

DAT(A)RT

**Can technology be used to explore art
by the way we feel?**

FINAL PROJECT

Begoña Ripoll
Data Analytics
April 2023

Introduction

Introduction



Mona Lisa & Her Fans - Saatchi Art



Nude Apollo with Selfie Stick - Saatchi Art

DAT(A)RT

Begoña Ripoll

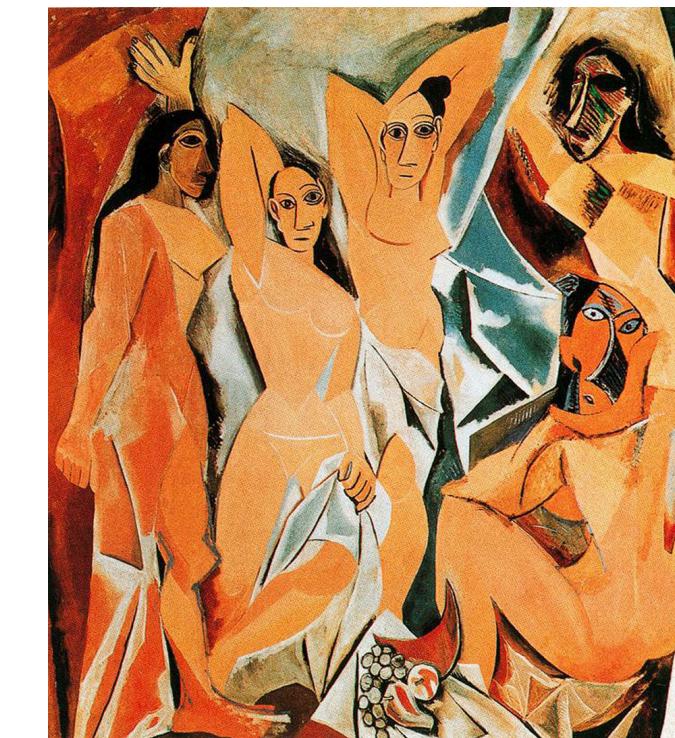
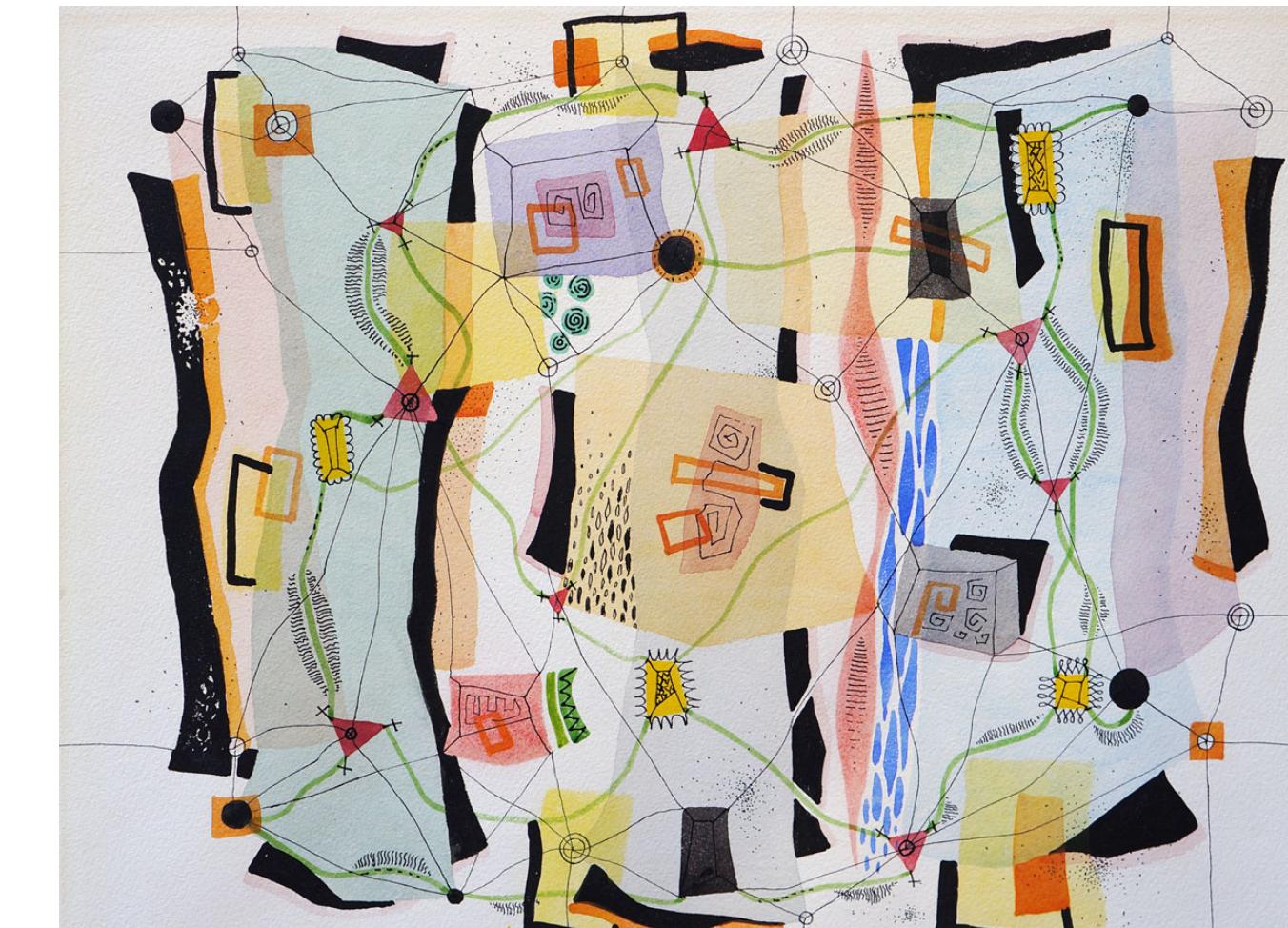
Database

DataBase



WikiArt Emotion

Saif M. Mohammad and Svetlana Kiritchenko
National Research Council Canada
2018



DAT(A)RT

Begoña Ripoll

DataBase

4
22
1001
4105

styles
movements
authors
artworks

~200 items x movement



WikiArt Emotion

Saif M. Mohammad and Svetlana Kiritchenko
National Research Council Canada
2018



DAT(A)RT

Begoña Ripoll

DataBase

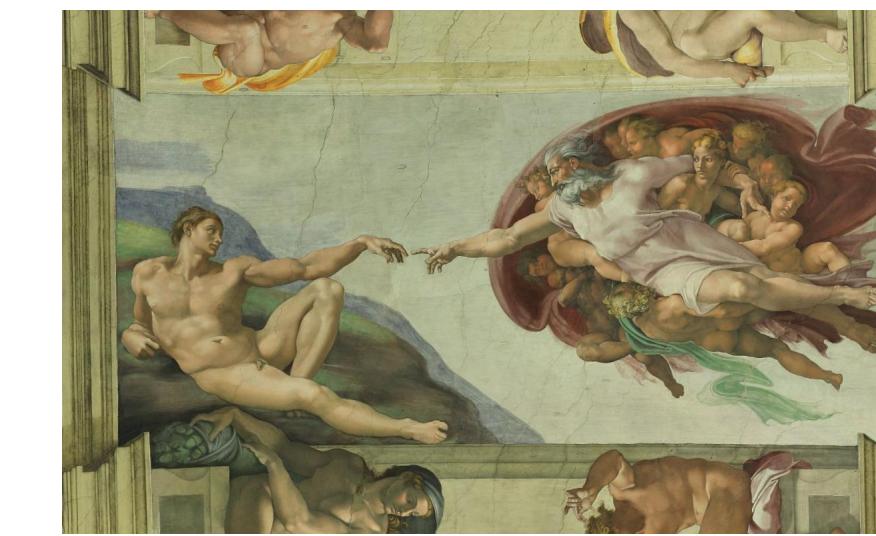
4
22
1001
4105

10
20

styles
movements
authors
artworks

crowdworkers
emotions

~200 items x movement



WikiArt Emotion

Saif M. Mohammad and Svetlana Kiritchenko
National Research Council Canada
2018



DAT(A)RT

Begoña Ripoll

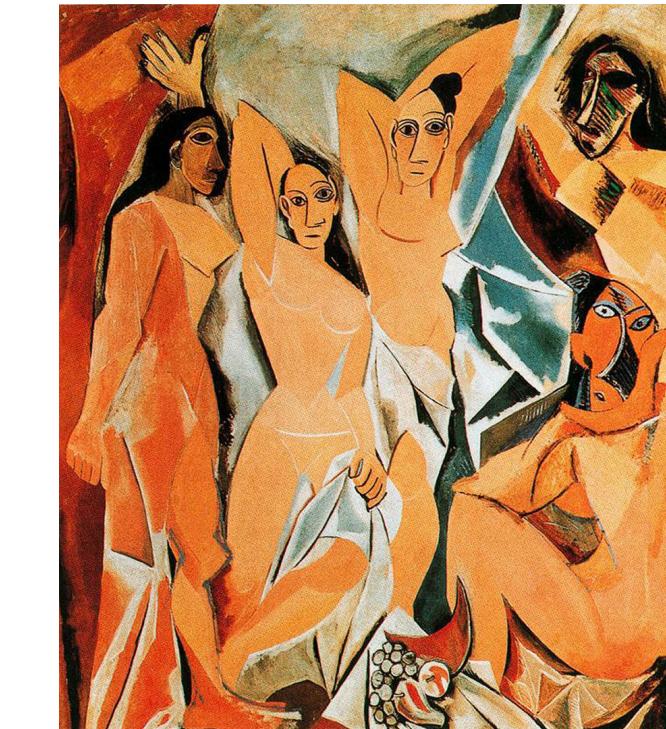
DataBase

4	styles
22	movements
1001	authors
4105	artworks ~200 items x movement
10	crowdworkers
20	emotions
scenario I	title
scenario II	image
scenario III	title + image



