Idea #1

Description:
This is a project that recognizes a few hand gestures in a picture, by using deep learning.

Objective:
The objective is to recognize a few easy gestures, by eliminating the noise from the input. It would be my first computer vision project.

Details:
The dataset will be labeled so this is supervised learning. In order to keep things simple, I could use for training a video that will be transformed into frames that will represent the inputs. The video would represent several minutes for each of the gestures, from the same person but in different positions. This would simplify the data acquisition part, because I can label from the second ‘x’ to the second ‘y’ the gesture ‘z’. The pictures that have no label attached will be discarded.
For the test set, there would be new pictures but similar to the ones used for training and from the same person.

Idea #2

Description:
This is a small project regarding the effectiveness of the Polio vaccine

Objective:
The objective would be to analyze the cases and vaccines effectiveness from the past in every country and infer the date when the Polio might be eradicated.

Details:
The data is taken from different sources, such as: https://ourworldindata.org/polio#data-sources https://extranet.who.int/polis/public/CaseCount.aspx or https://www.who.int/immunization/monitoring_surveillance/data/en/
As predictors, the most common ones are sewage samples collected from random sites and analyzed in laboratories.
A special predictor would be the wild polio virus that decreased form 350,000 cases in 1988 to only 33 cases in 2018. There are three types, two of them being considered eradicated. However, the number of cases decreased monotonically until 2017 when there were 22 cases and increased to 33 cases in 2018.

Idea #3

Description:
Somehow similar to the first idea, this project finds the “best” photo from a similar set of photos of the same person.

Objective:
The “best” photo is the one that has characteristics similar to ISO-compliant photos. This is again supervised learning, the photos must be labeled.

Details:
This idea can be used in production, at Image Capture. The subject moves continuously, the face expression is not the same all the time, he/she can blink, the light can cast shadows in certain cases, etc. The “best” photo is the one that minimizes all these issues.
As for idea #1, I would use small videos of a person in front of a camera, and I shall manually select the best frame from that video. With enough labels, a smart algorithm should select only the photos that minimize the “n” issues mentioned above – and the selection can be done automatically and validated by a human operator. This would virtually eliminate the “bad” photos taken for various documents.