



Biometric Technologies and Behavioural Security

Tutorial 8 - Behavioural Biometrics - Facial Expression Recognition



Discrete emotion theory



Anger



Disgust



Fear



Happiness



Sadness

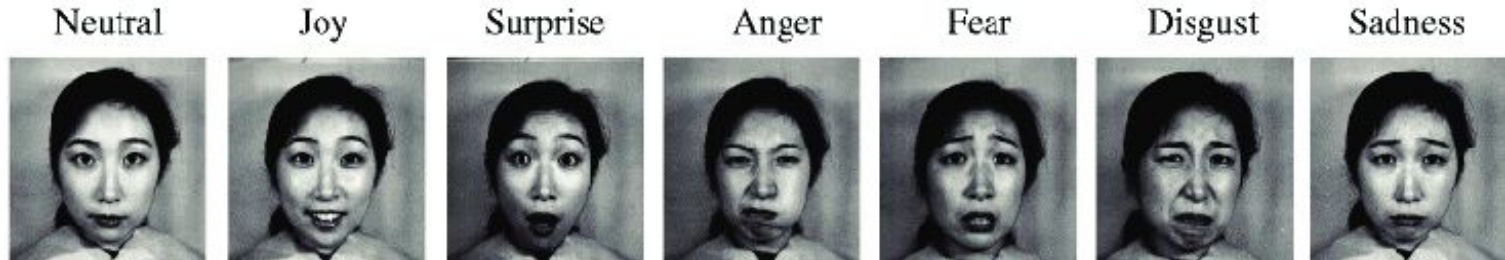


Surprise

In vitro (laboratory) Datasets

https://en.wikipedia.org/wiki/Facial_expression_databases

The Jaffe Dataset:



Texture-based approaches (BSIF): <https://bit.ly/2Udc7Ne>

A simple CNN: <https://bit.ly/3eWkft8>

In the wild (real world) Datasets

FER2013 Dataset - Challenges in Representation Learning:
Facial Expression Recognition Challenge (3,589 samples).

The human accuracy on this dataset is around 65.5%.

Fear



Surprise



Surprise



Sad



Happy



Sad



FER2013 Dataset Challenge Results

Overview Data Discussion **Leaderboard** Rules

■ In the money ■ Gold ■ Silver ■ Bronze

#	Team Name	Notebook	Team Members	Score	Entries	Last
1	RBM			0.69768	5	7y
2	Unsupervised		 	0.69072	8	7y
3	Maxim Milakov			0.68152	7	7y
4	Radu+Marius+Cristi		 	0.67316	6	7y
5	Lor.Voldy			0.64558	2	7y
6	Eric Cartman			0.64446	1	7y
7	ryank			0.64056	2	7y
8	Xavier Bouthillier			0.62775	1	7y
9	sayit			0.61911	2	7y



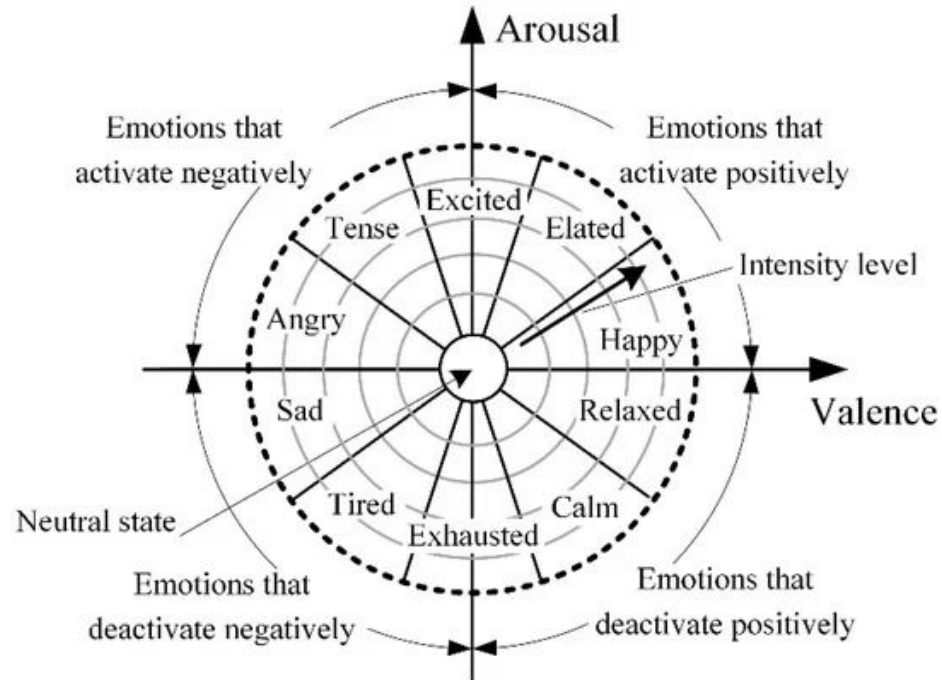
FER2013 Dataset: some Deep Learning Approach examples

<https://bit.ly/3eRi4Hs>

(https://github.com/mayurmadnani/fer/blob/master/FER_CNN.ipynb)

<https://medium.com/free-code-camp/facial-emotion-recognition-develop-a-c-n-n-and-break-into-kaggle-top-10-f618c024faa7>

Dimensional models of emotion



The Aff-wild dataset

<https://github.com/dkollias/Aff-Wild-models>