WikiArt Emotion

Saif M. Mohammad and Svetlana Kiritchenko
National Research Council Canada
2018

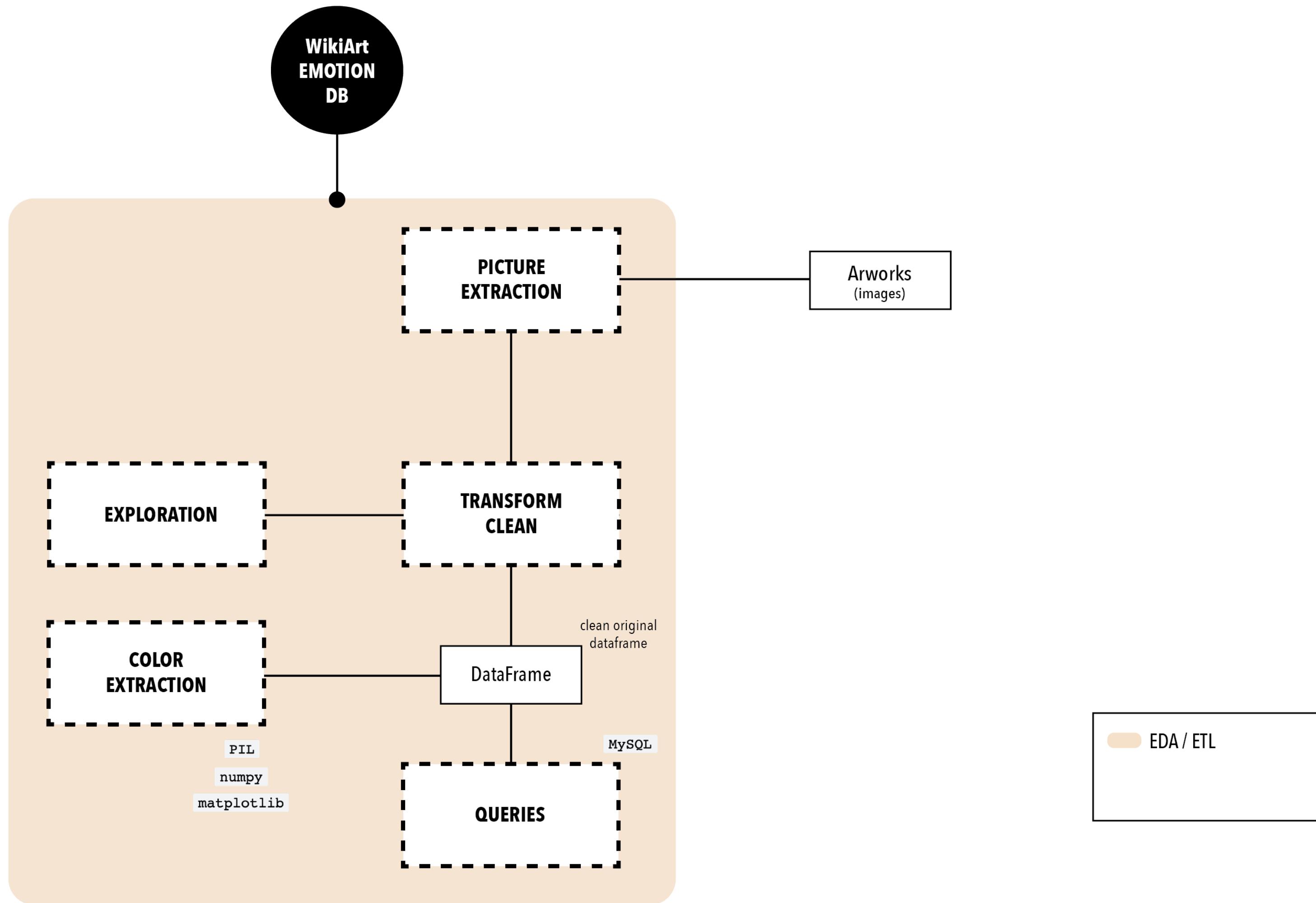


Workflow

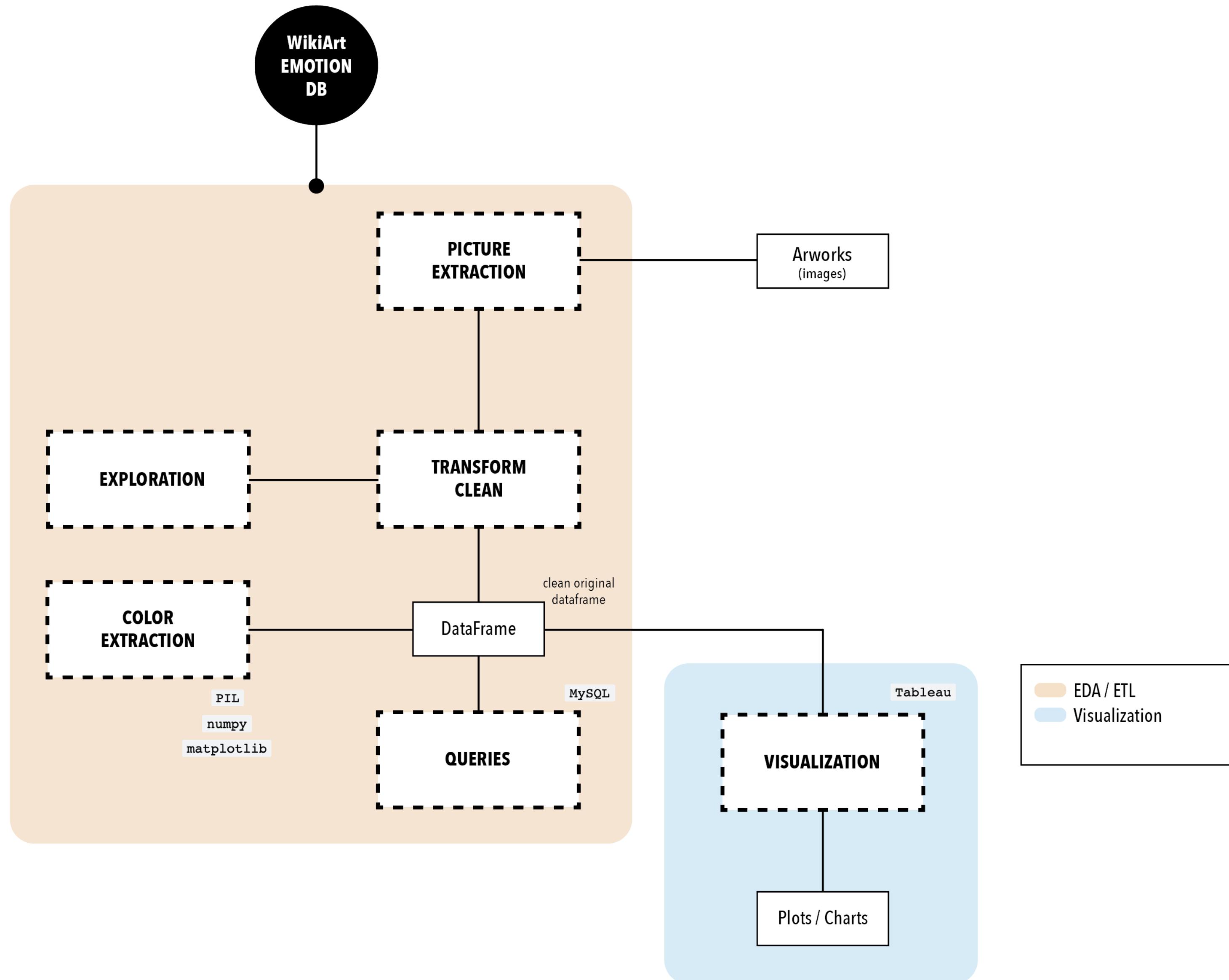
Workflow



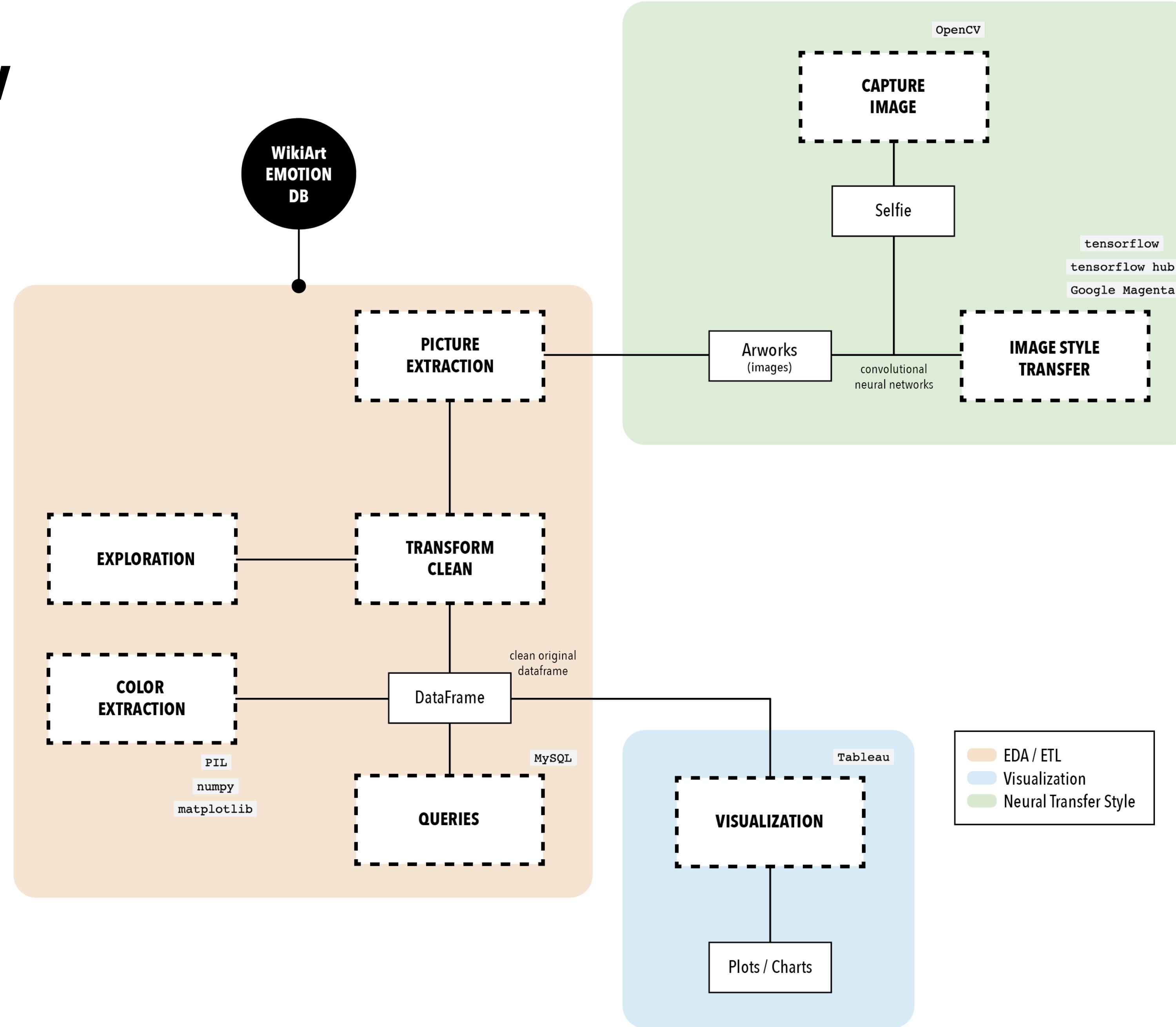
Workflow



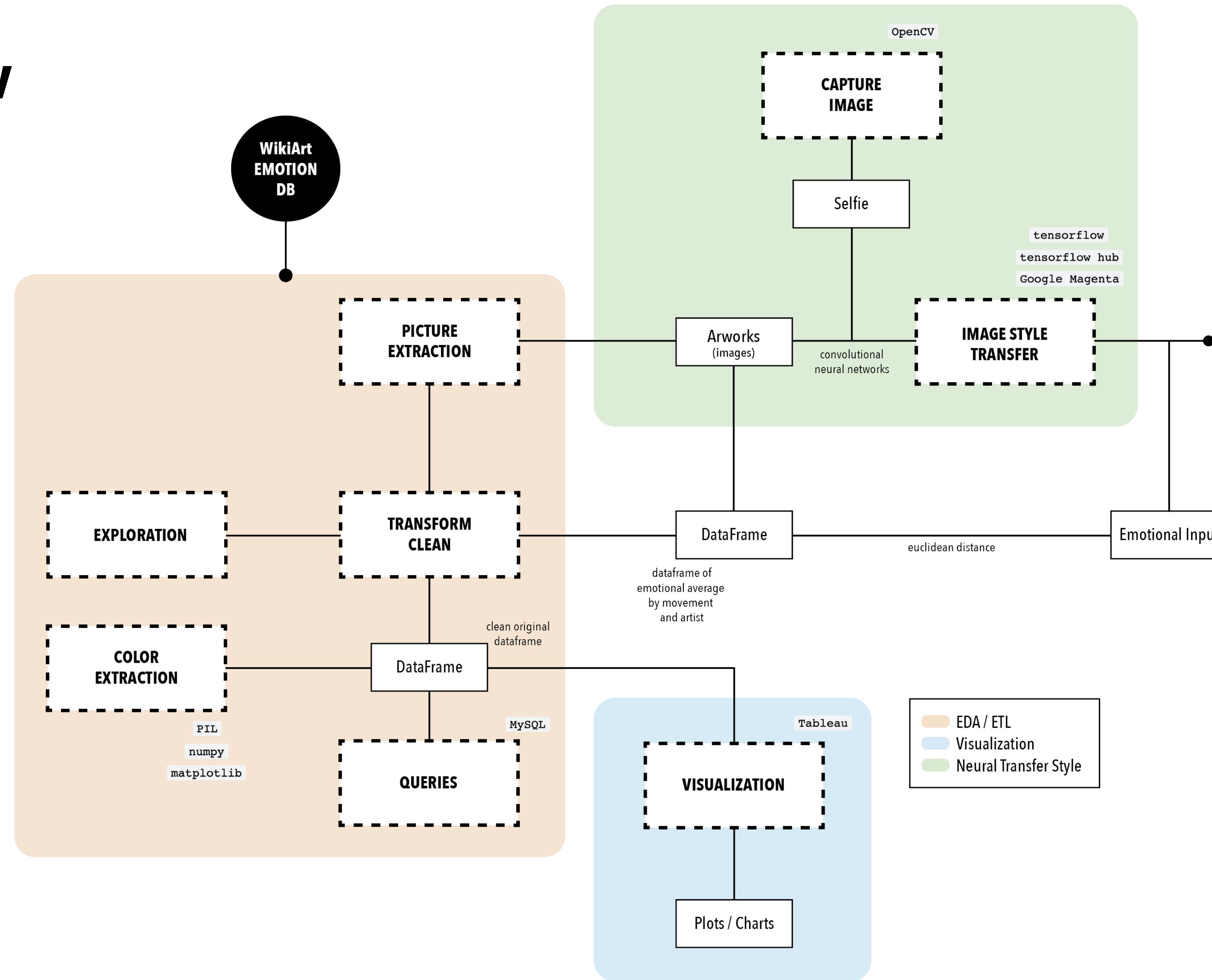
Workflow



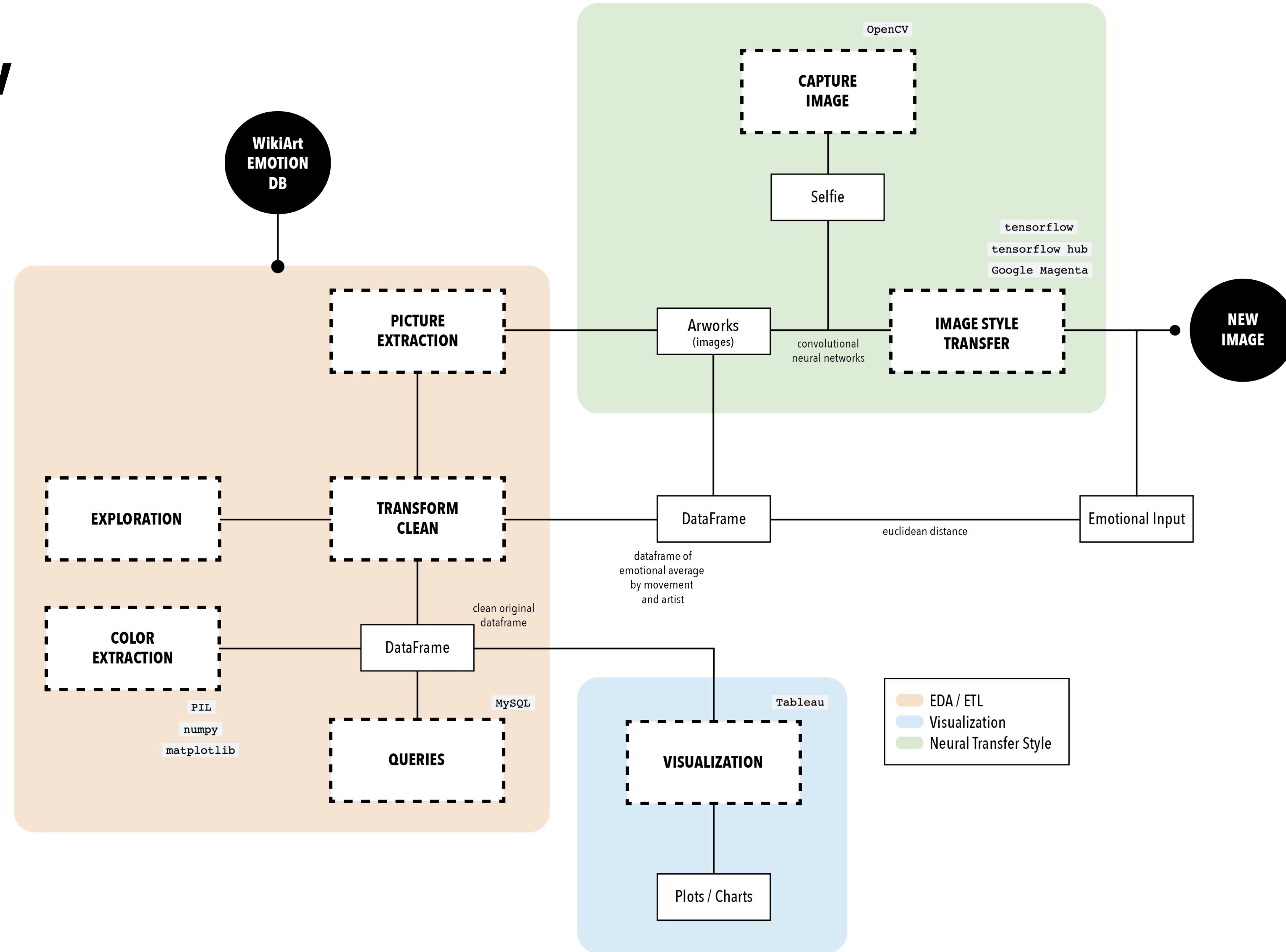
Workflow



Workflow



Workflow



EDA & ETL

EDA & ETL

Original dataframes

	ID	Category	Artist	Title	Year	Image URL	Painting Inf
0	58c6237dedc2c9c7dc0de1ae	Impressionism	Charles Courtney Curran	In the Luxembourg Garden	1889	https://uploads3.wikiart.org/00123/images/charles-courtney-curran-in-the-luxembourg-garden-1889.jpg	https://www.wikiart.org/en/charles-courtney-curran/in-the-luxembourg-garden-1889
1	577280dfedc2cb3880f28e76	Neo-Expressionism	Keith Haring	The Marriage of Heaven and Hell	1984	https://uploads1.wikiart.org/images/keith-haring-the-marriage-of-heaven-and-hell-1984.jpg	https://www.wikiart.org/en/keith-haring/the-marriage-of-heaven-and-hell-1984
2	57727f2dedc2cb3880ed5fa9	Post-Impressionism	József Rippl-Rónai	Uncle Piacsek in front of the Black Sideboard	1906	https://uploads3.wikiart.org/images/jozsef-rippl-ronai-uncle-piacsek-in-front-of-the-black-sideboard-1906.jpg	https://www.wikiart.org/en/jozsef-rippl-ronai/uncle-piacsek-in-front-of-the-black-sideboard-1906
3	58d1240cedc2c94f900fc610	Cubism	Vadym Meller	Monk. For the Play "Mazepa"	1920	https://uploads2.wikiart.org/00124/images/vadym-meller-monk-for-the-play-mazepa-1920.jpg	https://www.wikiart.org/en/vadym-meller/monk-for-the-play-mazepa-1920
4	57727de7edc2cb3880e91f26	Romanticism	David Wilkie	The Defence of Saragoña	1828	https://uploads6.wikiart.org/images/david-wilkie-the-defence-of-saragona-1828.jpg	https://www.wikiart.org/en/david-wilkie/the-defence-of-saragona-1828
...
4114	577287aeecd2cb388007fba9	Color Field Painting	Rupprecht Geiger	OE 260	1957	https://uploads7.wikiart.org/images/rupprecht-geiger-oe-260-1957.jpg	https://www.wikiart.org/en/rupprecht-geiger/oe-260-1957
4115	57728001edc2cb3880efddcf	Surrealism	Oscar Domínguez	Méquina de coser electro-sexual	1934	https://uploads4.wikiart.org/images/oscar-domiguez-mequina-de-coser-electro-sexual-1934.jpg	https://www.wikiart.org/en/oscar-domiguez/mequina-de-coser-electro-sexual-1934
4116	57728ac7edc2cb3880123cc2	Neo-Expressionism	Georg Baselitz	Female Nude on a Kitchen Chair	1979	https://uploads2.wikiart.org/images/georg-baseilitz-female-nude-on-a-kitchen-chair-1979.jpg	https://www.wikiart.org/en/georg-baseilitz/female-nude-on-a-kitchen-chair-1979
4117	57728412edc2cb3880fc9ff4	Expressionism	Marie Laurencin	Apollinaire and His Friends	1909	https://uploads0.wikiart.org/images/marie-laurencin-apollinaire-and-his-friends-1909.jpg	https://www.wikiart.org/en/marie-laurencin/apollinaire-and-his-friends-1909
