

Performing Feature Extraction



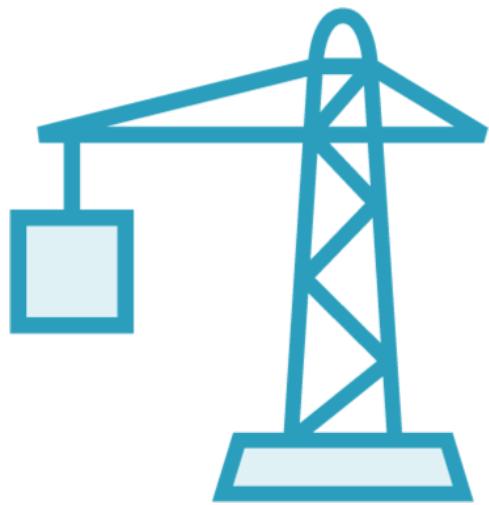
Xavier Morera

HELPING DEVELOPERS UNDERSTAND SEARCH & BIG DATA

@xmorera www.xavermorera.com



Feature Extraction



Generation of features from raw data

- Format not ideal for a ML model

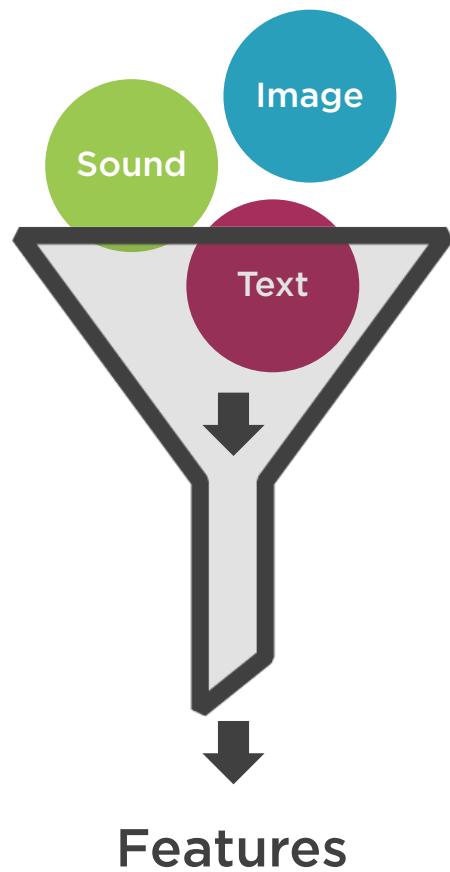
Takes place before feature normalization & selection

