**Dataset Preparation of Object Detector**

* **Challenges in image classification:**

There are following main challenges in image classification:

* **~~1. Intra-Class Variation~~**
* **2. Scale Variation**
* **3. View-Point Variation**
* **4. Occlusion**
* **5. Illumination**
* **~~6. Background Clutter~~**
* **7. Illusion**
* **Limitation of YOLO-enet-tiny(18.9 MB)**
  + Failed to detect Multiple Persons
  + False detection of “person” class on background images(Mostly Chairs).
* **Things need to be understand:**

1. How important is validation data?
2. How important is the distribution of every class?
3. Why sometimes “face” is detected but “person” is not detected?

Face labeled but person not :

14 ['d2\_88526\_2020-07-14\_17351\_.xml', 'd2\_68356\_2020-06-02\_18544\_.xml', 'd2\_85314\_2020-07-10\_7009\_.xml', 'd2\_88526\_2020-07-14\_17344\_.xml', 'd2\_88526\_2020-07-14\_17352\_.xml', 'd2\_80306\_2020-07-02\_14603\_.xml', 'd1\_9598.xml', 'd2\_91042\_2020-07-15\_352\_.xml', 'd1\_5991.xml', 'd2\_80175\_2020-07-02\_16998\_.xml', 'd1\_21552.xml', 'd2\_87563\_2020-07-13\_14080\_.xml', 'd2\_79981\_2020-07-01\_12966\_.xml', 'd2\_89312\_2020-07-14\_3661\_.xml']

1. **Dataset Information :**

1. Multiple persons : [MP- 32, Single face : 36, no face - 13], Single Person: [No-face- 1878, face-16655]
2. Face visible - 5000, Face-not-visible- 5000, Multiple faces - 5000, Background Motion - 5000 (black & white race)
3. Need to collect dataset where face-not-visible.
4. Multiple faces and Background Motion Images: 5000 (Subjects - 1000).
5. **What should label and what should not:**

| **Scenarios** | **What's labeled till now?** | **What should be labeled?** |
| --- | --- | --- |
| **If the body is partially visible** | Rutuja-yes , Sheetal- Yes | Yes |
| **If a person in a poster** | Rutuja-Yes, but that should be visible clearly ,Sheetal-No | Yes, but that should be visible clearly |
| **If reflection of a person in mirror** | Rutuja-No, Sheetal-No | Yes, but that should be visible clearly |
| **What if a person is holding papers** | Rutuja-No, Sheetal-Yes,but if a person's body part is clearly visible otherwise not. | If person hidden behind and not clearly visible then do not label it |
| **If a person is sitting in very dark lighting conditions** | Rutuja-Yes, but that should be visible clearly, Sheetal-Yes, but that should be visible clearly | Yes, but that should be visible clearly |
| **If only the hand or some body part is visible** | Rutuja-Yes, Sheetal-Hand only - No, Torso - Yes, Leg- No | Hand only - No, Torso - Yes, Leg- No |
| **Only forehead is visible** | Rutuja-No, Sheetal-No | No |

1. **Dataset Structure for “person” class: todo - how far from screen?**

Person

├── Multiple

│ ├── Both\_Faces\_Visible

│ │ ├── Black

│ │ ├── Poster\_in\_Background

│ │ ├── unhealthy-lightning

│ │ ├── Wearing\_Specs

│ │ └── White

│ ├── Face\_Not\_Visible

│ │ ├── Black

│ │ ├── Poster\_in\_Background

│ │ ├── unhealthy-lightning

│ │ ├── Wearing\_Specs

│ │ └── White

│ ├── Partial\_Face\_Visible

│ │ ├── Black

│ │ ├── Poster\_in\_Background

│ │ ├── unhealthy-lightning

│ │ ├── Wearing\_Specs

│ │ └── White

│ └── Single\_Face\_Visible

│ ├── Black

│ ├── Poster\_in\_Background

│ ├── unhealthy-lightning

│ ├── Wearing\_Specs

│ └── White

└── Single

├── Face\_Not-visible

│ ├── Black

│ ├── unhealthy-lightning

│ ├── Wearing\_Specs

│ └── White

├── Face\_Visible

│ ├── Black

│ ├── unhealthy-lightning

│ ├── Wearing\_Specs

│ └── White

└── Partial\_Face\_Visible

├── Black

├── unhealthy-lightning

├── Wearing\_Specs

└── White