## SensorIO

- imagePath: string
- videoPath: string
- outputWidth: int
- outputHeight: int

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+ SensorIO(): void
+ setOutputWidth(int width): void
+  setOutputHeight(int height): void
+ getOutputWidth(): int
+ getOutputHeight(): int
+ setImagePath(string path): void
+ setVideoPath(string path): void
+ getImagePath(): string
+ getVideoPath(): string
+ getDataType(cv::CommandLineParser parser): string
+ getDataPath(cv::CommandLineParser& parser, string& dataType ): string
+ imageProcessor(string& rwoperation, cv::Mat frame ): cv::VideoCapture
+ videoProcessor(string& ops, cv::Mat frame , cv::VideoWriter video): cv::VideoCapture

## HumanDetection

- inputWidth: int
- inputHeight: int
- averageHeight: int
- confidenceThreshold: int
- nmsThreshold: int

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+ HumanDetection(): void
+ setInputWidth(int width): void
+ setInputHeight(int height): void
+ setConfidenceThreshold(float confidThres): void
+ setNmsThreshold(float nmsThres) : void
+ getInputWidth(): int
+ getInputHeight(): int
+ setConfidenceThreshold(): float
+ getNmsThreshold(): float
+ eliminateBox(float confThreshold): void
+ drawBox(int humanId, float conf, int left, int top, int right, int bottom, frame): void
+ getOutputNames(cv::dnn::Net& net): vector<string>
+ Detection(cv::CommandLineParser parser, SensorIO io, HumanDetection human_detection, YoloConfig config):  void
+ humanDistance(int averageHeight, int boxHeight, double focalLength, double sensorHeight, int frameHeight): double
+ humanPosition(string humanId, double distance): void

## YoloConfig

- yoloClasses: vector<string>
- yoloClassesLocation: string
- yoloConfigurationFile: string
- yoloWeightFile: string

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+ YoloConfig()
+ getYoloClasses(): vector<string>
+ setYoloClasses(vector<string>): void
+ getYoloClassesLocation(): string
+ setYoloClassesLocation(string): void
+ getYoloConfigurationFile(): string
+ setYoloConfigurationFile(string): void
+ getYoloWeightFile(): string
+ setYoloWeightFile(string): void

## FrameTransformation

- transformationMatrix: vector<vector <double>>

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+ FrameTransformation(): void
+ setTransformationMatrix(vector<vector<double>> matrix): void
+ getTransformationMatrix(): vector<vector<double>>
+ transformFrame(vector<double> position): vector<double>