Extract data from images and text

- Input in demo experiments



Performing Feature Extraction



Tabular data

Audio, images, and unstructured text

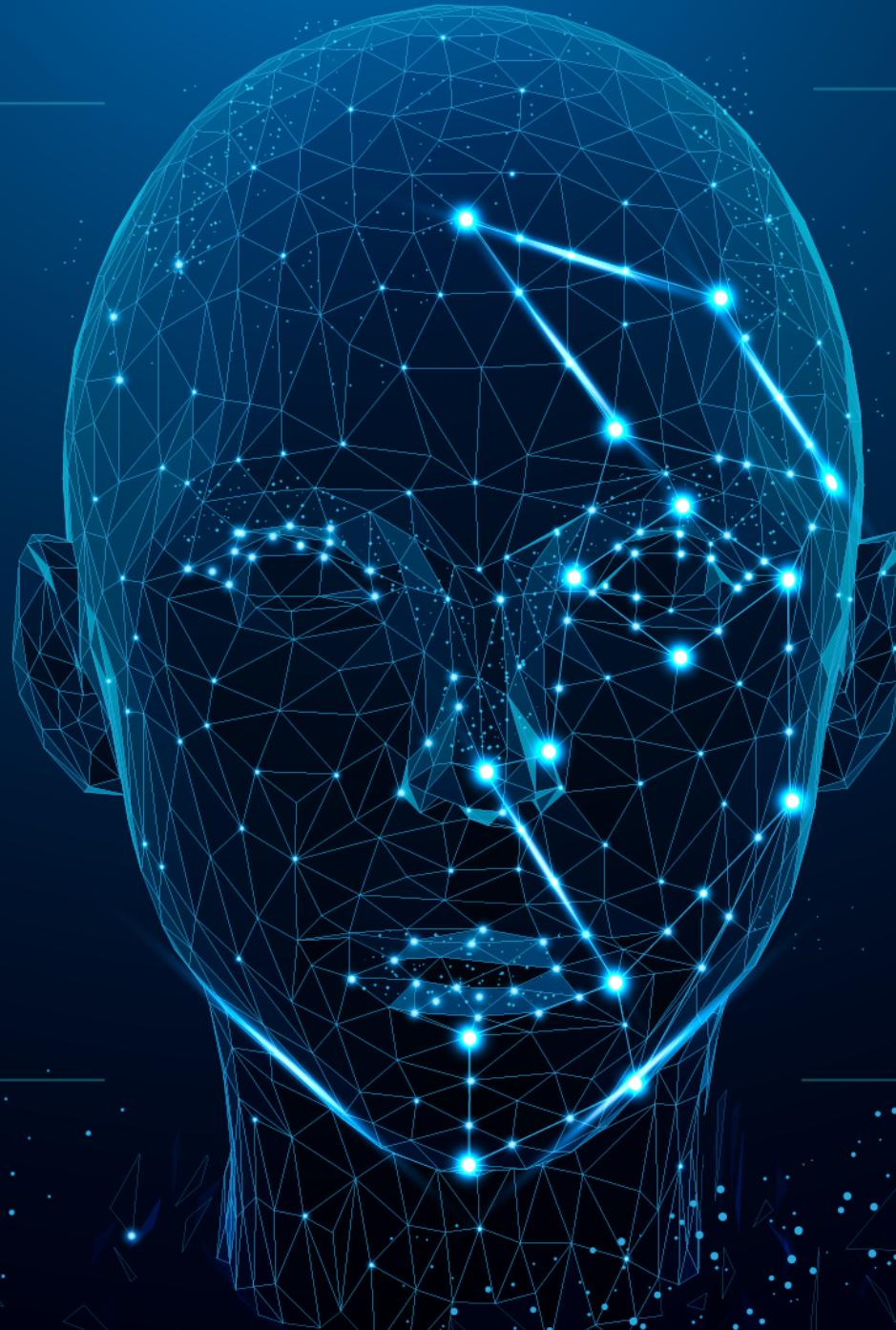
Features represented differently

