

# AND/OR Graph-based Human Pose Recovery from Depth Images

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**Problem definition** Recovering human pose from static images has become a widely researched topic in the latest years, specially since the introduction of realtime depth cameras. Human action analysis and human body tracking are two of the main scopes of solving this problem where the biggest challenge is located in the huge variation in appearance (i.e. clothes, body shapes, sizes) and huge number of possible human poses. State of the art approaches like [1] have their main limitation when dealing with occluded parts of the body, producing mistaken body poses when parts are not seen by the camera.

**Proposal** We propose an approach that combines two different algorithms to parse the human body. First, using Random Forests we perform a per-pixel classification in the depth image [1] to create part proposals, which are positions in the image where each body part has high probability of appearing. Second, proposals are used to infer the final human pose using an AND/OR graph [2].

**Discussion** The obtained results show that we are able to recover the human pose reducing the number of false positives detection of limb proposals using a bottom-up parsing of the AND/OR graph. As future work, we plan to deal with the problem of occlusion detection by extending the procedure with a spatial-coherence top-down parsing of the AND/OR graph.

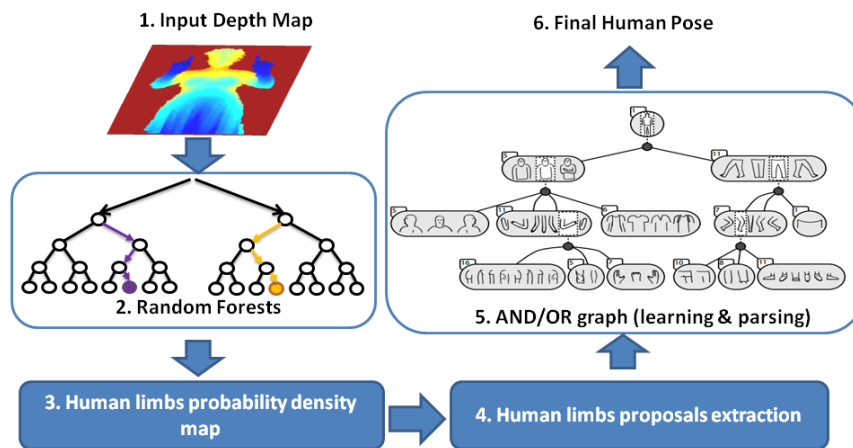


Figure 1: Graphical representation of the presented methodology.

## References

- [1] Jamie Shotton, Andrew Fitzgibbon, Mat Cook, Toby Sharp, Mark Finocchio, Richard Moore, Alex Kipman, and Andrew Blake. "Real-Time Human Pose Recognition in Parts from a Single Depth Image", in *CVPR 2011, IEEE*.
- [2] Long Zhu, Yuanhao Chen, Yifei Lu, Chenxi Li and Alan Yuille. "Max Margin AND/OR Graph Learning for Parsing the Human Body". *CVPR 2008, IEEE*.