## HumanDetector

- avg\_human\_height: double

- tracking\_edge: int

- max\_tracking\_distance: double

- detector: Detector

- frame: cv::Mat

- detected\_humans: vector<cv::Point3d>

- skipped\_detections: int

- trackings: vector<cv::Rect2d>

- trackers: vector<cv::Ptr<cv::Tracker>>

- create\_colors(): void

- get\_color(int): cv::Scalar

+ track\_positions(): vector(cv::Point3d)

+ get\_3d\_position(): vector<cv::Point3d>

+ show\_output(): bool

+ set\_average\_human\_height(double): void

## Detector

+ camera: cv::VideoCapture

- frame: cv::Mat

- hog\_detector: cv::HOGDescriptor

+ fps: double

- multiTracker: cv::Ptr<cv::MultiTracker>

+ focal\_length: double

+ cx: double

+ cy: double

+ detect\_object(): cv::Mat

+ resize\_bounding\_box(cv::Rect\*): void

+ get\_centroid(): cv::Point2d

+ get\_x\_and\_y(cv::Rect, double): cv::Point2d

+ set\_detection\_object(cv::InputArray&) : void

+ set\_camera\_properties(string) : void

passes 3D positon of detected human wrt camera frame

## PoseTransformer

- camFrame: Eigen::Matrix4d

- robotFrame: Eigen::Matrix4d

+ set\_cam\_frame (vector<double>): void

+ set\_robot\_frame (vector<double>): void

+ get\_pose\_in\_robot\_frame (vector<double>): vector<double>

- get\_rotation\_matrix (vector<double>): Eigen::Matrix3d