- Based on their type

Consistent format for your model



FACE RECOGNITION



Extract Features from Images

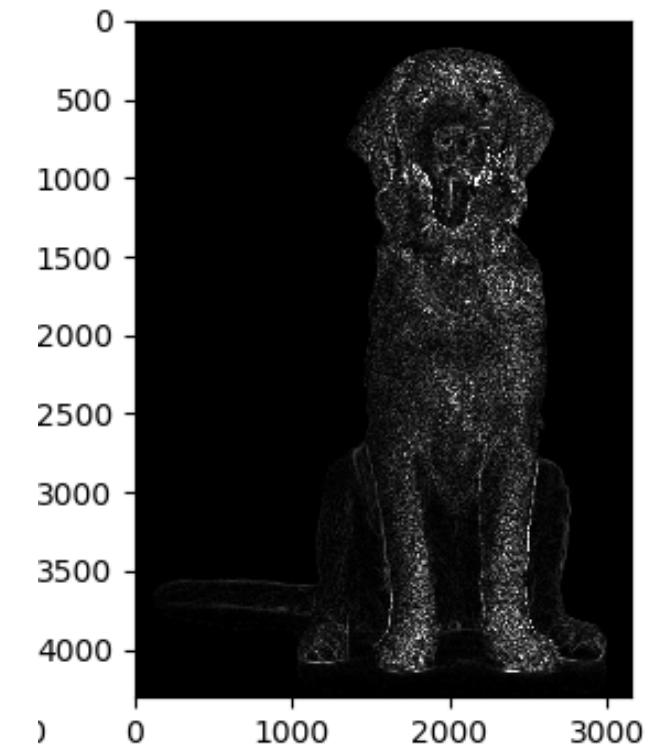
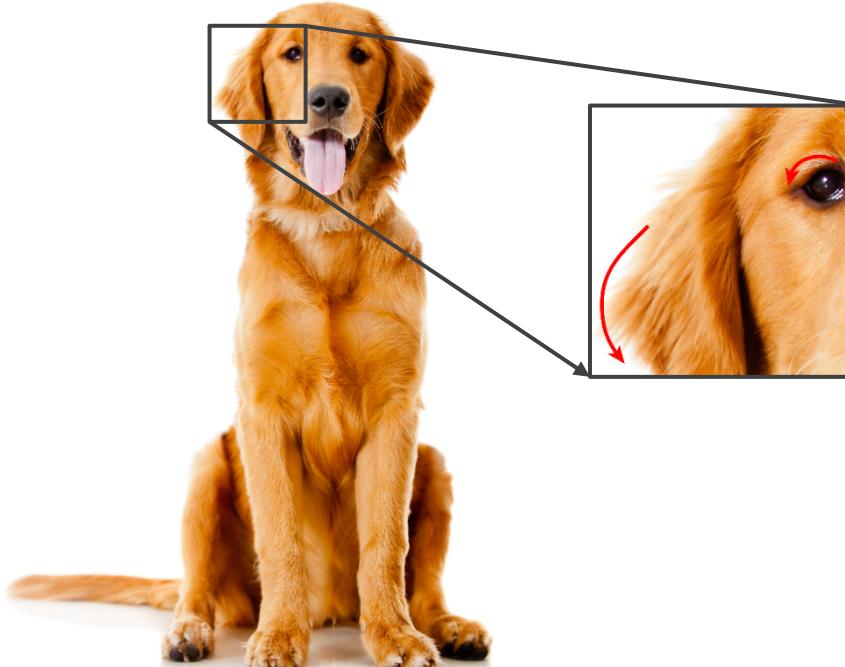