4118	57728126edc2cb3880f3a31d	Expressionism	Paula Modersohn-Becker	Worpsweder Landscape	1908	https://uploads4.wikiart.org/images/paula-modersohn-becker-worpsweder-landscape-1908.jpg	https://www.wikiart.org/en/paula-modersohn-becker/worpsweder-landscape-1908

4119 rows x 8 columns

EDA & ETL

Original dataframes

	ID	Category	Artist	Title	Year	Image URL	Painting Inf
0	58c6237dedc2c9c7dc0de1ae	Impressionism	Charles Courtney Curran	In the Luxembourg Garden	1889	https://uploads3.wikiart.org/00123/images/charles-courtney-curran-in-the-luxembourg-garden-1889.jpg	https://www.wikiart.org/en/charles-courtney-curran/in-the-luxembourg-garden
1	577280dfedc2cb3880f28e76	Neo-Expressionism	Keith Haring	The Marriage of Heaven and Hell	1984	https://uploads1.wikiart.org/images/keith-haring-the-marriage-of-heaven-and-hell-1984.jpg	https://www.wikiart.org/en/keith-haring/the-marriage-of-heaven-and-hell
2	57727f2dedc2cb3880ed5fa9	Post-Impressionism	Jozsef Rippl-Ronai	Uncle Piacsek in front of the Black Sideboard	1906	https://uploads3.wikiart.org/images/jozsef-rippl-ronai-uncle-piacsek-in-front-of-the-black-sideboard-1906.jpg	https://www.wikiart.org/en/jozsef-rippl-ronai/uncle-piacsek-in-front-of-the-black-sideboard
3	58d1240cedc2c94f900fc610	Cubism	Vadym Meller	Monk. For the Play "Mazepa"	1920	https://uploads2.wikiart.org/00124/images/vadym-meller-monk-for-the-play-mazepa-1920.jpg	https://www.wikiart.org/en/vadym-meller/monk-for-the-play-mazepa
4	57727de7edc2cb3880e91f26	Romanticism	David Wilkie	The Defence of Saragoña	1828	https://uploads6.wikiart.org/images/david-wilkie-the-defence-of-sarago%C3%A1a-1828.jpg	https://www.wikiart.org/en/david-wilkie/the-defence-of-sarago%C3%A1a
...
4114	577287aeecd2cb388007fba9	Color Field Painting	Rupprecht Geiger	OE 260	1957	https://uploads7.wikiart.org/images/rupprecht-geiger-oe-260-1957.jpg	https://www.wikiart.org/en/rupprecht-geiger/oe-260
4115	57728001edc2cb3880efddcf	Surrealism	Oscar Dominguez	Máquina de coser electro-sexual	1934	https://uploads4.wikiart.org/images/oscar-dominguez-m%22quina-de-coser-electro-sexual-1934.jpg	https://www.wikiart.org/en/oscar-dominguez/m%22quina-de-coser-electro-sexual
4116	57728ac7edc2cb3880123cc2	Neo-Expressionism	Georg Baselitz	Female Nude on a Kitchen Chair	1979	https://uploads2.wikiart.org/images/georg-baseilitz-female-nude-on-a-kitchen-chair-1979.jpg	https://www.wikiart.org/en/georg-baseilitz/female-nude-on-a-kitchen-chair
4117	57728412edc2cb3880fc9ff4	Expressionism	Marie Laurencin	Apollinaire and His Friends	1909	https://uploads0.wikiart.org/images/marie-laurencin-apollinaire-and-his-friends-1909.jpg	https://www.wikiart.org/en/marie-laurencin/apollinaire-and-his-friends
4118	57728126edc2cb3880f3a31d	Expressionism	Paula Modersohn-Becker	Worpssweder Landscape	1908	https://uploads4.wikiart.org/images/paula-modersohn-becker-worpssweder-landscape-1908.jpg	https://www.wikiart.org/en/paula-modersohn-becker/worpssweder-landscape

