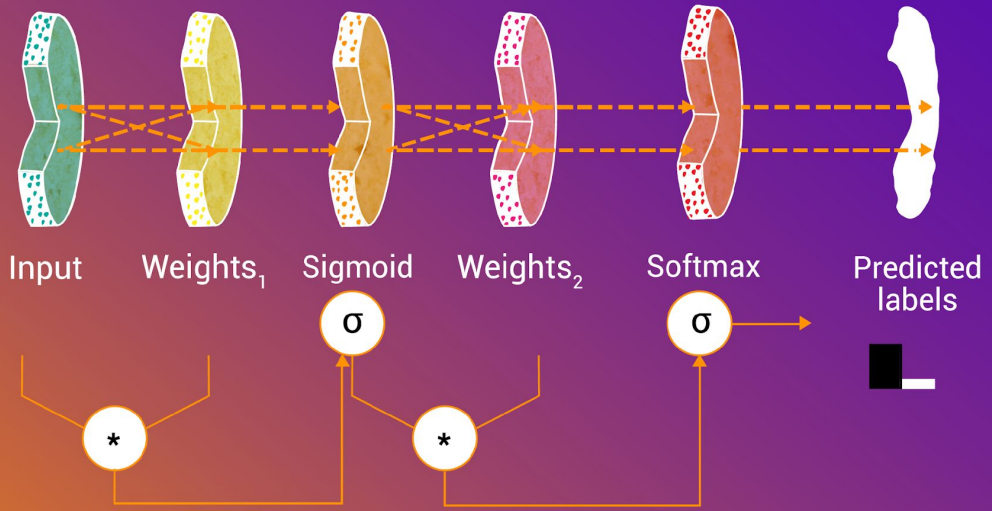
$y = f(z)$







How does a neural network learns?



¿Hacemos una banda sonora de nuestra historia?

```python
def train_network():
    """ Train a Neural Network to generate music """
    notes = get_notes()

    # get amount of pitch names
    n_vocab = len(set(notes))

    network_input, network_output = prepare_sequences(notes, n_vocab)

    model = create_network(network_input, n_vocab)

    train(model, network_input, network_output)
```

```python
def get_notes():
    """ Get all the notes and chords from the midi files in the ./midi_songs directory """
    notes = []

    for file in glob.glob("midi_songs/*.mid"):
        midi = converter.parse(file)

        print("Parsing %s" % file)

        notes_to_parse = None

        try: # file has instrument parts
            s2 = instrument.partitionByInstrument(midi)
            notes_to_parse = s2.parts[0].recurse()
        except: # file has notes in a flat structure
            notes_to_parse = midi.flat.notes

        for element in notes_to_parse:
            if isinstance(element, note.Note):
                notes.append(str(element.pitch))
            elif isinstance(element, chord.Chord):
                notes.append('.'.join(str(n) for n in element.normalOrder))

    with open('notes', 'wb') as filepath:
        pickle.dump(notes, filepath)

    return notes
```

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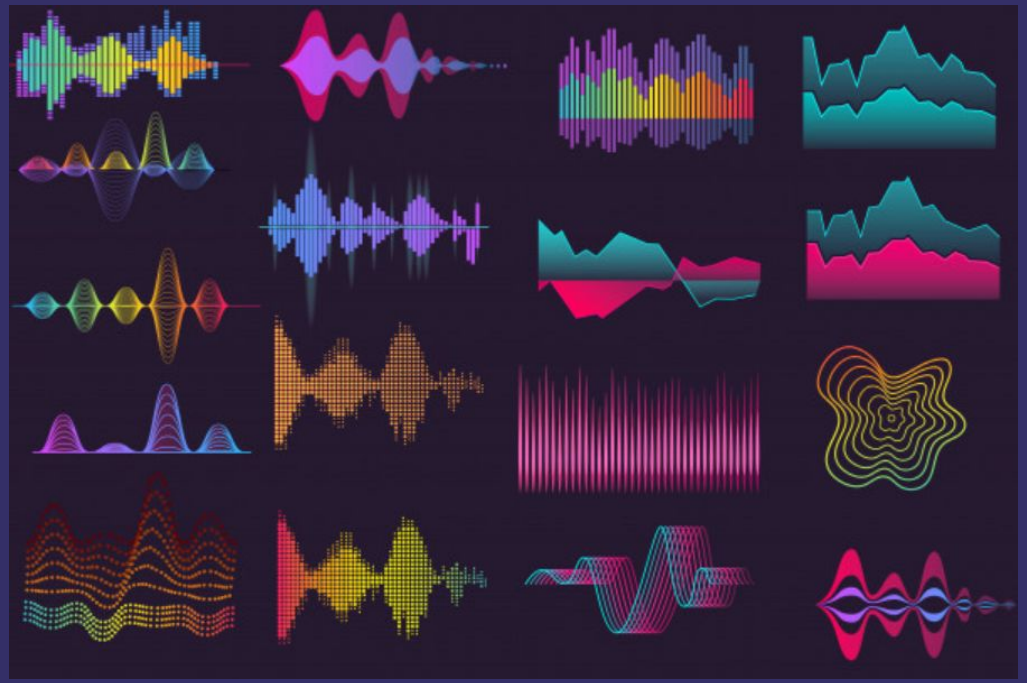

datos

Música clásica

preprocesamiento

Archivos midi

Modelo

LSTM

Inténtalo una vez más!!!

“-Que tu mejor música no muera contigo”🦄

Referencias

- http://midiworld.com/mozart.htm
- http://www.piano-midi.de/beeth.htm
- https://towardsdatascience.com/how-to-generate-music-using-a-lstm-neural-network-in-keras-68786834d4c5
- https://magenta.tensorflow.org/
- https://www.tensorflow.org/