Image Recognition

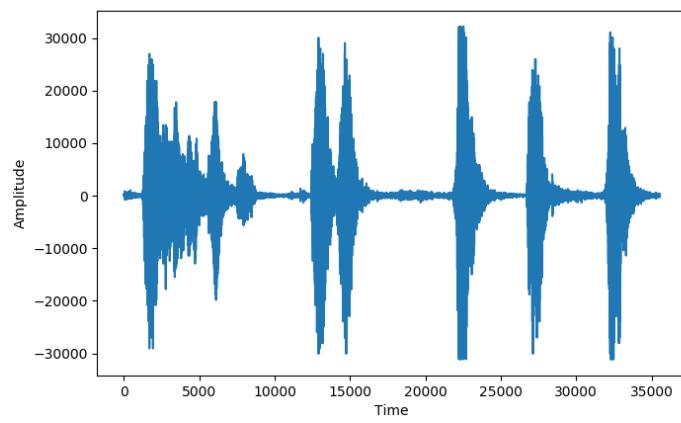
Dog



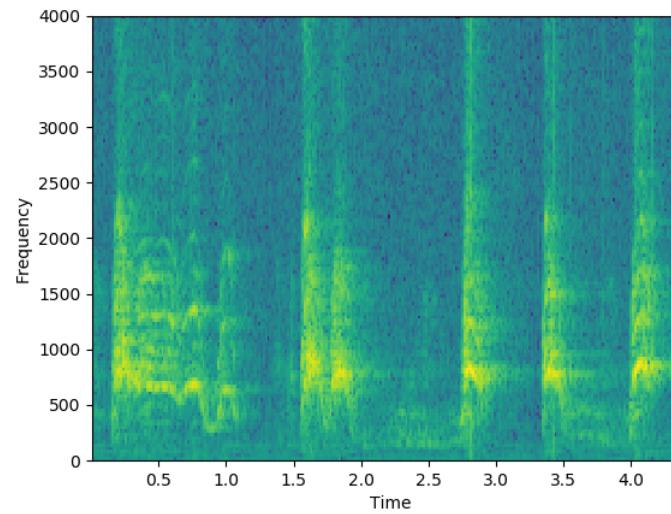
Not a dog



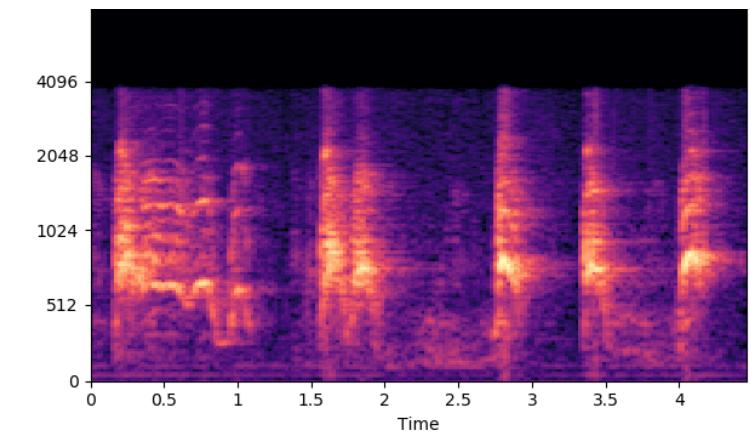
Extracting Features from Audio Clips



Dog Bark
(Temporal Domain)



Dog Bark
(FFT Spectrogram)



Dog Bark
(Spectrogram in Mel-Scale)



Extracting Features from Other Formats



Video:

Object detection

Movement detection

stars writer case effort knowledge adults
chapters value best question daughter mother
attorney pictures plot problem details text
hand chance weeks culture bible journey
details culture page addition
writers minutes dialogue need year facts
person eyes country suspense title mind
company guy kids chapter
dollars father results child style line
character opinions bit depth actions
illustrations authors wife faith
theory stories house end
lives point message date place
earth point reviewer role
readers individuals subject recipes
word commentary america questions

Text:

Bag of words

Term frequency



Recommendations for Images



Resize all images

- Same number of pixels

Higher resolution is better

- Not higher than original image
- May be too high for a module

More images



Recommendations for Audio



MONO channel
Same frequency
Apply transformations



Recommendations for Text



Tokenization

Remove

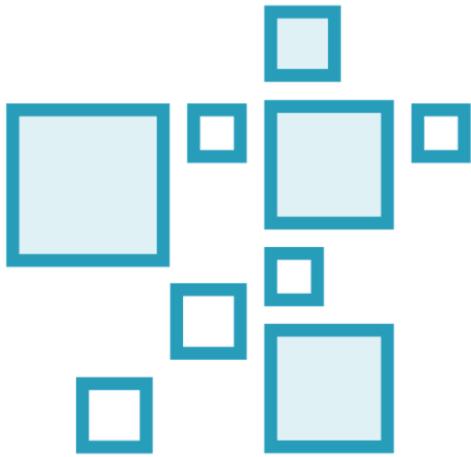
- Special characters and punctuation
- Stop words