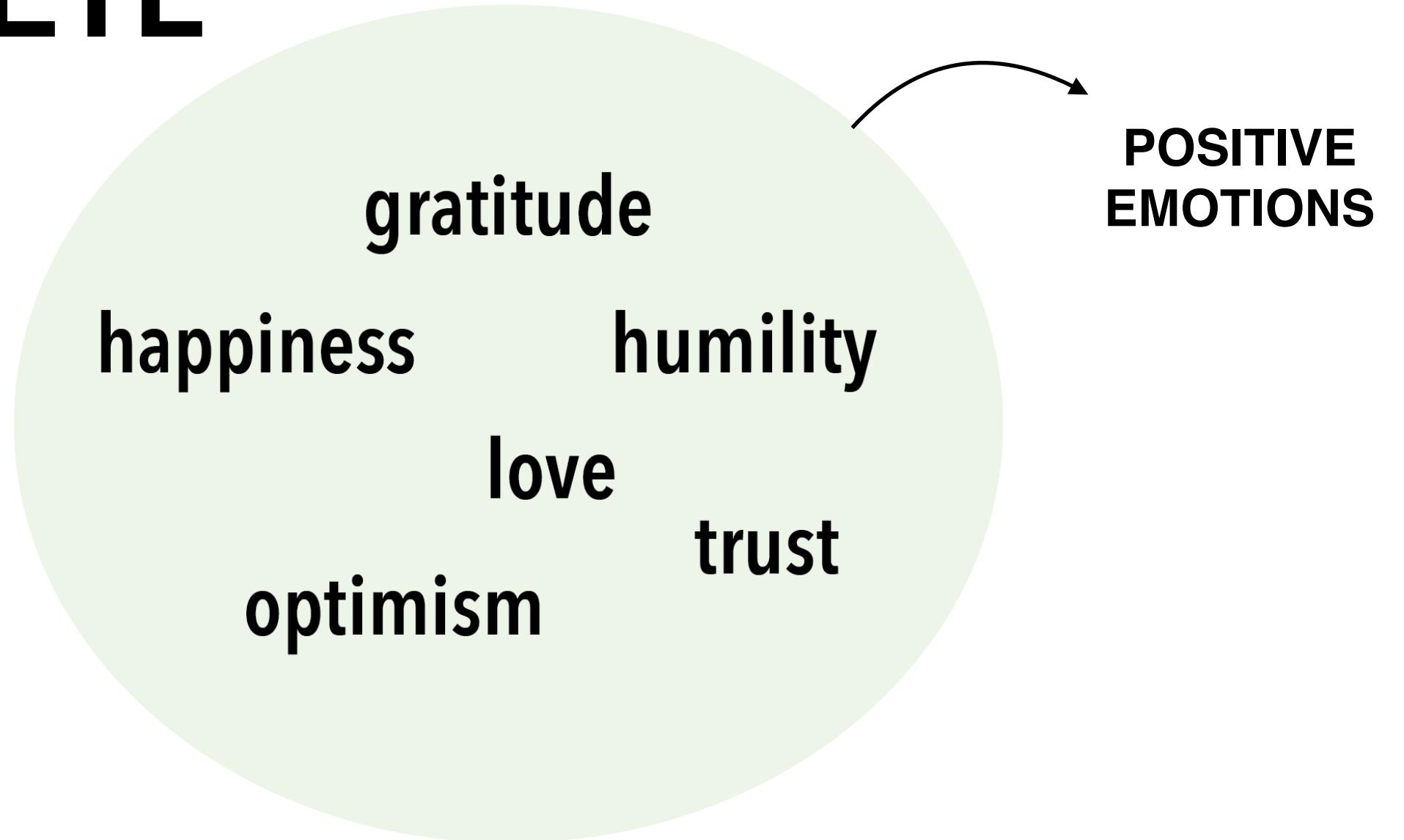
4119 rows x 8 columns

ID	Style	Category	Artist	Title	Year	Is painting	Face/body	Ave. art rating	Art (image+title): agreeableness	Art (image+title): anger
0	Modern Art	Impressionism	Charles Courtney Curran	In the Luxembourg Garden	1889	yes	face	2.33	0.036	0.012
1	Modern Art	Neo-Expressionism	Keith Haring	The Marriage of Heaven and Hell	1984	yes	body	0.70	0.000	0.000
2	Modern Art	Post-Impressionism	Jozsef Rippl-Ronai	Uncle Piacsek in front of the Black Sideboard	1906	yes	face	1.60	0.000	0.000
3	Modern Art	Cubism	Vadym Meller	Monk. For the Play "Mazepa"	1920	yes	face	0.82	0.000	0.000
4	Renaissance Art	Romanticism	David Wilkie	The Defence of Saragoña	1828	yes	face	1.69	0.077	0.231
...
4100	Modern Art	Color Field Painting	Rupprecht Geiger	OE 260	1957	yes	none	1.09	0.000	0.000
4101	Modern Art	Surrealism	Oscar Dominguez	Máquina de coser electro-sexual	1934	yes	body	0.10	0.100	0.000
4102	Modern Art	Neo-Expressionism	Georg Baselitz	Female Nude on a Kitchen Chair	1979	yes	body	-0.23	0.154	0.000
4103	Modern Art	Expressionism	Marie Laurencin	Apollinaire and His Friends	1909	yes	face	1.08	0.083	0.000
4104	Modern Art	Expressionism	Paula Modersohn-Becker	Worpssweder Landscape	1908	yes	none	1.23	0.000	0.021

4105 rows x 69 columns

EDA & ETL

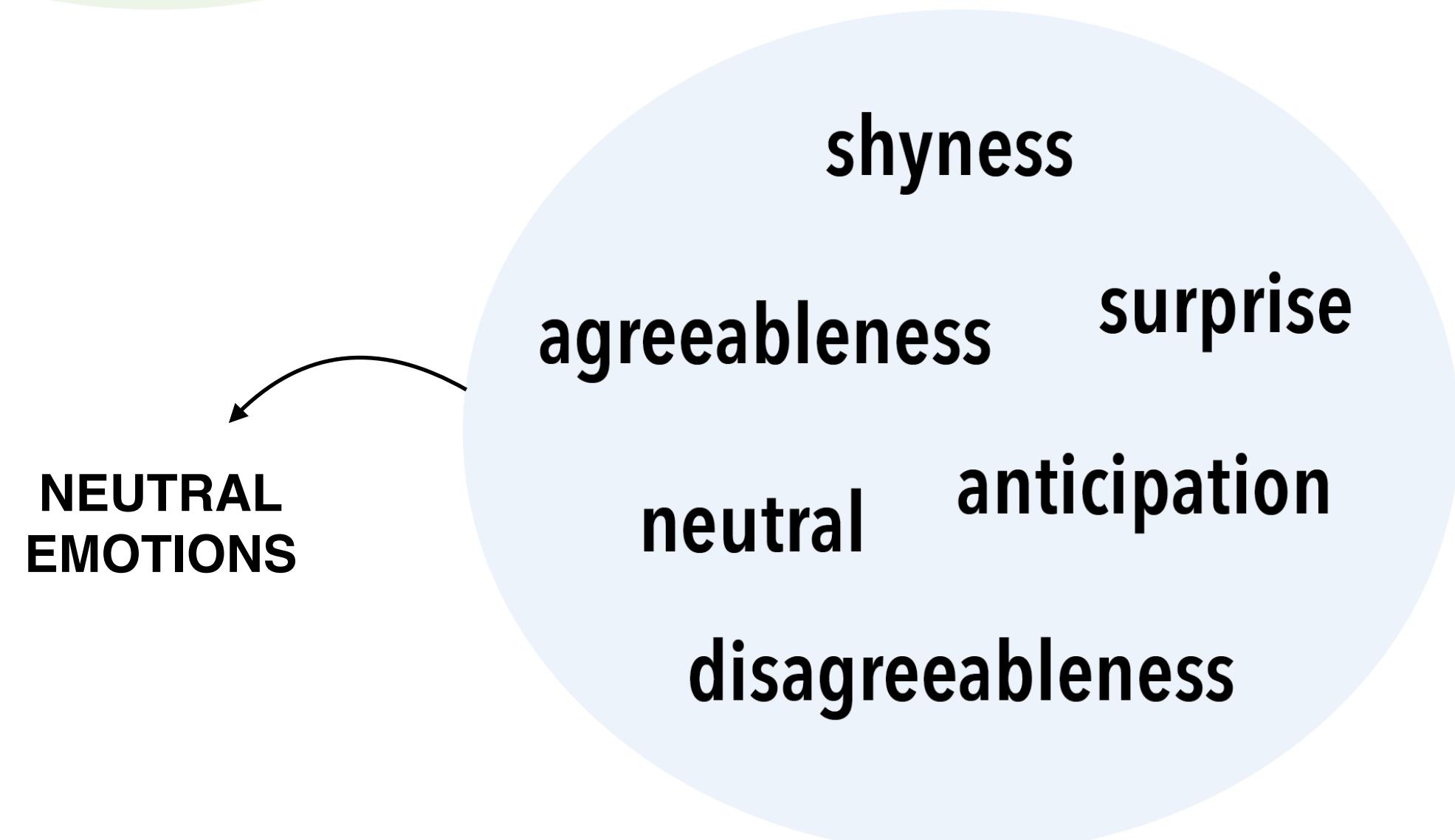
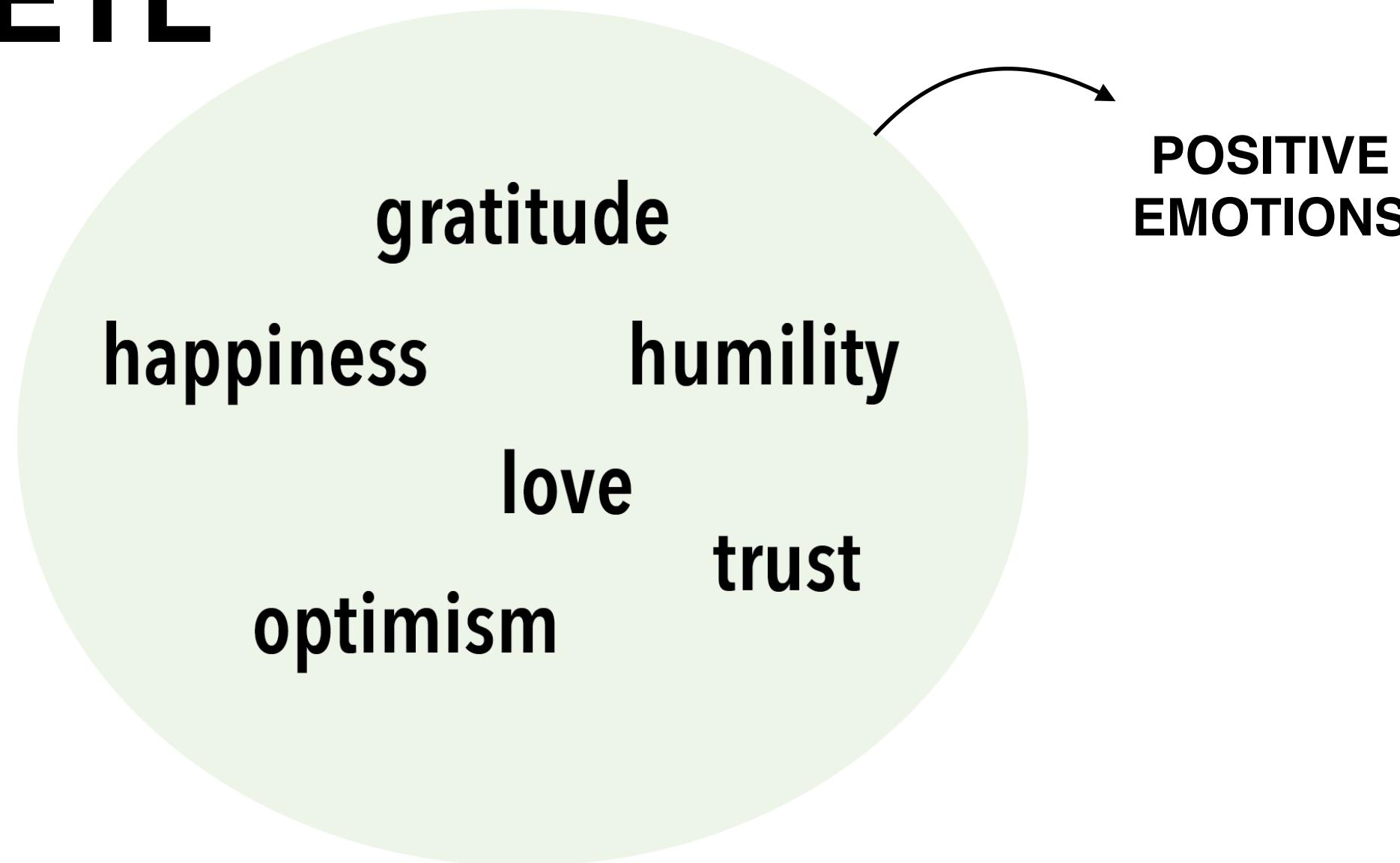
Emotion grouping



