Pixie ML POC Test - Tutorial

# **Pre-requisites**

In order to run the examples in this pack, the pre requisites are listed below:

1. **Install Python**

Install Python 3.7, preferably [Anaconda](https://www.anaconda.com/distribution/) distribution. Installation tutorial [here](https://docs.anaconda.com/anaconda/install/).

To verify if Anaconda was successfully installed on your system, try to open an [Anaconda Prompt](https://docs.anaconda.com/anaconda/install/verify-install/#conda). On Anaconda Prompt, type:

python --version

to verify Python's version installed and:

conda --version

to verify Conda version. If no errors displayed, the installation was successful.

1. **Install *pip***

*Pip* is a famous package installer/manager for Python. Anaconda usually installs *pip* by default, but if you want to verify its installation by yourself, open an Anaconda Prompt and run the command:

pip --version

*Pip* version and directory location should be correctly displayed. Otherwise, if any error occurs, to install *pip* using conda:

conda install -U pip

1. **Download the project**

Download the compressed project folder named "Pixie\_AI\_POC\_examples.7z", and then extract it to any directory.

1. **Install Specific dependencies**

To install specific dependencies required for the project:

1. Open an Anaconda Prompt.
2. Change directory to the previously extracted folder "Pixie\_AI\_POC\_examples".
3. Run the following line of code to install all packages listed on "requirements.txt", and wait for the success message:

pip install -r requirements.txt

# **Command Line Script**

The command line script demo provides a straightforward application of the ML solution developed during POC phase. It provides a Python script that receives an input “*.jpg*” image, apply the designed ML solution, then save the resulting image into a given directory and file. This resulting image contains a bounding box around the detected baby and its classification: (lying on) back or stomach.

To run it:

1. Open an Anaconda Prompt.
2. Change directory to the previously extracted folder "Pixie\_AI\_POC\_examples".
3. Run the following line of code, passing the path to any image as the following:

python run\_position\_detection.py --in TEST\_IMAGES/test\_1.jpg

or

python run\_position\_detection.py -i TEST\_IMAGES/test\_1.jpg

Where input argument is a path to any image in a local directory. This command will generate the respective image resulted with name "output.jpg" on the same directory.

To choose an output directory and/or filename:

python run\_position\_detection.py --in *C:\path\to\test\_image.jpg* --out *C:\path\to\output\_img.jpg*

As an example of choosing output image path and name:

python run\_position\_detection.py -–in TEST\_IMAGES/test\_2.jpg --out TEST\_RESULTS/result\_2.jpg

For any help regarding "run\_position\_detection.py", run:

python run\_position\_detection.py --help

# **Standalone Flask Server**

This section contains a tutorial on running a simple local Flask application that simulates the baby detection/classification workflow designed for the POC. The Flask application simulates an API, which receives the link to an internet "*.jpg*" image, and return a JSON structure containing the evaluation made by the ML model: coordinates for the baby bounding box, the classification label ("back" or "stomach") and its score. Note that the application does not suit for running on production environment, only for test/simulation purposes.

To run it:

1. Open an Anaconda Prompt.
2. Change directory to the previously extracted folder "Pixie\_AI\_POC\_examples".
3. Run the following code to start the Flask app (do not close the prompt):

python flask\_sample\_yolo.py

1. Open a web browser and navigate to: *http://127.0.0.1:5000/* . The message "Is this baby sleeping safely?" shall be displayed.
2. For testing with an internet image, use the link:

*http://127.0.0.1:5000/api/v1/is\_baby\_safe\_yolo?baby\_url= \<Link to image here\>*

1. Example:

*http://127.0.0.1:5000/api/v1/is\_baby\_safe\_yolo?baby\_url=https://www.todaysparent.com/wp-content/uploads/2017/01/tips-for-getting-baby-to-sleep-in-crib-during-naptime.jpg*

1. The response to this request, should be a JSON:

[

{

"box": [118, 74, 903, 1018],

"predicted\_class": "back",

"score": 0.9945157766342163

}

]