Stemming and lemmatization

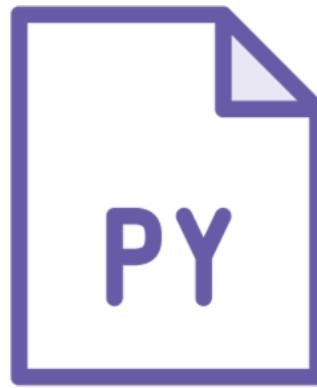
Same language



Creating and Using Feature Extraction Algorithms



Built-in Modules
Built-in Modules



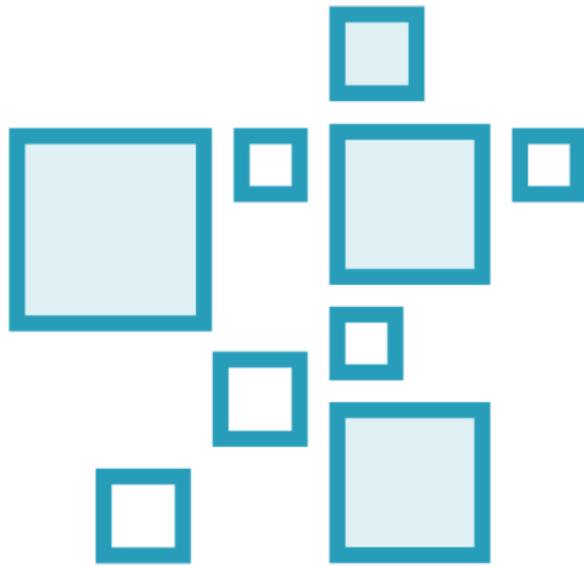
Python Scripts
Python Scripts



R Scripts
R Scripts



Built-in Modules



Text Analysis Modules

OpenCV Image Modules

Features Analysis Modules

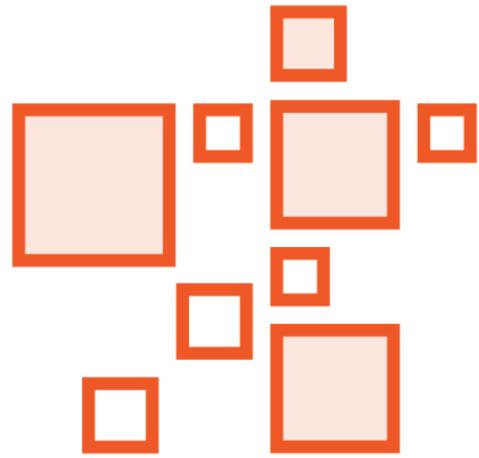
Data Transformation Modules

Filters

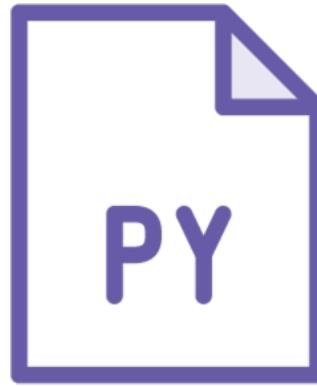
- FIR, IIR, Median, Moving Average...



Creating and Using Feature Extraction Algorithms



Built-in Modules



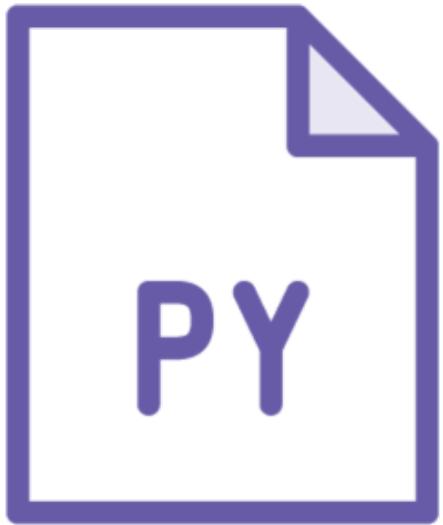
Python Scripts



R Scripts



Python Scripts



Create your filter

- Python script module

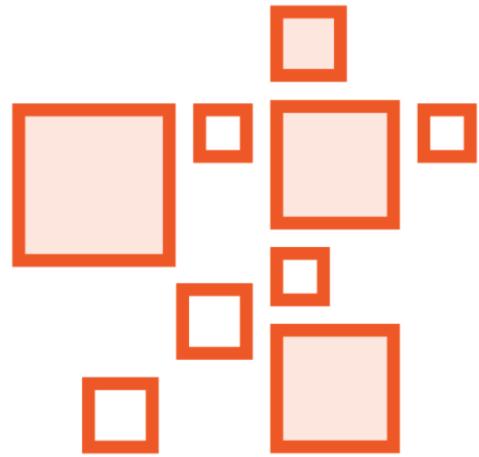
Data Table converted to pandas DataFrame