POSITIVE
EMOTIONS

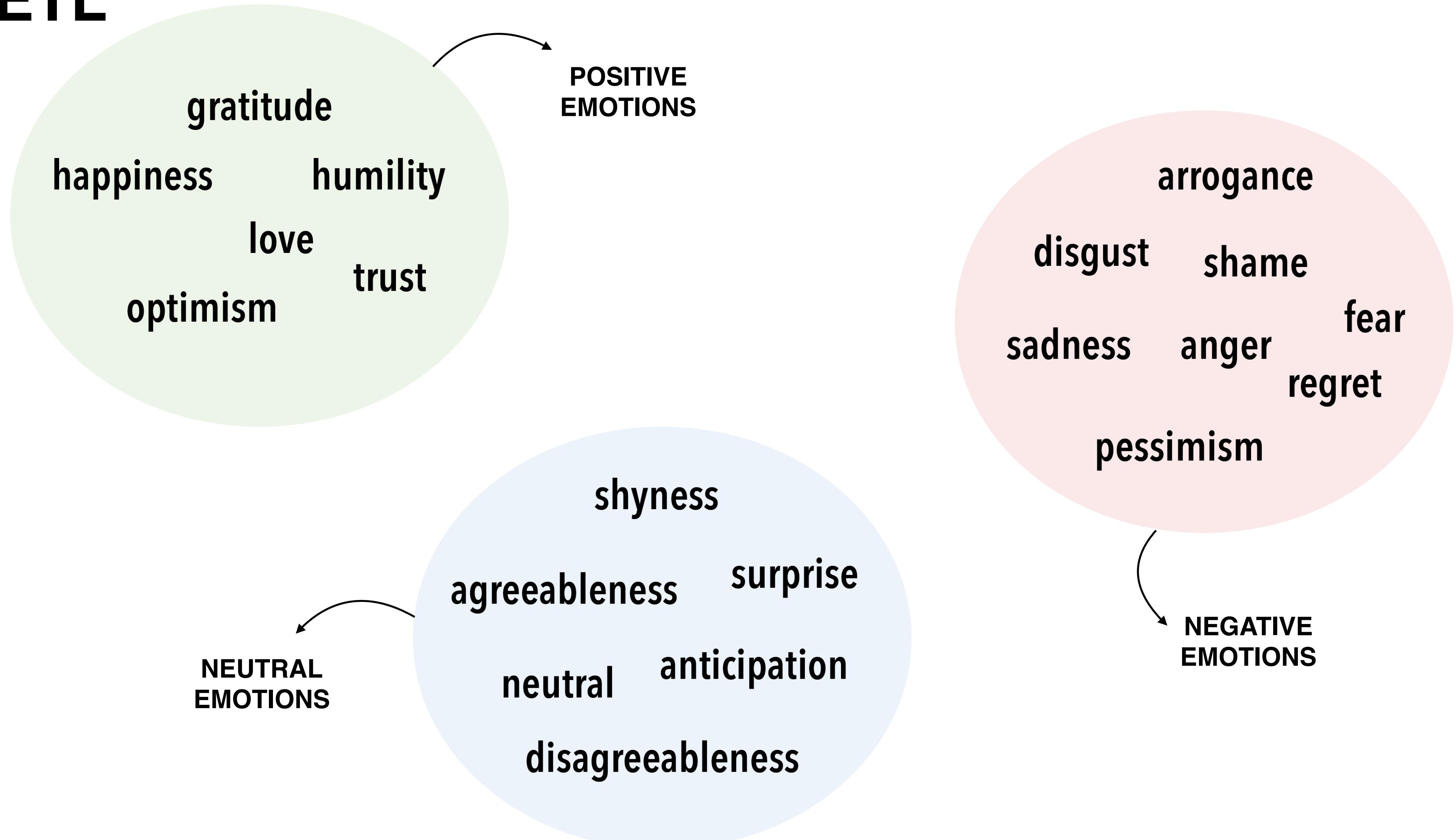
EDA & ETL

Emotion grouping



EDA & ETL

Emotion grouping



EDA & ETL

Final dataframes

Movement

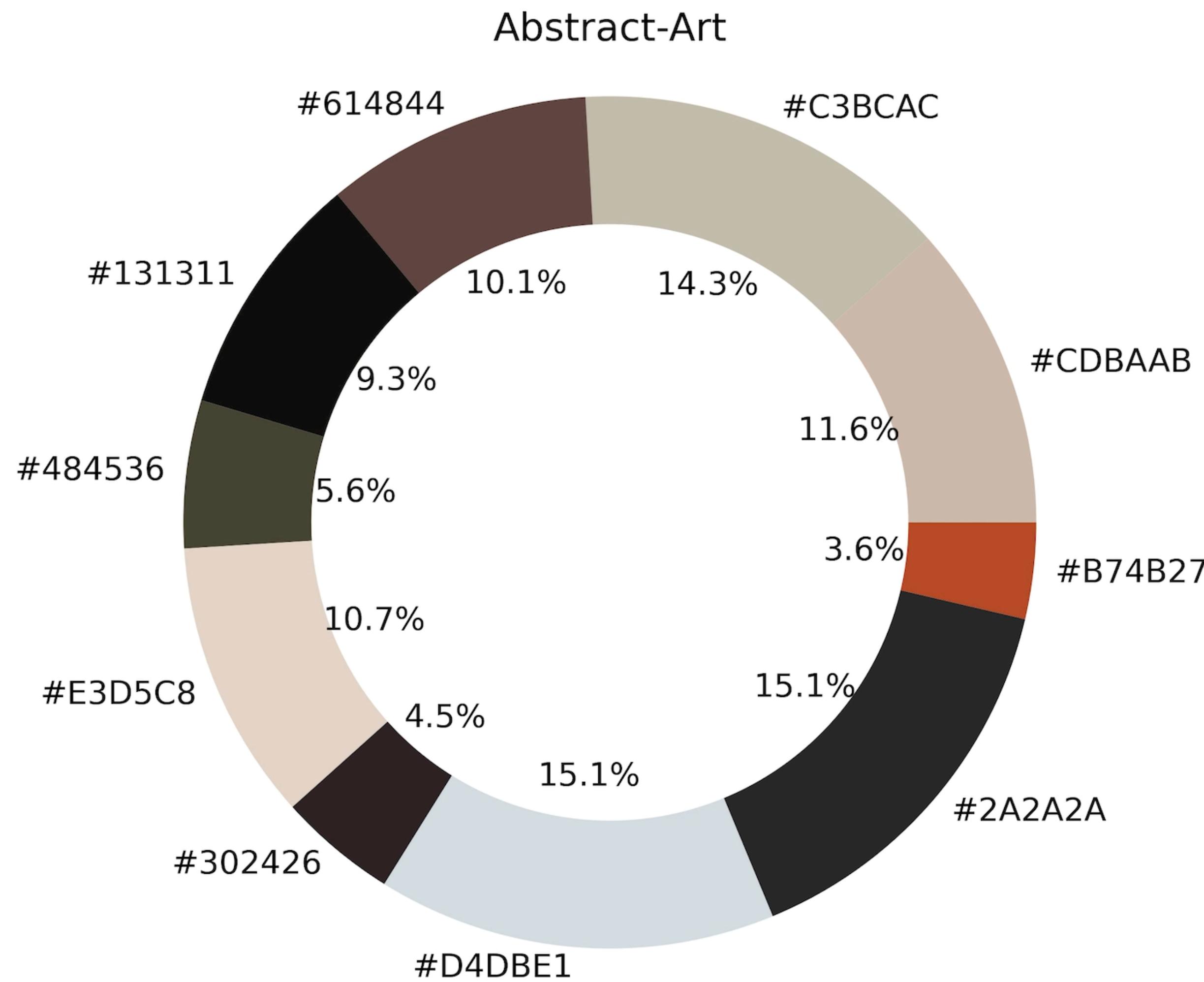
	Movement	Pos_avg	Neu_avg	Neg_avg
0	Abstract-Art	0.076	0.137	0.042
1	Abstract-Expressionism	0.061	0.131	0.067
2	Art-Informel	0.055	0.128	0.075
3	Baroque	0.198	0.046	0.071
4	Color-Field-Painting	0.085	0.125	0.038
5	Cubism	0.121	0.107	0.050
6	Early-Renaissance	0.238	0.043	0.070
7	Expressionism	0.157	0.061	0.083
8	High-Renaissance	0.261	0.046	0.059
9	Impressionism	0.236	0.044	0.041
10	Lyrical-Abstraction	0.084	0.129	0.053
11	Magic-Realism	0.171	0.076	0.064
12	Minimalism	0.060	0.133	0.043
13	Neo-Expressionism	0.100	0.089	0.089
14	Neoclassicism	0.230	0.044	0.058
15	Northern-Renaissance	0.206	0.050	0.085
16	Pop-Art	0.110	0.114	0.053
17	Post-Impressionism	0.216	0.052	0.044
18	Realism	0.212	0.045	0.059
19	Rococo	0.235	0.045	0.049
20	Romanticism	0.191	0.044	0.075
21	Surrealism	0.086	0.110	0.084

Artists

	Artist	Pos_avg	Neu_avg	Neg_avg
0	Aaron Siskind	0.110	0.088	0.066
1	Abidin Dino	0.050	0.082	0.121
2	Abraham Manievich	0.080	0.054	0.142
3	Abraham van Strij	0.297	0.030	0.024
4	Ad Reinhardt	0.054	0.133	0.047
...
996	Yves Klein	0.078	0.115	0.023
997	Yves Tanguy	0.053	0.098	0.122
998	Zao Wou-Ki	0.037	0.126	0.083
999	Zaya	0.275	0.057	0.026
1000	Zhang Xiaogang	0.104	0.085	0.100

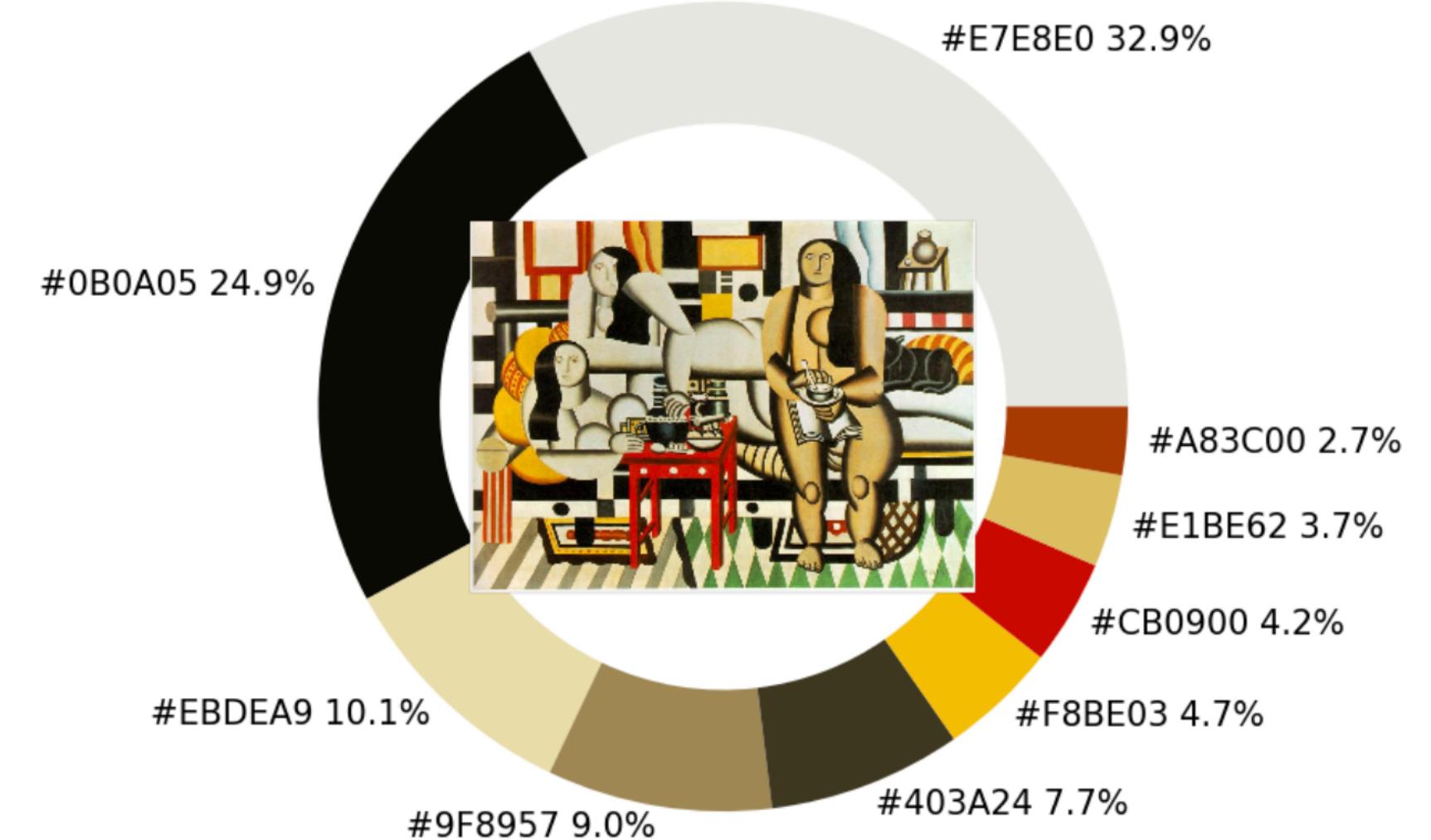
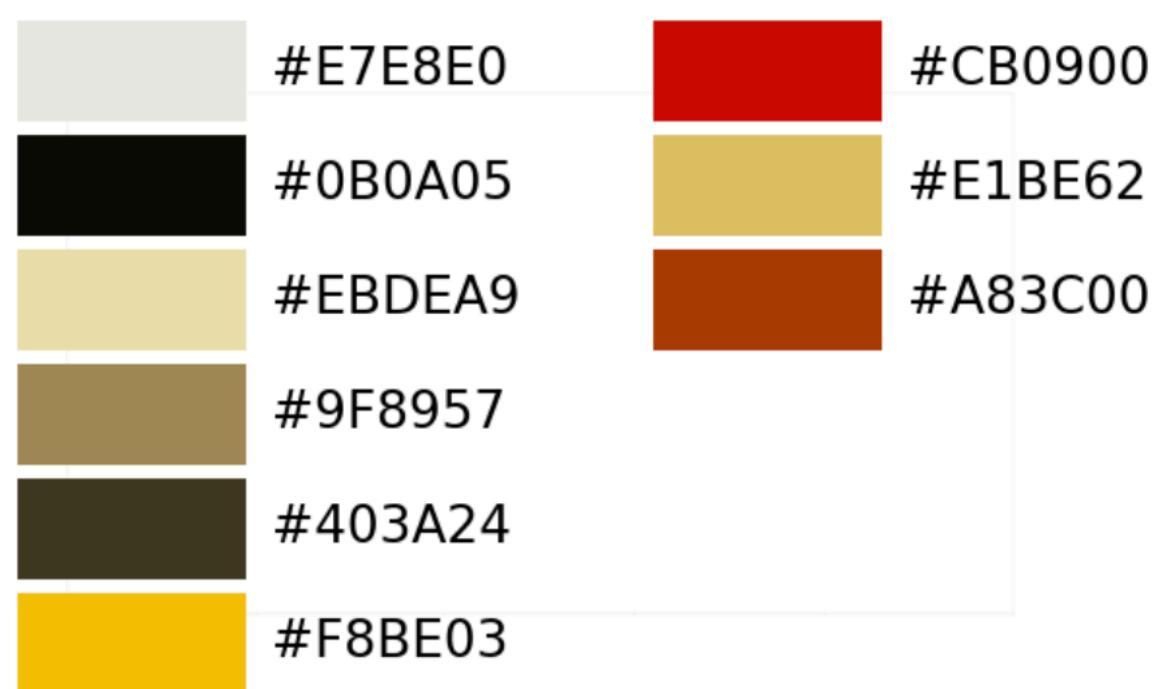
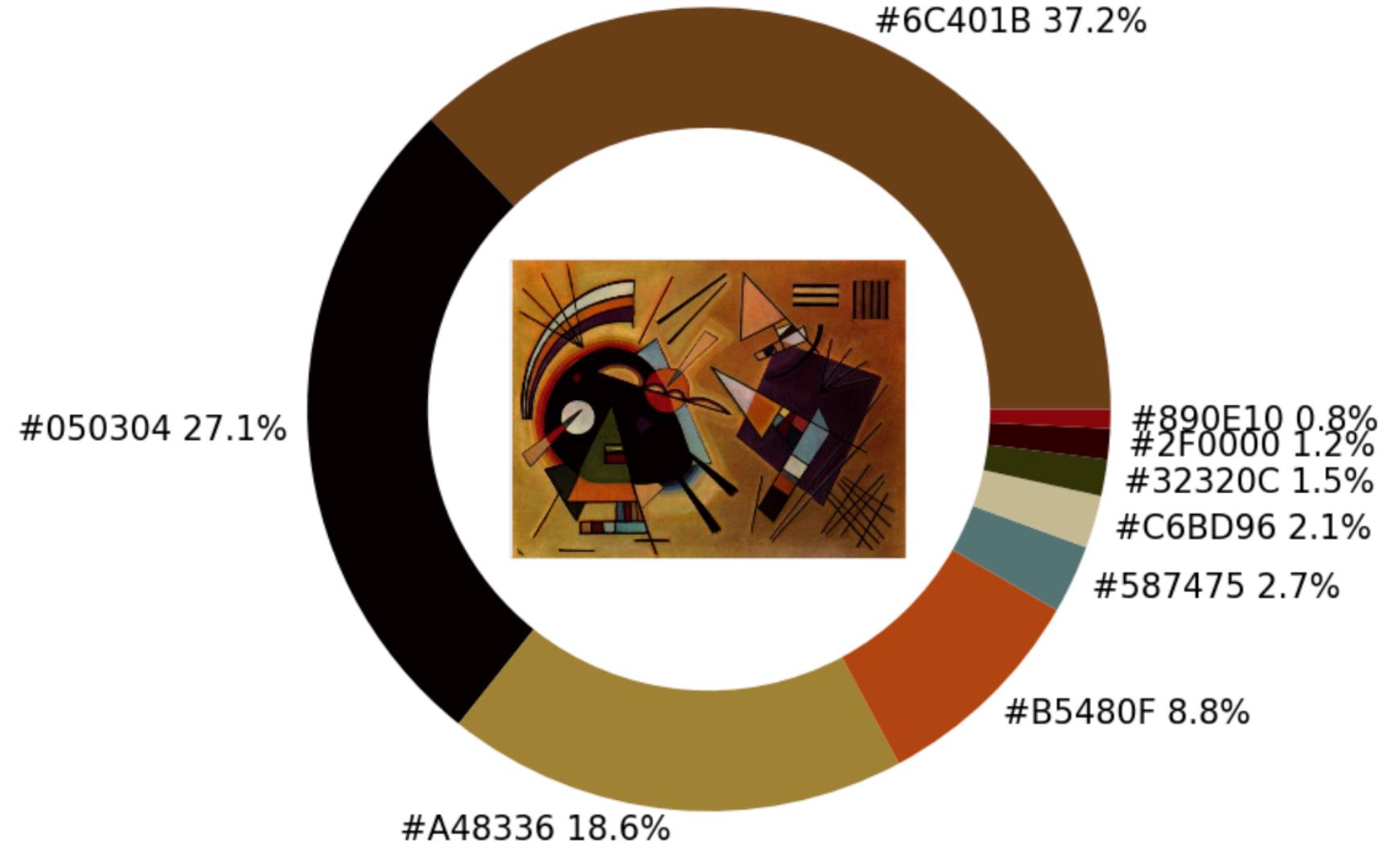
EDA & ETL

Color extraction



EDA & ETL

Color extraction



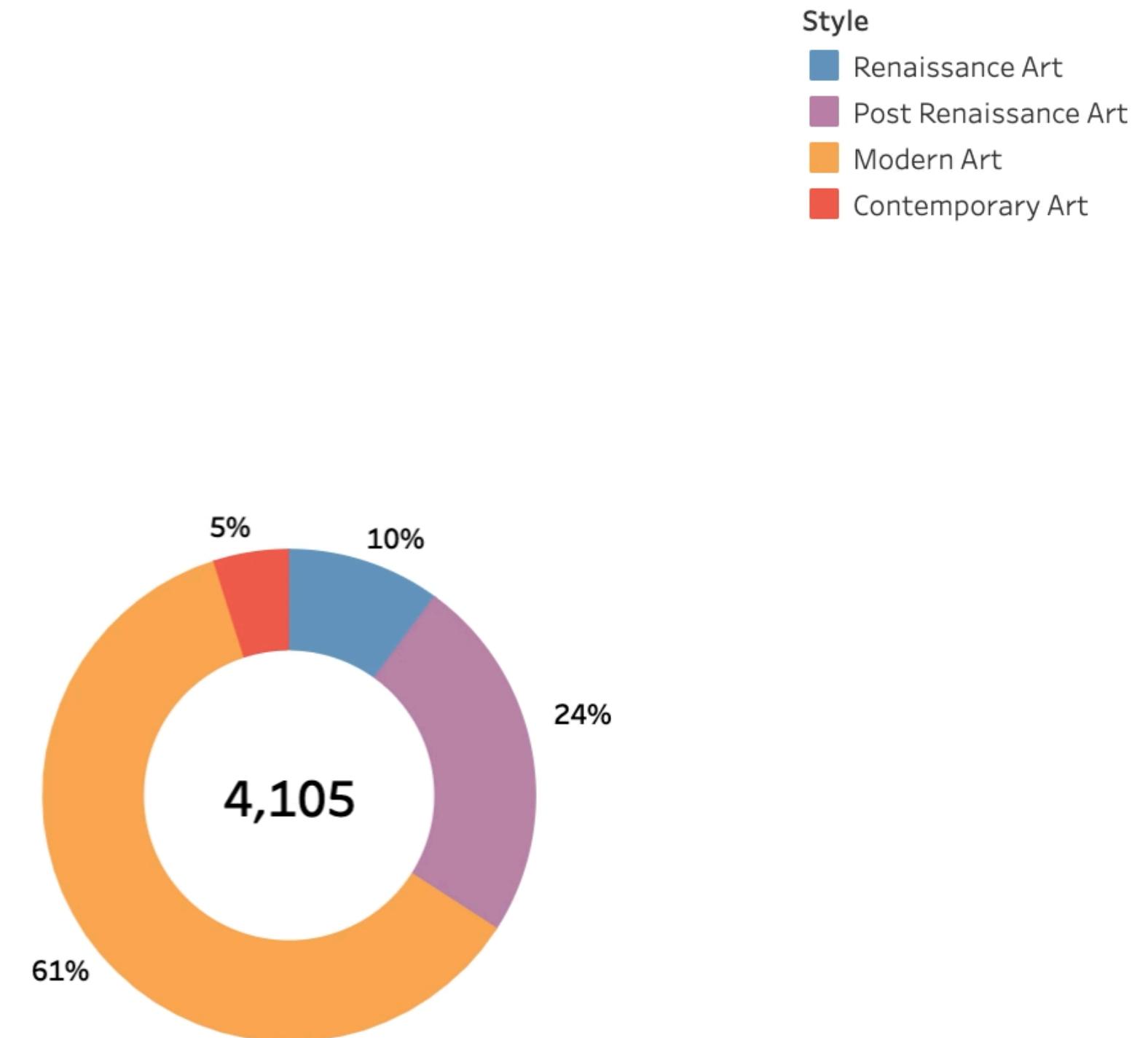
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Visualization