Requirements

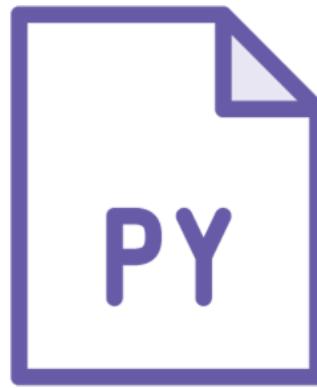
- Declare a function
- Returns a data table



Creating and Using Feature Extraction Algorithms



Built-in Modules



Python Scripts



R Scripts



R Scripts



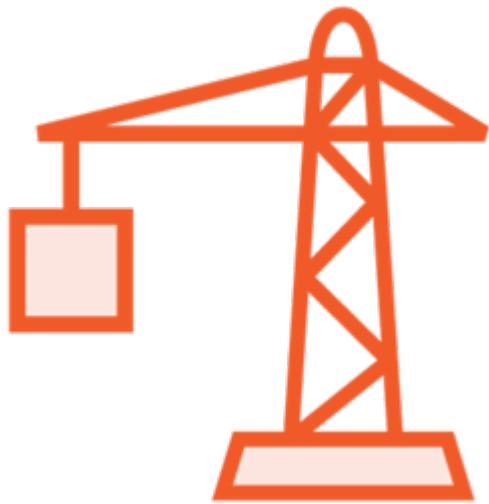
Create your filter

- R script module

Data Table converted to data frame



Feature Extraction on Unstructured Text



★★★★★ but I found that it could be easy for a person to react quickly to conflicts

November 12, 2016

Format: Paperback | **Verified Purchase**

In my honest opinion, several principles in this book are repeated around the book. I don't see it as a disadvantage, because repetition is the key to learning. I did think several of the principles explained in the book are common sense, but I found that it could be easy for a person to react quickly to conflicts. This book has taught me the importance of staying in control and how beneficial it is to be in control of our behaviors and act in a way of service to others. The examples described in the book made it simpler to understand the concepts that Dale is teaching. I recommend this book if you would like to improve your skills with people. This book is especially beneficial for those who are working on their businesses and close relationships.

This book is divided into four parts. The first half of the book discusses techniques in handling people and how to have people like you. The final half of the book gives instructions about how to win people to our own thinking and how to be a leader by changing people without offending them or causing resentment.

In the first part of the book, it is divided into three principles. The first principle emphasizes the importance of avoiding criticism and he describes working with people as: working with people of logic. He further describes complaining and criticizing as a foolish task to do and how it takes a person of character to understand,

▼ [Read more](#)

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Helpful

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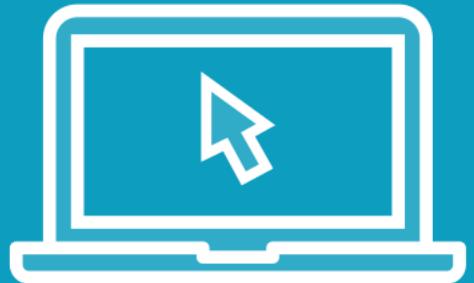
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Demo



Extracting Features from Unstructured Text



Human Face or not Human Face?



dog.jpg



another-face.jpg



random-image.jpg



no-face.jpg



cant-see-face.jpg



author-face.JPG



Human Face or not Human Face?



dog.jpg



another-face.jpg



random-image.jpg



no-face.jpg



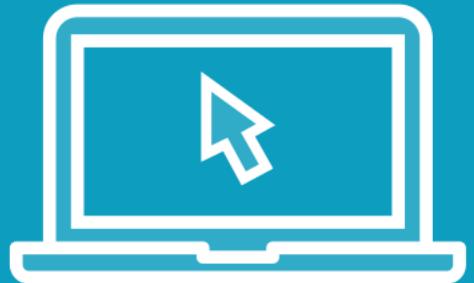
cant-see-face.jpg



author-face.JPG



Demo



Human Face or Not Human Face?



Takeaway



Feature Extraction:

- Images, Audio, Text, Videos

Feature Extraction Modules in Azure ML Studio

- Filters
- Python Script
- R Script