Visualisation

Tableau

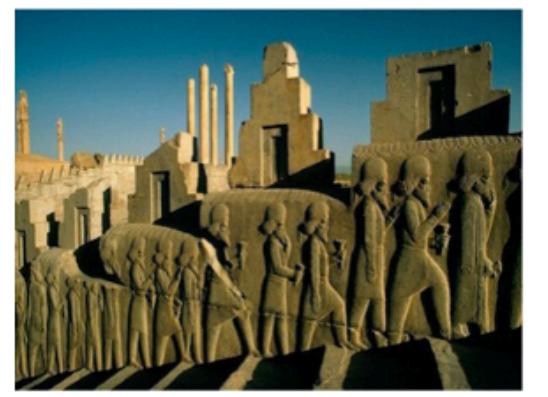


Neural Transfer Style

NTS

How it works?

content image



style image



generated image



Ancient city of Persepolis

+

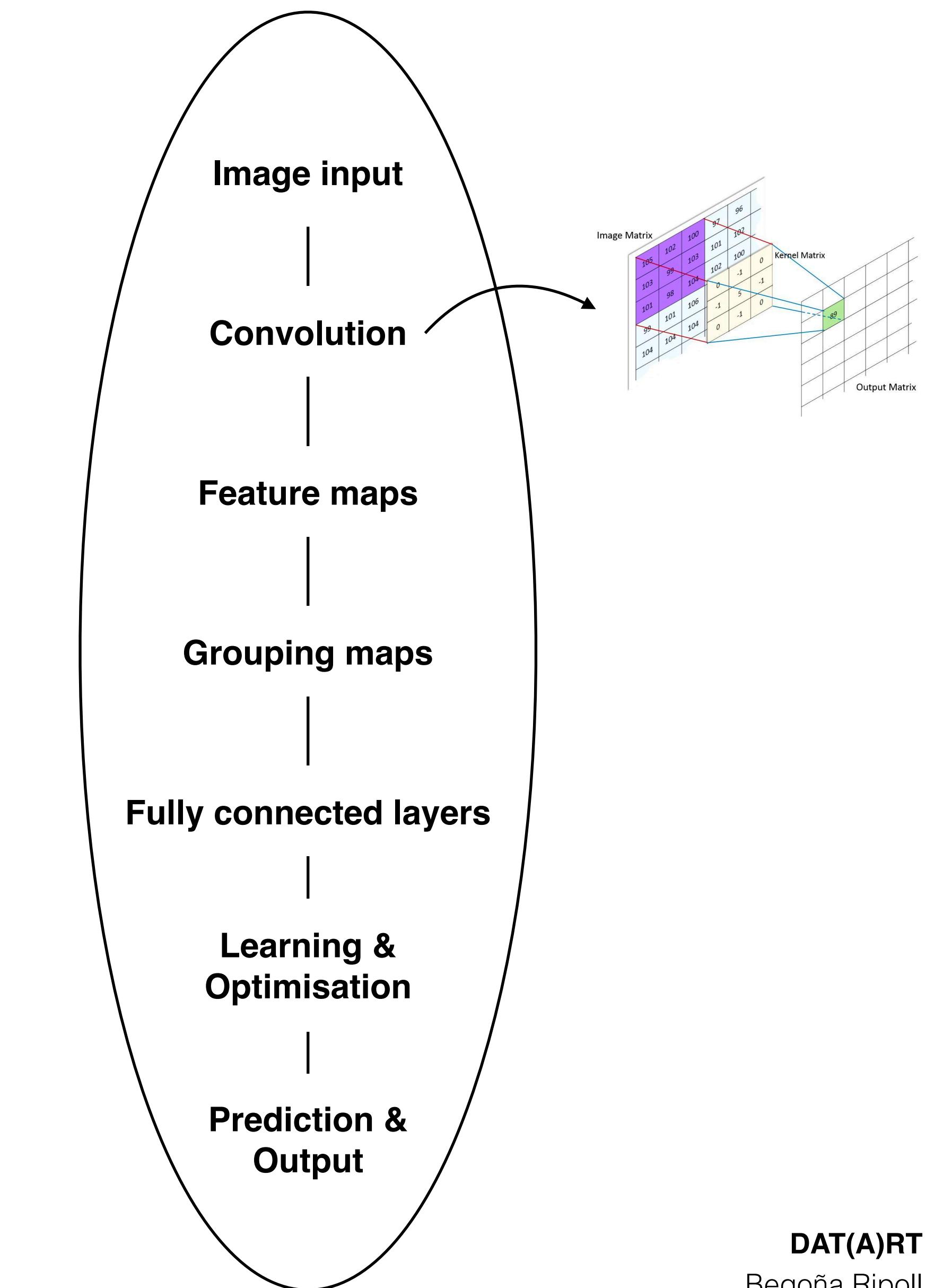
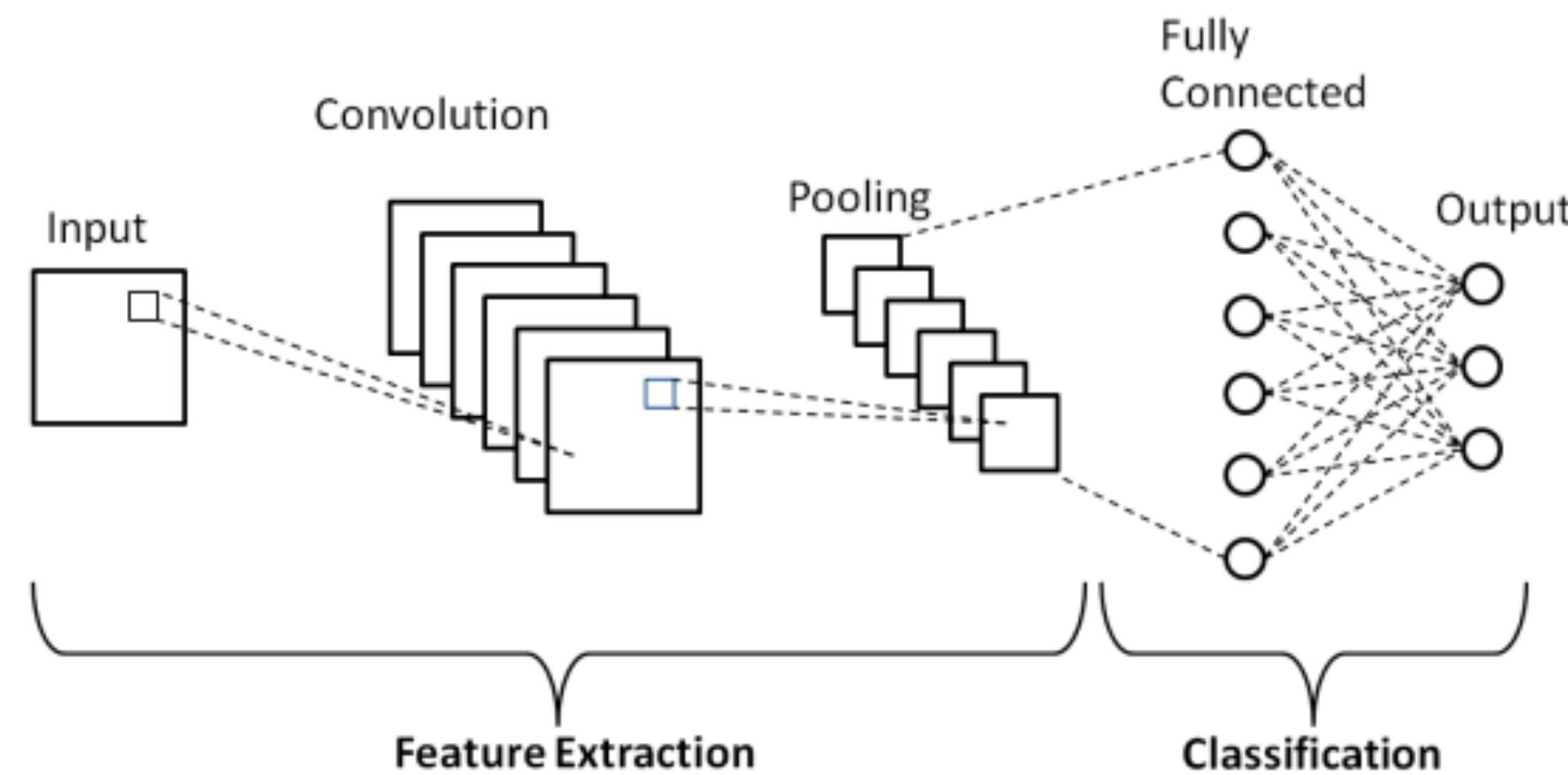
The Starry Night (Van Gogh)

=

Persepolis
in Van Gogh style

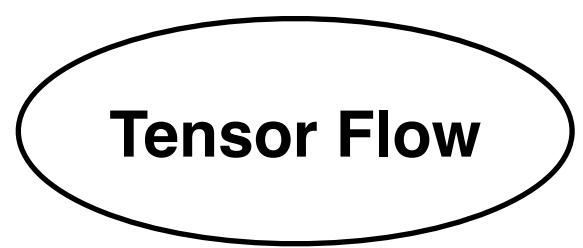
NTS

How it works?

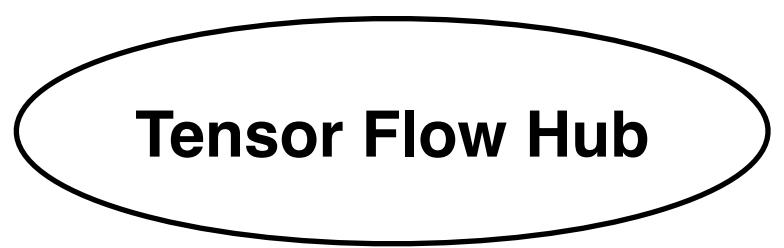


NTS

My Model



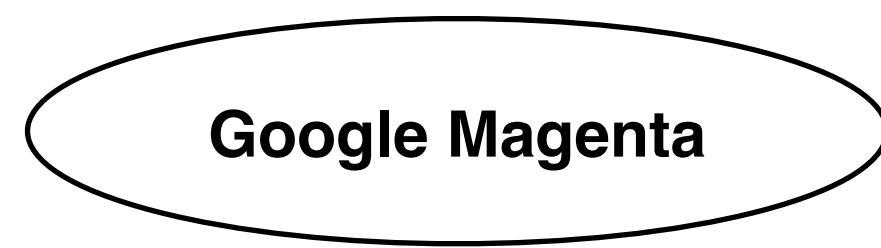
open source library used for machine learning tasks and neural network model development



Tensorflow extension that provides pre-trained machine learning models



used by TensorFlow Hub to compress the format of the models



arbitrary image styling model

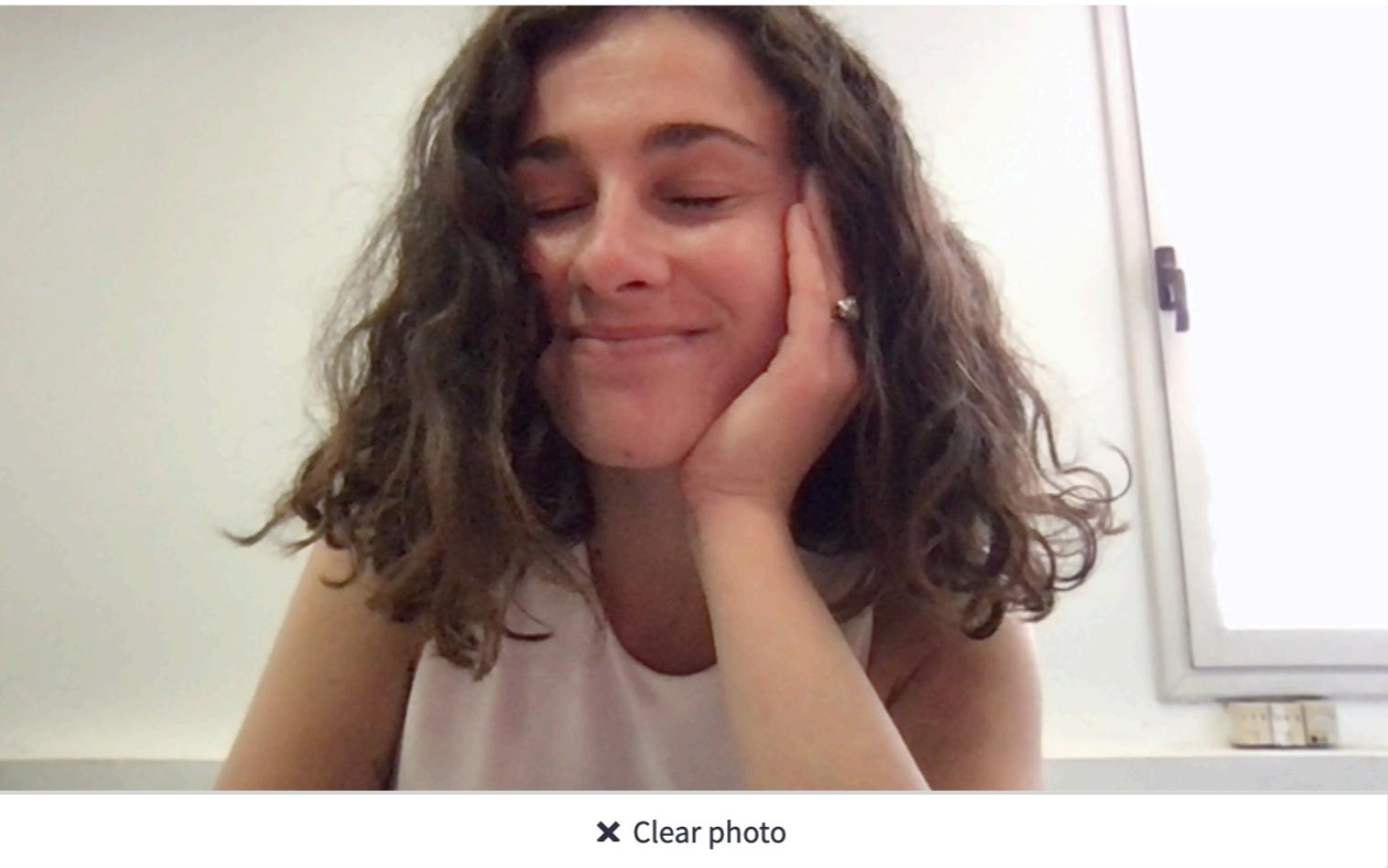
Interface & Results

Interface

Streamlit

#1 Take your best selfie 📸

Say cheese!



DAT(A)RT

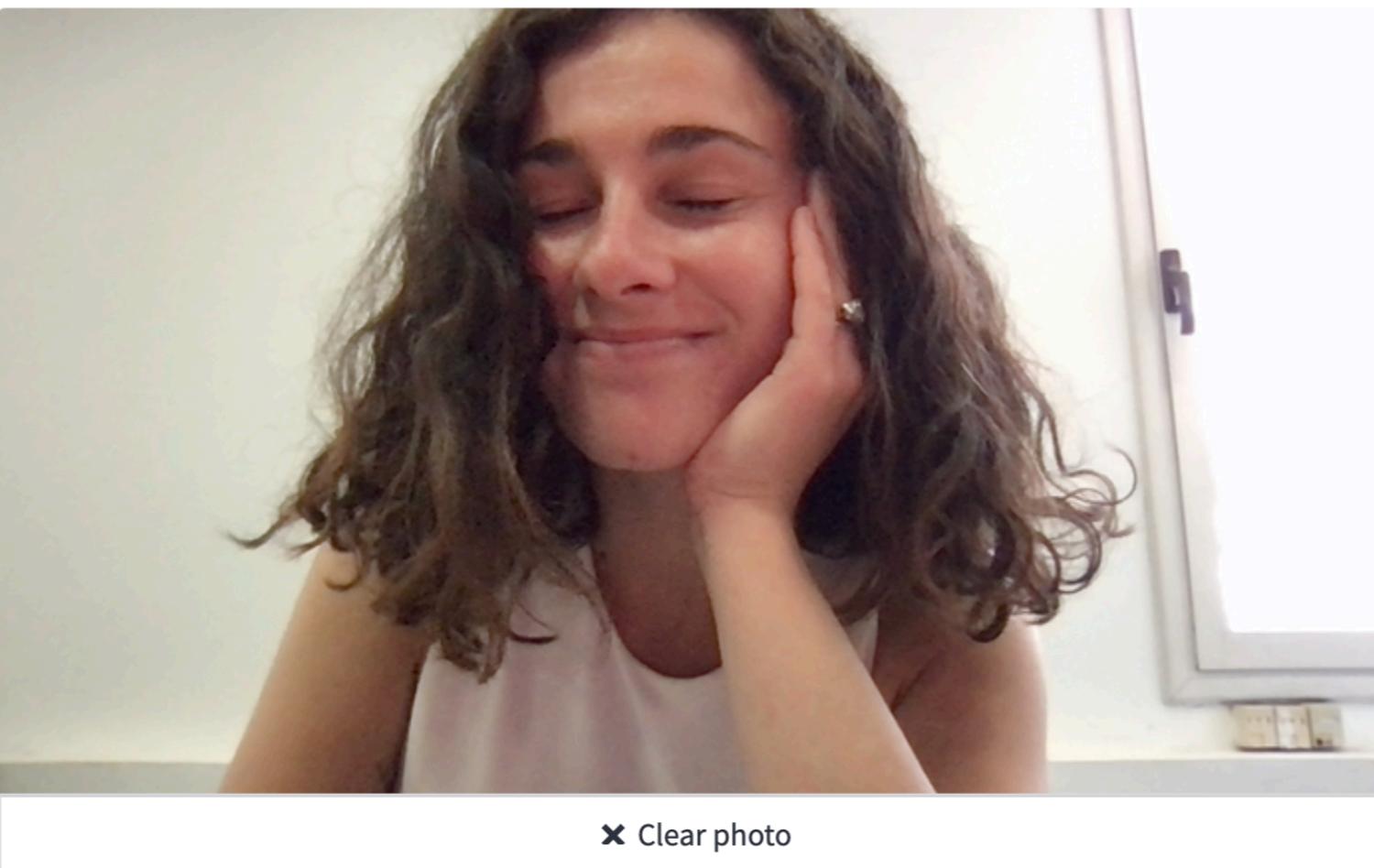
Begoña Ripoll

Interface

Streamlit

#1 Take your best selfie 📸

Say cheese!



#2 How do you feel today? 😊

Positive 😊



Neutral 😐



Negative 😞



DAT(A)RT

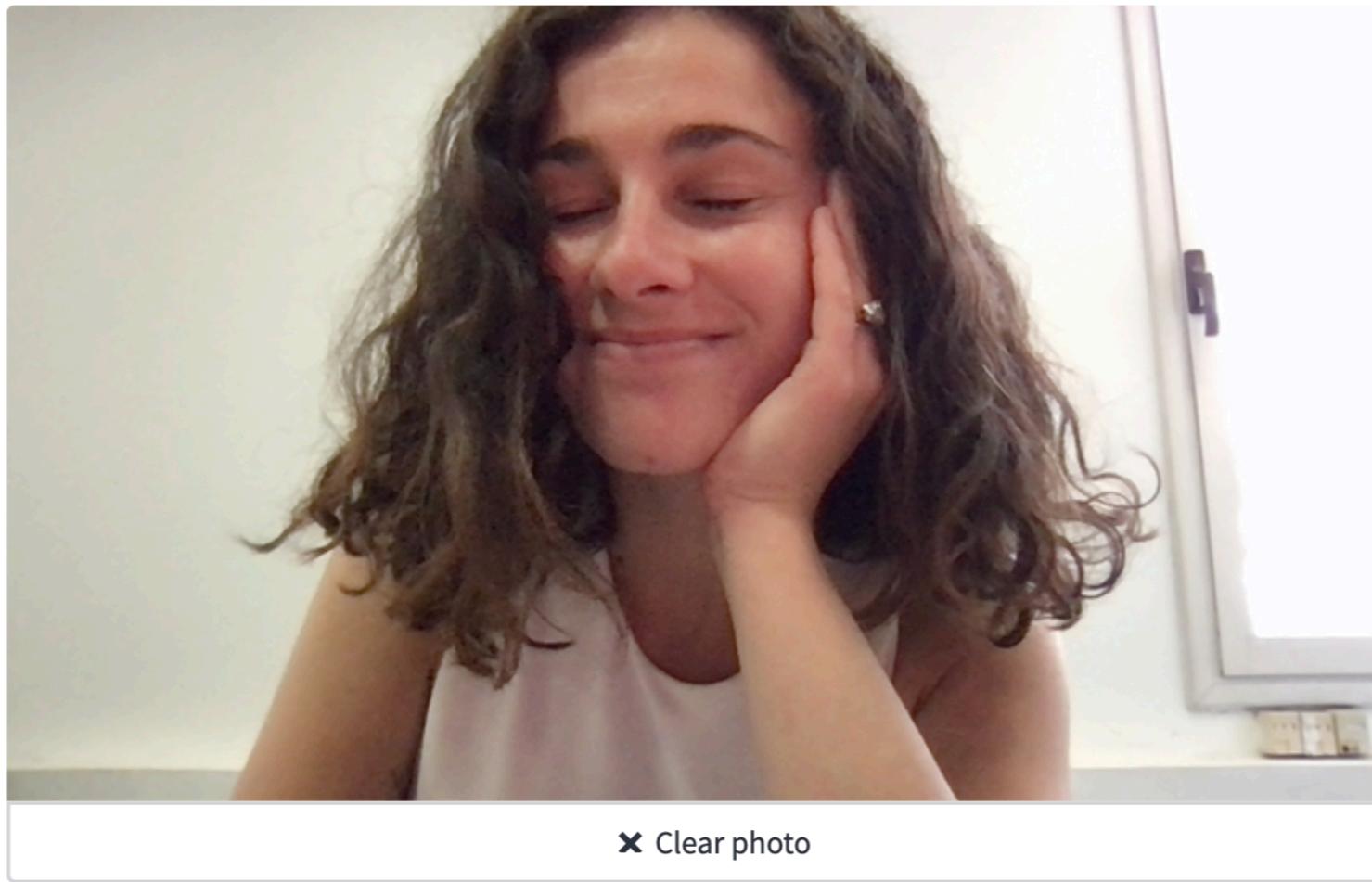
Begoña Ripoll

Interface

Streamlit

#1 Take your best selfie 📸

Say cheese!



#2 How do you feel today? 😊

Positive 😊



Neutral 😐



Negative 😞



#3 Choose a movement or artist 🎨

Movement



Movement Image



Information

Artist: Peter Phillips

Movement: Pop-Art

Title: Spectrocoupling

Year: 1972

Movement that best defines you today

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Next steps

Next steps

- Extend the database by collecting information from more artworks, more movements and more authors.
Include works by emerging artists to make their work more visible.
- Experiment with more complex neural networks to improve to generate images of higher quality and accuracy during style transfer.
- Create color palettes by artist to explore new metrics and patterns, such as the evolution of color preferences over time.
- Optimise some redundant code features.
- Consider feedback from real users to identify possible improvements to the interface and functionality.

thanks:)